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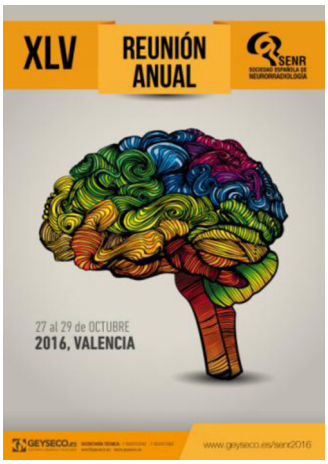
ABSTRACTS

XLV Neuroradiology Congress

Valencia, Spain (October 27-29, 2016)



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2016 Activities of the Spanish Society of Neuroradiology

Several scientific events were held in 2016.

- The XII National Course of Neuroradiology, which was held in Madrid the 19th and 20th of February, was devoted to cerebrovascular diseases with an attendance of over 200 participants.
- The SENR held its XLV Annual Meeting in Valencia on 27-29 October 2016 under the presidency of Antonio Jose Revert Ventura. This Annual Meeting included an advanced course focused in Head and Neck Pathology. In addition to the excellent Spanish neuroradiologists, several renowned international neuroradiologists, such as Georges Rodesch and Mauricio Castillo were invited to lecture in the meeting.

2016 Honorary Members of the Spanish Society of Neuroradiology

Dr. Manolo de Juan

Manolo de Juan was born in Castellón de la Plana in 1949 and obtained his Medical Degree in 1975 from the Universidad Complutense in Madrid. He specialized in Radiology in 1979 in the Hospital Puerta de Hierro, in Madrid, and obtained his PhD degree in 1998.

He initially worked as Neuroradiologist at the Hospital Gregorio Marañón in Madrid from 1979 to 1982. That same year he moved to Barcelona to work at the Hospital de la Santa Creu i Sant Pau, where he retired after 33 years of service.

Since the beginning of his professional occupation, his main interest was head and neck radiology. He has actively participated and promoted many joint committees, including, among others, Head and Neck tumors, Othology, Rhinology, Cranial Base Tumors, Pediatric Vascular Diseases and Thyroid associated ophtalmopathy.

Manolo has dedicated to ENT Radiology for over 3 decades with a vast experience in the field. He is author or co-author of 59 papers in international and national Journals, and has written 22 chapters in radiology books, most of them devoted to ENT radiology. He has participated actively in national, European and American meetings with over 135 high quality posters and oral communications, receiving several awards, such as one Magna cum Laude, one Summa cum Laude and several cum Laude in ASNR, 1st poster prize in EHNR, one cum Laude in ECR and two Mentions of merit in ESNR. He has been invited to lecture in more than 70 national and international meetings.

He was appointed as vocal, vicesecretary and secretary of the Board of the Spanish Neuroradiological Society in several mandates from 1984 to 2001.

Dr. De Juan is member of multiple Neuroradiologic Societies, national and international, member of the committee of Head and Neck of the ESNR since 2005 and a reference in ENT radiology in Spain.

2017 Future Activities of the Spanish Society of Neuroradiology

- The next XIII National Course of Neuroradiology devoted to Spinal pathology will be hold on the 23-24th of February in Barcelona. The classical aspects of spinal malformations, degenerative, traumatic, infection, inflammatory, tumoral and vascular diseases will be reviewed. Advanced techniques applied to the spine will also be examined.
- The next XLVI Annual Meeting will take place in Vigo from the 26th to the 28th of October. It will include a pre-congress course devoted to Biomarkers in Neuroradiology. Topics such as structured reporting, brain perfusion, venous vascular disease, stroke or endovascular procedures in brain tumors will be discussed.

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Abstracts

C0008 Carotid-cavernous fistula whitout orbital involvement: diagnosis with spiral ct angiography

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Introduction
A carotid-cavernous fistula (CCF) results from an abnormal communication between the arterial and venous systems within the cavernous sinus in the skull. It is a type of arteriovenous fistula. As arterial blood under high pressure enters the cavernous sinus, the normal venous return to the cavernous sinus is impeded and this causes engorgement of the draining veins, manifesting most dramatically as a sudden engorgement and redness of the eye of the same side. We report a patient with oculomotor cranial nerve palsy without orbital findings to suspect CCF.
From this case, other images of arterialization dural sinuses by spiral CTangiography are reviewed, key to the unequivocal diagnosis of arteriovenous shunt.

Material and Methods
This is the case of 68 years old patient without cardiovascular risk factors that in the last seven months had left recurrent cranial multineuritis episodes (III, IV, VI, V cranial nerve palsy). During those months, several brain MRIs has been made, some of them with intravenous contrast media, that were normal with normal caliber of ophthalmic veins and without exophthalmos.

Results
The CCF diagnosis was possible by spiral CTangiography, even though there were no other radiological findings. It was possible to demonstrate the arterialization of the medial region of the left cavernous sinus, which in a conventional angiographic study corresponds to an early venous staining, diagnosis of CCF.
From this example, other cases of dural sinuses shunts are reviewed, to reinforce the importance in acquiring spiral CTangiography images in arterial time.

Conclusions
A correct acquisition spiral CTangiography images in arterial phase allows us to diagnose abnormal arteriovenous shunt when we display a vein structure showing staining density similar to that presented arterial structures in the same unit time.
CTangiography cannot replace conventional angiography, but it is a non-invasive technique for the0020arteriovenous shunt diagnosis.

C0011 Lymphomatosis cerebri: mri findings

Juan José Sánchez Fernández[1], Paloma Puyalto De Pablo[2], Albert Pons Escoda[1], Monica Cos Domingo[1], Lara Farràs Roca[3], Mario Huete Naval[3], Pablo Naval Baudin[1], Carles Majós Torró[1], Carles Aguilera Grijalvo[1]

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Introduction
Lymphomatsis cerebri (LC) is a rare primary central nervous system non-Hodgkin lymphoma variant. Although it mainly affects white matter, can also involve meninges, eyes and spinal cord. It usually presents with a rapidly progressive dementia and unsteadiness of gait. The treatment of choice in LC is high dose methotrexate-based chemotherapy because its infiltrative nature made the resection insufficient. However, the prognosis of this entity is worse than any other form of brain lymphoma.
The objectives of this presentation are to provide the radiologist the main findings and diagnostic clues of this entity in order to include it in the differential diagnostic list of diffuse white matter disorders.

Material and Methods
1,5T BRAIN MR with conventional and multiparametric sequences was performed in 9 patients that showed characteristic findings of LC. Histology confirmed the diagnosis of LC, after stereotaxic biopsy that was performed in all cases.

Results
In our 9 patients, 95% showed bilateral hemispheric hyperintense T2 and FLAIR infiltrative white matter subcortex involvement that extended to basal ganglia, thalamus or infratentorial spread in 55%. This infiltrative lesions had no contrast enhancement in 6 patients (66,7%) although 3 of the 9 patients (33,3%) showed subtle or patchy enhancement. Restricted diffusion was seen in 6 out of 9 patients. 66,7% of the patients in which spinal cord MRI was performed showed signal abnormalities. MRI - spectroscopy was performed in five patients and showed a peak of choline in 4, lactate in 2 and lipids in 1 patient**.**

Conclusions
Due to the symmetrical distribution of white matter changes, to the prevalent infra-tentorial involvement and the absence of contrast enhancement, the differential diagnosis included hypertensive encephalopathy, acute disseminated encephalomyelitis (ADEM), toxic-metabolic diseases, neoplastic (gliomatosis cerebri) and other infectious and autoimmune encephalitis. Although the clinical and radiologic presentation might not be specific, the diagnosis of LC should be considered in patients with rapidly progressive subcortical dementia.

C0012 Imaging approach to hepatic encephalopathy

Juan José Sánchez Fernández[1], Paloma Puyalto De Pablo[2], Lara Farràs Roca[3], Consuelo Maria Grassi Zamora[3], Angels Camins Simó[1], Diego Palominos Pose[3], Juan Carlos Sardiñas Barrero[3], Sara Castañer Llanes[1], Carles Majós Torró[1], Carles Aguilera Grijalvo[1]

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Introduction
Hepatic encephalopathy (HE) can occur in the setting of acute fulminant hepatic failure or as a more chronic illness; the clinical manifestations are secondary to a misbalance between inhibitory and excitatory neurotransmission and includes a wide spectrum of neuropsychiatric abnormalities occurring in patients with liver dysfunction, ranging from mild deficits in psychomotor abilities to confusion and finally stupor.In the majority of cases, there's a precipitating cause rather than worsening of hepatocellular function can be identified. Infection is the main leading aetiology (50%) in a patient with hepatic dysfunction.
The objectives of this presentation are:
1) To emphasize the presentation and diagnosis and discuss the role of imaging in the management. 2)To present a wide variety of MRI findings of acute toxic and acquired metabolic encephalopathies during presentation and follow up in order to provide the radiologist the skills tomake a correct and prompt diagnosis.

Material and Methods
We retrospectively reviewed 10 patients with typical and atypical forms of EH that underwent an 1,5 T brain MR.

Results
MR showed a specific pattern of cerebral metabolic changes and measured abnormal deposits of different substances that under normal circumstances are metabolized by the liver.
T1-weighted images showed hyperintense signal in the globus pallidus, subthalamic region and midbrain due to an elevation of manganese Cortical edema and hyperintensity on T2-weighted and FLAIR images were also present affecting the insular cortex and cingulated gyrus, with sparing the perirolandic and occipital regions
MR spectroscopy detected an increased concentration of glutamine/glutamate coupled with decreased myo-inositol and choline signals and normal N-acetylaspartate. The choline peak normalizes earlier than the other peaks and at one-two months may even show a small increment over normal values, and the myoinositol peak normalize slower.

Conclusions
Accurate recognition of imaging findins is important in guiding clinical decision making in patients with EH.

C0014 Cadasil: diagnosis and case review.
Jorge Galván Fernández[1], Marta Sánchez Ronco[1], Antonio Santos Hermosín Peña[2], Rebeca Sigüenza González[1], Isabel Molpeceres Martínez[1], Margarita Rodríguez Velasco[1]

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1 Introduction
CADASIL (Cerebral Autosomal Dominant Arteriopathy With Subcortical Infarcts and Leukoencephalopathy) is a disease with very low prevalence.
The aim of the study was to review, through our own cases, imaging findings (MRI 3T), differential diagnosis and clinical-radiologic correlation.

Material and Methods
We review five CADASIL cases diagnosed in our hospital, from April 2014 to April 2016, using a 3T MRI. (n = 5).
We studied multiple variables such as sex, age, clinical presentation (migraine, transient ischemic attack (TIA), stroke), lacunar infarct location (frontal or parietal lobe, anterior temporal lobe, external white capsule, basal ganglia), size, morphology and number of lesions and absence of damage in the cerebral cortex, among others.
Review of the literature and exposure of results.

Results
CADASIL is an autosomal dominant disorder, with NOTCH3 gene mutation on chromosome 19, which causes artery disease that may affect leptomeningeal and penetrating arteries, causing lacunar stroke in young patients.
The main findings in MRI which have very high sensitivity and specificity are:
- Early stage white matter hyperintensities
- Anterior temporal and upper paramedian frontal lobes lacunar infarcts.

The main differential diagnoses are:
- Sporadic subcortical arteriosclerotic encephalopathy.
- MELAS (Mitochondrial, encephalophatymiopathy, lactic acidosis and stroke-like episodes).
- Primary angeitis of CNS (central nervous system).
- Hypercoagulability states.

Conclusions
CADASIL is a rare condition that affects young patients without traditional risk factors. It usually manifests with migraine, TIA or stroke, but MRI findings may precede clinical manifestations.
Knowing the clinical and radiological manifestations can help to make an accurate and early diagnose. We have to consider CADASIL in case of unexplained acute encephalopathy.
The most characteristic radiographic sign is diffuse involvement of the subcortical white matter. The location predominantly on the temporal lobe allows differentiating it from sporadic subcortical arteriosclerotic encephalopathy.

C0015 Cerebral reversible vasoconstriction syndrome, review of 5 cases, imaging and new concepts
Diana Quiñones Tapia, Francisco Gilo Arrojo, Ana Herrera Muñoz, Juan Viaño Lopez

Hospital del Rosario (Madrid)

Introduction
Reversible Cerebral Vasoconstrictin Syndrome (RVCS) may be a common presentation of several disorders with primary characteristics of severe acute headache with segmental intracranial vasoconstriction and which resolve over 3 months. Pathogenesis is unknown, related to sympathetic overactivity, endothelial disruption, oxidative stress and hormonal factors. This relatively new concept encompases several known syndromes with cliniclal similarities. Our pupose is to review the 5 cases we have studied and demonstrate common imaging patterns.

Material and Methods
We retrospectively reviewed the clinical charts and imaging studies of 5 patients disgnosed as RVCS at a Private Hospital in Madrid during the last 3 years.

Results
All our patients were females, with age range between 21 and 63. Two cases were related to pregnancy, one in week 36 and the other one postpartum (in 1 case venous thrombosis was suspected).
All but one patient had severe thunderclap headache. In one case a 36w pregnant patient presented with vaginal bleeding, severe headache and elevated blood pressure with difficult control. A cesarean section was performed on week 37. Headache, blood pressure and intracranial Doppler velocities improved rapidly over the following days.
Several MRA were obtained in our patients, repeating the studies a month later if negative and symptoms persisted, as there may be a delay in the imaging of vasoconstriction.

Conclusions
All our cases were females and two related to pregnancy.
MRA is a noninvasive technique which can suggest the diagnosis of RCVS in the appropiate clinical setting.
Noninvasive methods such as MRA and TC Doppler can monitor improvement of cerebral vasoconstriction related to vasodilators and othermedical treatments.
Clinical suspicion encourages the final diagnosis of RCVS at all levels, and serial MRA and Doppler should be obtained for confirmation and follow-up.
Appropiate vasodilatation and other medical treatments improve clinical outcome of these patients.

C0023 Tuberous sclerosis imaging.
Jorge Galván Fernández[1], Marta Sánchez Ronco[1], Antonio Santos Hermosín Peña[2], Teresa Álvarez de Eulate[1], Isabel Molpeceres Martínez[1], Margarita Rodríguez Velasco[1]

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Introduction
Tuberous sclerosis complex or Bourneville-Pringle's syndrome is an hereditary disorder with the presence of hamartomas in different organs. It deals with seizures (80-90%) and developmental delay (50-80%).

Our goal is to review the diagnostic methods of this pathology focusing on neuroimaging findings:
– Check up neuroradiological findings, CT, MRI, ultrasound, PET and brain-SPECT, and on the other hand radiological recommendations (guides).
– Pathological findings.
– Principal differential diagnoses.

Material and Methods
We review all tuberous sclerosis radiological findings, which are already described in the literature, by means of all the diagnostic tests currently available (3T MRI, CT, Rx, etc.) illustrating it with images obtained at our center over the last 5 years.
We also carry out a broad differential diagnosis and review the pathophysiology of this entity.

Results
MRI findings:
– In 98% of our patients, subependymal nodules (SEN) were found, which showed post-contrast enhancement.
– Cortical/subcortical tuberosities (95%).
– 15% may develop into giant cell subependymal astrocytoma (Monro foramen mostly). Over 1.3 cm growing SEN are considered giant cell subependymal astrocytomas.
– White matter radial lines migration.
– White matter cystic degeneration.
Radiological findings:
– Skull bone islets and rough new periosteal bone.
CT findings:
– Subependymal nodules in talamic groove show contrast enhancemente and 50% of them have calcifications after 1 year.
– Cortical tubers (hypodense cortical masses with some calcifications).
Differential diagnosis:
– Sex-linked subependymal heterotopia.
– TORCH syndrome.
– Cortical dysplasia, Taylor type.
Diagnostic guidelines:
– MRI with contrast: FLAIR and T1 are the most sensitive sequences.
– Unenhanced CT: combined with MRI to characterize the SEN.
– Annual follow-up.

Conclusions
Tuberous sclerosis is a cause of epilepsy to consider. It presents some typical imaging findings. Knowing differential diagnosis is essential. This should be considered, together with the pathophysiology, for early diagnosis and optimal clinical management.

C0027 High-resolution transfontanellar ultrasound for the detection of ischemic and hemorrhagic brain lesions in preterm infants

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Introduction
Ischemic and hemorrhagic injuries in the preterm brain are common complications in neonatal units. The increased incidence and severity of these lesions is directly related to gestational age and birth weight. The hemorrhage of the germinal matrix and periventricular leukomalacia are the most common entities in preterm. In the last years better equipments have developed with higher resolution and new properties that improve the evaluation of these injuries.

Objective
To compare cerebral high-resolution ultrasound with conventional ultrasound for detection of ischemic and hemorrhagic lesions in preterm infants.

Material and Methods
A prospective longitudinal study was conducted in the preterm infants born between June 2015 and May 2016, comparing high-resolution ultrasound examination with conventional ultrasound. A total of 118 preterm were included at which both the high-resolution ultrasound and conventional ultrasound was performed. The studied population was a consecutive series.The data collected were analysed using bivariate analysis.

Results
Comparing the two groups it was observed that there is a greater detection of ischemic and hemorrhagic lesions with high-resolution ultrasound compared to conventional ultrasound (adjusted OR = 1,4; 95% CI from 1,18 to 1,69) and was higher the detection in the case of grade I periventricular leukomalacia (adjusted OR = 2.9 95% CI 1,6 to 4,7).

Conclusions
There is an increased detection of hemorrhagic and ischemic lesions in preterm infants by high-resolution ultrasound.

C0028 Cystic masses of the extracraneal head and neck: differential diagnosis

Pilar Cartón Sánchez[1], María Rosa López Pedreira[1], Jorge Galván Fernández[1], Enrique Calleja Cartón[2], Rebeca Sigüenza González[1], Montserrat Otero Mongil[1]

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Introduction
- To describe and illustrate the spectrum of cystic lesions of the head and neck on CT, ultrasonography and MRI studies.
- To identify their typical imaging appearances.
- To know a list of differential diagnosis for such lesions based on the characteristic locations and imaging features.

Material and Methods
We selected the most representative cases of cystic lesions of the extracranial head and neck seen in our hospital with different imaging techniques.
An ultrasound scan may be the first imaging modality used, demonstrating the cystic nature of the lesion. Further imaging using CT and MR are often necessary to elucidate the etiology and deep extent of the lesion, demonstrate its relationship with the surrounding structures and they are also essential for optimal preoperative planning.

Results
The differential diagnosis of cystic lesions of the extracranial head and neck is not very extensive. Thyroglossal duct cysts, first, second and third branchial cleft cysts, Tornwaldt's cysts and cystic higroma are the most common lesions.
Other cystic lesions are epidermoid cyst, ranula, laryngocele and lymphoepitelial cyst.
Complicated cervical cystic lesions can cause diagnostic difficulties, and we should keep in mind a wider range of differential diagnosis: abscess, suppurative or necrotic lymphadenopathy or cystic thyroid tumour among others.
Many of these lesions are rare, but their radiologic features and typical locations besides the clinical history of the patient often permit radiologist to make a definitive diagnosis.

Conclusions
The exact diagnosis of congenital cystic lesion of the head and neck is possible if we correlate the clinical history with imaging findings such as location, internal architecture and post-contrast enhancement.

C0029 The neck: anatomic variants and pitfalls

Pilar Cartón Sánchez[1], María Rosa López Pedreira[1], Jorge Galván Fernández[2], Enrique Calleja Cartón[2], Esther Gómez San Martín[1], Teresa Alvarez de Eulate García[1]

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Introduction

We propose to attend the following objectives:
To recognize anatomical variants, pitfalls or pseudolesions and incidental findings that we can find in neck´s CT and MRI studies, both adult and child.
To review the differential diagnosis between these findings and pathologic processes which often tend to be mistaken with them.

Material and Methods

We reviewed radiologic studies (CT, MRI, US and Angiography) of patients with anatomic variants or pathologic processes following a classification depending on its density (air, water, calcium and soft tissue).
We also classified the pitfalls due to an incorrect technique employed or misinterpretation.
We present some of our most representative cases of the most common anatomic variants involving the neck that may simulate disease in imaging studies, focusing on its location and imaging signs.

Results

- The most frequent misdiagnoses caused by air density lesions (air pitfalls) are paratracheal air cysts and air bubbles in lingual or palatine tonsil.
- Calcium pitfalls include calcifications often located in:prevertebral muscle (longus colli muscle), tonsillar area (tonsillolith or tonsil stones) parapharingeal space, nasal cavity (rhinolith) and arytenoid cartilage sclerosis.
- he most common liquid density pitfalls are retention cysts that can have multiple locations (vallecula, maxillary sinus, epiglottis, aryepiglottic folds, vocal cords, piriform and nasopharyngeal sinus) and can be confused with other pathologies especially when infected.
- Soft tissue pitfalls include the thoracic duct (It's visible in 55% of routine neck CT) and the levator claviculae muscle. Both of them may simulate lymphadenopathy.
- Finally we review the most common technique pitfalls.

Conclusions

Getting to know the different anatomical variants and pitfalls, as well as obtaining high quality radiologic studies, we will avoid misdiagnoses and unnecessary expensive studies.

C0032 Applicability of the assessment of the global asymmetry in the cerebral cortex for the study of psychiatric pathology

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Introduction

Reduced degree of cerebral asymmetry is a condition frequently associated to schizophrenia. Some theories even hypothesize that schizophrenia is a consequence of abnormal brain lateralization. Furthermore, some studies report an association between structural brain asymmetry and severity of hallucinations in patients with schizophrenia. Most of these studies, however, are focused on the asymmetries of localized regions of the brain. Our aim is to explore the potential association between clinical symptoms and the degree of global brain asymmetry (GBA) in a sample of patients with schizophrenia. We propose a measure of GBA based on the Dice similarity coefficient. Additionally, we will compare global asymmetry scores between the schizophrenia and healthy groups.

Material and Methods

We recruited 15 patients with schizophrenia and 15 healthy controls matched by age and sex. A T1 structural image of the brain was acquired for each participant. A measure of GBA was obtained by comparing gray and white matter in both hemispheres using the Dice similarity coefficient.

Results

A higher degree of GBA was not associated with hallucinations, however it was directly associated to higher avolition symptoms. In contrast, there was a negative association between GBA and anxiety. Furthermore, healthy controls had significantly more globally symmetric brains than patients with schizophrenia.

Conclusions

Our research suggests that further research exploring potential associations between global brain asymmetry and clinical symptoms or other pathological conditions is needed. In contrast to what has been reported for localized brain asymmetry, we found that patients with schizophrenia had more asymmetrical brains than healthy subjects. Global brain asymmetry seems to be related to higher avolition and lower anxiety.

Conflict of interest

This work was supported by a Miguel Servet contract (CP09/00292) and grant PI10/02479 from the Instituto de Salud Carlos III co-funded by FEDER, and contract PTA2011–4983-I from the Ministerio de Ciencia e Innovación, Spain.
The authors declare no conflict of interest.

C0036 Central nervous system complications after allogeneic bone marrow transplant. update 2016.

Maria Diez Blanco, Enrique Marco de Lucas

HUMV (Santander)

INTRODUCTION:

- Bone marrow transplantation (BMT) has become the standard treatment of several oncological and non-malignant disorders.
- Before transplantation, the recipient undergoes a conditioning regimen with high-dose chemotherapy and/or radiotherapy to destroy residual disease and prevent rejection.
- This conditioning makes patients pass through different stages of immunosuppression associated with multiple neurological complications, which are presented according to the stage of BMT that they are most likely to occur.

PURPOSE:

A) To stand out the importance to know the different states of immunosuppresion after a bone marrow transplantion, in order to establish a proper clinical-radiological correlation.

B) To review the main neuroimaging findings of central nervous system (CNS) complications observed after BMT.

MATERIAL AND METHODS

We review the neurological complications in 935 patients who had received an allogeneic bone marrow transplantion at our hospital in the past 12 years. We analyzed the neuroimaging findings (CT and MRI) of fourty-three patients with neurologic complications and their clinical and autopsy correlation.

Results

The main neurologic CNS complications observed were:
A) Infections: including viral (12 patients: EBV, CMV, HHV6), bacterial caused by **Pneumococcus** in 3 cases, **Toxoplasmosis** in 2 cases and fungal (2 patients with **Aspergillus**, **Scedosporium).**
B) Neoplasm recurrence (9 patients).
C) Toxic (3 patients).
D) Vascular complications in 6 patients including subarachnoid hemorrhage, ischemic strokes and TTP.

Conclusions

– Over the last few years there has been a significant decrease in mortality and complications of BMT. It is essential to carry out a successful clinical-radiological correlation to make a proper diagnostic orientation.
– Viral infections are one of the biggest diagnostic challenges because MRI findings are often subtle alterations and quite different from the usual lesions described in immunocompentent patients.

C0037 Cerebral langerhans cell histiocytosis: what the oncologist wants to know.

Maria Diez Blanco, Enrique Marco de Lucas

HUMV (Santander)

INTRODUCTION:

– Langerhans cell histiocytosis (LCH) is regarded as a reactive clonal disease of the monocyte-macrophage system which forms granulomas within any organ system.
– It is most commonly characterized by single or multiple osteolytic bone lesions demonstrating infiltration with histiocytes.
– Although it is a rare disease (an incidence of 0.2-2.0 cases per 100,000 children under 15 years of age; peak incidence at 1-4 years of age and slightly more prevalent in boys), it may present in many ways, mimic other conditions and manifest itself in many organs.

PURPOSE:

A).To evaluate the presentation of this disease and the evolution of the radiologic findings.
B) To emphasize the clinical utility of CT and MRI in making a correct clinical orientation.
C).To analyze the differential diagnosis of these lesions, as LCH can mimic several other diseases.

MATERIAL AND METHODS

We have retrospectively reviewed the cases of Cerebral Langerhans cell Histiocytosis (CLH) in our institution within the past 10 years, in terms of:
A) How to make the diagnosis of CLH:
– Staging
– Treatment protocols overview
B).Protocol of imaging evaluation:
– CT
– MRI

Results

1.- Radiologic findings with clinical correlation:
– Major CNS complications:

a) Infundibulum infiltration.
b) Lytic calvarian lesions.
c) Mastoid bone destruction.
d) Cerebellum infiltration.

2.- Pitfalls.

Conclusions

1.Skull is most frequent bony site involved and thick enhancing pituitary stalk is most common CNS manifestation of LCH.
2.Imaging protocol studies (CT and MRI) become relevant for making differential diagnosis, highlighting metastasis, severe mastoiditis and rhabdomyosarcoma, among others.
3.Radiologists play an important role in the early diagnosis of LCH, improving the prognosis and clinical management of these patients.

C0039 Can you hear me?: radiological findings in temporal bone pathology

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Introduction

Given a patient with hearing loss imaging techniques play an important role to reach an accurate diagnosis.
In case of conductive hearing loss a Multiplanar CT must be done and if there a sensorineural hearing loss an MR will be performed.
Temporal bone is a very complex area where vital structures are placed.
The aim of the current study is to expose different entities rising of the inner, middle and external ear, highlighting imaging findings as well as established the appropriate technique in each case.

Material and Methods

We have reviewed the main pathologies of inner, middle and external ear diagnosed in temporal bone studies (MR and CT) during the last years in our centre. Comparison with literature have been done.

Results

Among a wide variety of diseases we found:
External ear: osteoma, exostosis, epidermoid carcinoma and necrotizing external otitis.
Middle ear: Acquired cholesteatoma, acute/chronic otitis media, acute otomastoiditis, glomus tympanicum, congenital ossicular chain abnormalities, ossicular luxation, Ewing sarcoma, LCH, ossicular prosthesis migration.
Inner ear: labyrinthine ossificans, endolymphatic sac tumour, schwannoma, intralabyrinthine hemorrhage.
The most frequent diagnoses were: exostosis and osteoma in the external ear, inflammatory changes and cholesteatoma in the middle ear and schwannoma in the inner ear, consistency with what has been described in literature.

Conclusions

A precise interpretation of radiological findings in temporal bone examinations, as well as an adequate clinical information, is essential to achieve an accurate diagnosis in a patient concerning of hearing loss.

C0054 Distal cerebral media artery branches occlusion endovascular treatment

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Introduction
Intravenous fibrinolysis is the election treatment for distal cerebral media artery branches occlusion. If this fails, endovascular treatment is indicated. With the new stentrievers the endovascular approach has changed. There is no randomized trials which analize the results of stentrievers use in distal occlusions.
We show a cases serie of M2, M3 or M4 occlusions treated by endovascular approach and analize differences between sort of treatment, grade of recanalization and outcome.

Material and Methods
Retrospective study with prospective data collection. All patients with acute distal branch of medial cerebral artery occlusion, treated by endovascular approach, were included. NIHSS score was determined and a head CT was performed. Angiography determined occlusion location and collaterality. Recanalization technique was variable. All pacients were admitted at the intensive care unit. At 3 months disability was evaluated.

Results
N= 32 (14 women). Mean age 62,67 (34-84 years). Mean NIHSS: 14,1 points (range 8-22). 59,4% suffered from arterial hypertension.
65,6% had a M2 occlusion. In 51,6% cases thrombectomy was performed. In 45,16% urokinase fibrinolysis was performed.
Good recanalization: 59,37%.
In patients were stentrievers were used, a good recanalization was achieved in 43,75%. In were stentrievers were not used, a good recanalization was achieved in 68,75%.
A 65,6% of patients had a good outcome at 3 months. Between patients with bad recanalization, only 23,1% had a favorable outcome. 4 died.
Between patients with TICI 2B-3, 95% had a favorable outcome.

Conclusions
A good recanalization predicts a good outcome. In our serie there is no differences between the use or not of stentrievers. Urokinase is a good alternative before 6 hours.

C0057 Role of radiology in the management of oropharynx cancer in the era of robotic surgery

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Introduction
Transoral Robotic Surgery (TORS) is an emerging technique in the Head and Neck area, especially suitable for oropharynx cancer treatment.
The Da Vinci Robotic System provides high precision and minimally invasive access to the oropharynx through the mouth avoiding extensive external incisions. Compared to traditional open surgery and conventional chemoradiation regimens, it allows reduction of morbidity with both excellent oncological and functional outcomes.
Radiologists play a critical role before surgery determining patient's candidacy for TORS, and in the post-surgical follow-up.
The preoperative radiological assessment is based on a precise staging of the tumor and the recognition of specific anatomic landmarks that are clinical blind spots for the surgeon.
Therefore, radiologists should be familiar with this particular technique to be able to provide complete and precise information for a safe surgical approach.

Material and Methods
We retrospectively review the 30 oropharynx malignant neoplasms treated with TORS at our institution since July 2013. According to oropharynx subsites, there were 12 tonsil, 13 base of the tongue, 3 soft palate, and 2 posterior wall neoplasms. According to T stage, there were 22 early local stages (T1 and T2) and 8 local advanced stages (T3 and T4a).

Results
We briefly present the Da Vinci Robotic system and the particularities of the surgical technique.
We illustrate the patient selection process for TORS based on the evaluation of sectional imaging techniques, mainly CT, MRI, and PET-CT.
Finally, we illustrate the radiological follow-up.

Conclusions
TORS is an increasingly utilized option for oropharyngeal cancer treatment. Radiologists require an understanding of this particular approach, since they play a key role in determining patient´s candidacy and providing an accurate surgical map.

C0060 Petrositis, the big unknown: a review of recent work

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Introduction
- To introduce petrous apex involvement as a complication of acute otomastoiditis.
- To explain the classical clinical triad (Gradenigo´s syndrome).
- To establish a differential diagnosis of lytic lesions of the petrous apex.
- To emphasize the utility of radiological studies to reach an accurate diagnosis and follow-up.

Material and Methods
- Apical petrositis is an uncommon complication of acute otomastoiditis produced by the spread of swelling from the middle ear towards the petrous apex.
- Gradenigo´s syndrome consists of acute otomastoiditis associated with contiguity neuritis of the 5th and 6th cranial nerves.
- CT is elective to assess bone involvement. It shows a lytic lesion in the petrous apex associated to the middle ear and mastoid cells occupation.
- MRI helps determining dural and cranial nerves alteration as well as to rule out other intracranial complications.
- Resolution of the radiographic findings after antibiotic treatment is crucial for a correct diagnosis.

Results
- Best imaging tool:
  1-Initial diagnosis usually with thin-section T-bone CT
  2- Axial and coronal T1 C+ MR with fat saturation, including PA, skull base, and cavernous sinus important, in evaluating intracranial complications

Conclusions
- Gradenigo´s syndrome is a serious but rare complication of middle ear infection that should be suspected in every patient with unilateral headache and abducens nerve palsy.
- The key diagnostic finding is a lytic lesion around the petrous apex, which is solved after antibiotic treatment.

C0061 Sonographic evaluation of atherosclerosis burden in carotid arteries of ischemic stroke patients and its relation to paraoxonase 1 and 2, 5-methy-l-terahydrofolato-reductase (C677T) and angiotensin-receptor 1 (A1166C) genetic variants

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Introduction
Many studies supported a role for genetic risk factors for stroke. Carotid intima-media thickness (cIMT) have been proposed as a marker of subclinical artherosclerosis. Polymorphisms at Paraoxonase, 5-Methyl-L-Tetrahydrofolate-Reductase and Angiotensin-receptor 1(AT1R) genes have been associated with ischemic stroke (IS) risk.

Objective:
To determine whether these gene-polymorphisms are associated with severe carotid ultrasonographically atherosclerosis in IS patients.

Material and Methods
A cross-sectional cohort study in IS patients. Genotypes were detected by PCR and restriction analysis. Carotid artery ultrasound study was performed to assess patients atherosclerotic involvement. Common carotid artery cIMT was performed with Ultrasound B-mode and color Doppler. Atheromatous plaque was defined as endoluminal protusion of at least 1.5 mm or a stenosis > 50% of cIMT. We established two cIMT types, as < 1mm or > 1mm, measured in a segment without atheromatous plaque. Number of affected vessels were categorized according to absence or presence of one, two or more than two affected vessels

Results
213 patients (127 males, mean age: 66.8 ± 11.4 years; 86 females, mean age: 73.3 ± 12.9 years; $p < 0.05$) were studied. In IS patients, no one of the analyzed gene distribution differed according to the stenosis degree. However a trend was observed for both Gln (Q) 192 Arg (R) and C311S. When evaluated according to different inheritance models, a significant contribution of C311S according to a dominant (p = 0.045 ; OR = 2.397, 95% CI (1.001-5.376))and to log-additive inheritance forms (p = 0.03; OR = 1.85, 95% CI (1.07 - 3.2)) was observed. Only S311C had statistical significance (p = 0.013), when genotype distribution was analyzed according to cIMT thickness

Conclusions
We found statistical significance difference linked to Paraoxonase 2 (Ser311) for ultrasound diagnosed carotid atheromatosis greater than 50% and for an intima thickness greater than 1 mm in ischemic stroke patients.

C0065 Autoimmune thyroiditis: sonographic pattern and key findings for correct diagnosis

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Introduction
Autoimmune thyroiditis has a broad spectrum of sonographic manifestations, from almost normal thyroid parenchyma to alterations that often mimic other thyroid disease.
It is not uncommon in our daily practice access radiology reports that diagnosed as thyroid nodule or multinodular goitre what actually is thyroiditis and often perform fine-needle aspiration (FNA) by thyroiditis nodular lesions that do not really correspond to true nodules.
The purpose of this study was to describe the sonographic broad spectrum of autoimmune thyroiditis, emphasizing a key finding for correct diagnosis: perithyroidal lymph nodes.

Material and Methods
Thyroid ultrasound of the last two years were revised, identifying patients with autoimmune thyroiditis.
The following variables were described: the main sonographic patterns and the presence and location of perithyroidal lymph nodes.

Results
Diffusely enlarged thyroid gland with a heterogeneous echotexture and lobed edges was the most frequent sonographic presentation.
In focal pattern, the most common presentation was well-defined hyperechoic nodule. It can be single or multiple and be distributed throughout the parenchyma (giraffe pattern).
Another focal pattern was hypoechoic nodule with irregular and poorly defined edges. It was the pattern of most diagnostic difficulty because of its similarity with the malignant pathology.
The most common location of perithyroidal lymphadenopathy in our sample was infrathyroid and anterior perithyroid adjacent to isthmus.

Conclusions
Autoimmune thyroiditis presents a varied ultrasound spectrum that can simulate many diseases.
It is essential depth knowledge of their sonographic manifestations and identifying perithyroidal lymph nodes for correct diagnosis and avoid unnecessary FNA.

C0066 Pacchioni granulations, a normal finding but often confused

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Introduction
The arachnoid villi were described by the Italian anatomist Antonio Pacchioni(1655-1726), who gave them the name of arachnoid granulations (AG). AG are pseudodiverticulum arachnoid invaginations which penetrate the light vein or cranial diploe through holes in the dura.
Because of its location and appearance they **can be confused** with other important diseases such as venous thrombosis or osteolytic lesions.

Material and Methods
We report the case of a male 28-years-old who came to the emergency department with headache for 1 week that did not remit with usual analgesia. Neurological examination was normal. The patient had a history of Lynch syndrome.
The patient was first evaluated by CT without and with intravenous contrast, which displayed a hypodense, rounded and without contrast enhancement lesion of 7 mm larger in diameter in the left transverse venous sinus. This incidental finding was further evaluated by MR, which showed an image of hypoenhanced well-defined contours, hypointense on T1 and hyperintense on T2, compatible with AG. The lesion had similar signal strength to CSF and communicated with the subarachnoid space.

Results
The AG are identified by 24% of contrast-enhanced CT as **filling defects**, usually in the sagittal and transverse sinus, specifically in its lateral portion, near the entrance of superficial veins. Because of its location and appearance may protrude directly into the sinus lumen and may be a false

positive thrombosis. One way to differentiate is considering its rounded shape that generates a focal defect filled with the same attenuation (CT) or signal intensity(MR) of the CSF.
They can also be confused with meningiomas, arachnoid cysts, hemangiomas and extra-axial bone lesions.

Conclusions
AG are entirely normal findings, very common, which should not induce diagnostic errors. An appropriate clinical-radiologic correlation with the visualization of a well-defined filling defect within a venous sinus with CSF-like appearance, can differentiate AG of other diseases of the dural sinuses.

C0067 Adenoid cystic carcinoma of the salivary glands: what the radiologist needs to know.

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Introduction
- To review the different clinical, histological and imaging characteristics of adenoid cystic carcinoma (ACC).
- To remain that this tumor besides being mostly located in the major salivary glands (parotid, submandibular and sublingual) appears frequently in the minor glands especially in palate, lips, nasal mucosa and the entire airway.

Material and Methods
We present four patients with ACC in different locations studied by CT or MRI:
- One located in parotid gland with neural invasion.
- Two cases were tracheal ACC, one of them recurrent.
- Another located in submandibular gland which presented lung metastases after several years of surgery.

We review the most relevant characteristics of ACC through our cases.

Results
Adenoid cystic carcinoma, formerly called cylindroma, is a specific variant of adenocarcinoma of salivary glands and mucous membranes. They represent 10% of all salivary gland tumors.
It is located in the major and minor salivary glands, palate, buccal mucosa and airway. Other more unusual locations are the ear canal, lacrimal glands, breast, bronchus, cervix and even in the skin.
Usually, it presents as a mass of slow growth. It can produce neural involvement (facial, lingual or hypoglossal), local recurrence in 30% and metastases in 50%.
Imaging techniques such US, CT and MRI are useful to show the extension of the injury, involvement of neighboring structures and planning surgery. The diagnosis is histological (cribriform, papillary or solid pattern). It is staged with TNM. Treatment is usually surgical resection followed by radiation therapy.

Conclusions
Although the diagnosis of ACC is always histological, the radiologist must know its imaging features, keep it in mind in slow-growing masses with neural involvement and remember their common location outside the major salivary glands.

C0071 Hyperdense intracranial lesions: differential diagnosis. literature review and case presentations.

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Introduction
Description of the most frequent intracranial lesions which may be presented with high density on CT.
Formulation of a differential diagnosis on these according to their nature (tumoral, infectious, vascular or traumatic), location and presentation.

Material and Methods
A literature review of hyperdense intracranial lesions is performed. For example, cases of different nature with confirmed diagnosis in our center.

Results
Multiple intracranial disorders occur in CT, being presented as hyperdense lesions with different origin: tumoral (detailing cellularity, hypervascularisation or acute bleeding), infectious (nocardiosis, tuberculomas), vascular (aneurysms, AVMs, hemorrhagic and ischemic stroke) or traumatic (TBI).
Based on image features of these lesions (single or multiple, extra or intra-axial, supra or infratentorial location, enhancement after intravenous contrast) and clinical context of the patient, we can guide our diagnosis to tumoral, vascular, infectious or traumatic pathology.

Conclusions
It is important to characterize hyperdense lesions in CT. It will guide us to the correct diagnosis and we can decide the most appropriate therapeutic patient management.

C0072 Relationship between the insertion depth and the auditory results in patients with cochlear implants

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Introduction
Cochlear implants are transducers devices that transform the acoustic waves into electrical signals to stimulate the cochlear nerve. They are indicated in those patients that suffer unilateral or bilateral, deep or severe, neurosensorial deafness that do not benefit from an auditory prostheses.
Temporal bone CT and MR are mandatory in the pre-surgical evaluation of cochlear implant candidates. Nowadays cochlear implants of different lengths are available.
The hypothesis of this dissertation is that the deeper the insertion is, in terms of length and grades and so the more cochlear frequency coverage, the better auditory performance is obtained.

Material and Methods
After institutional ethics committee approval and informed consent were obtained, 46 patients with 50 cochlear implants were prospectively reviewed. A multislice 64 detectors NCCT was performed before and after cochlear implantation and a non-commercial study was performed. Prior and post implantation audiometric studies and functional clinical variables such as speaking in the phone, listening to music or time in months needed till auditory rehabilitation is optimal was recorded and correlated to the electrode insertion depth.

Results
21 men and 25 women between 29 and 78 years with a 2 to 63 years story of neurosensorial deafness were analyzed. An statistic correlation between number of electrodes, length and insertion angle within the cochlea and audiometric values, speaking at the phone or less rehabilitation time was found ($p<0,01$) but not with ability to listen music after cochlear implantation.

Conclusions
The results allowed to conclude that the deeper the cochlear implants goes through the cochlea the better auditory results are obtained in terms of audiometric values and functional recovery. In those patients with an insufficient auditory results, we recommend a post surgical CT in order to check the cochlear coverage of the implant and help the audiologist to individualize programming strategies.

C0075 A voxel-based morphometry study in diabetes miellitus type ii compared to healthy controls. preliminary results of the precised study.

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Introduction
The goal of this study was to investigate brain volume differences between diabetes mellitus type 2 (DM2) patients and healthy controls.

Material and Methods
58 DM2 were included in the study (68% females, mean age (SD)=66.91 (5.91) years). A group of 15 controls was also included (71% females, mean age (SD)=62.71 (7.24) years). Brain volume differences were estimated at a regional level, by using a voxel-based morphometry (VBM) analysis (Statistical Parametric Mapping version 8). Images were segmented and normalized, following the established VBM pipeline. Then, for the statistical comparison differences were considered significant at a $p<0.05$ Family Wise Error (FWE)-corrected level and a extend threshold of 10 voxels. Age and total intracranial volumes were added as covariates in the statistical comparison.

Results
DM2 patients showed a significant grey matter loss in the right inferior temporal cortex (MNI coordinates=(44,-69,5); $p=0.004$ and $k=61$ voxels) and the right supramarginal gyrus ((57,-28,27); $p=0.026$ and $k=57$ voxels). No significant differences were found between groups for the segmented white matter.

Conclusions
In VBM, DM2 patients showed a significant grey matter loss, compared to healthy controls, which affects the right temporal and the parietal lobe. Brain white matter does not seem to show a pattern that differed from healthy controls

C0076 Aneurysmal bone cyst as uncommon cause of acute hemiparesis in childhood

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Introduction
Acute spinal cord compression is a serious clinical condition that requires inmediate handling, but it´s uncommon in childhood.
Aneurysmal bone cyst (ABC) is a rare tumor of which 10-30% affect the spine, being children mora than 50% of patients. Despite being a benign lesion it´s aggressive as it expands and destroys bone. It usually originates in poserior elements, and can involve vertebral body and spinal canal causing pathological fractures and neurologial deficits

Material and Methods
We report radiological findings in a case of cervical spine ABC histologically proven affecting a 9 year-old girl who presented in emergency room with acute left hemiparesis without history of previous trauma.
Radiological findings showed a mass centered in C6 vertebra whose characteristics suggested the diagnosis of ABC.

Results
The patient was first evaluated by cervical spine X-ray which displayed destruction in the C6 vertebra and luxation of vertebral bodies.
Further evaluation with CT revealed a lytic multiseptated expansive mass centered in right posterior elements of C6 that extended to vertebral body which was partially collapsed.
MRI showed a lesión with enhancement solid areas and cystic areas with fluid-fluid levels, which made it highly suspicious to correspond to ABC.
The tumor invaded the spinal canal compressing the cord and encased the left vertebral artery
The patient was operated by partial resection and C5-C6 arthrodesis. Histopathological analysis confirmed the diagnosis.

Conclusions
Aneyrismal bone cyst is a rare tumor, being more frequent in childhood. It constitutes 10-30% of primary spinal tumors, but only 15-30% of casses affect cervical spine.
ABC is an expansive benign lytic lesion characterized by the presence of multiple blood filled cavities that result in fluid-fluid levels.
Presentation as acute spinal compression is an uncommon but serious clinical situation
Findings on imaging tests allow a diagnostic approach with hight reability, which is useful to plan the most appropiate treatment

C0077 Brain magnetic resonance imaging in the evaluation of headaches: a multicenter, retrospective, double reading study.

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Introduction
To describe the epidemiology in a cohort of patients who underwent an MRI because of headache.
To determine accuracy and diagnostic value of brain-MRI to detect causes of headache, compare between different centers, and other descriptors.

Material and Methods
We reviewed retrospectively 1054 studies of brain-MRI dderived for non-acute headache, made between January 2014-May 2014. They where acquired at 6 centers in Southern Spain, with similar imaging protocols.
The studies underwent a second lecture by a cerfied board neurorradiologist (EDiNR) with five years of experience in neurorradiology, blinded to the first report, and data where analyzed independently, to compare agreement, and combined, to increase diagnostic power. First lecture was made by 5 neurorradiologist with 5 to 15 years of experience in neuroimaging. The second reader was one of the original radiologists, but the second lecture was blind to the original report, and a time separation over 6 months between readings to avoid bias.
Both epidemiologic and potential causes of headache in brain MRI where analyzed and compared depending on sex, age, referring physician specialty… using the most accurate statistical test at each case.
Results
From the total of 1054 patients, 737 where women, and 317 males. 132 patients where considered pediatric population (under 15 years old). The average age was 38.6.
At the combined reading, 44.4% of studies were considered normal, and 55.6 with abnormalities. The most frequent were leucoaraiosis(15.8%) and atrophy(10.1%) As potential causes of headache, the most frequent was sinusitis

(9.6% of patients with Lund-Mackay over 4). 11.7% had intracranial causes of headache, most frequent arachnoid cysts(3.3%) and tonsillar protusion (2.5%)

Conclusions
- We didn´t found differences between centers, gender or ages.
- Sinusitis is the most frequent potential cause in MRI of the brain, according to our study. Arachnoid cysts and Chiari 1 Malformation are the most frequent intracranial findings potential causes of headache, according to our study.

C0078 Cerebral amyloid angiopathy related inflammation, our initial experience. a short series of cases and review of the literature.

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Introduction
- To review the imaging features, pathology and pathophysiological mechanisms underlying Cerebral amyloid angiopathy-related inflammation.
- To describe the MRI clue findings, and the evolution after treatment, in the cases seen at our institution.

Material and Methods
Cerebral amyloid angiopathy (CAA) is a common entity characterized by the deposition of amyloid deposits within the leptomeningeal and cortical arteries. CAA-related inflammation is a infrequent disease, characterized by the deposition of amyloid proteins within the leptomeningeal and cortical arteries associated with perivascular inflammation. In patients with typical cortical haemorrhagic focii (FEE or SWI nodular hypointense lesions), consistent with probable CAA, with subcortical white matter edema, and sometimes leptomeningeal enhancement, CAA related inflammation can be suspected. According to recent literature, biopsy is not needed to start treatment.

Results
To date, four cases of probable cerebral amyloid angiopathy-related inflammation have been diagnosed at our institution. All of them showed characteristic T2/Flair white matter edema, involving deep and subcortical location, in addition to subcortical focal hypointense T2 FFE/Venbold (susceptibility weighted images) nodules. Microhemorrhages where more numerous where edema was found. SWI increased sensibility for the detection of haemorrhagic focii when compared with FFE. In two patients, leptomeningeal and cortical enhancement after contrast inyection was seen. One of the patient showed a intraparenquimatous enhancing nodule. No restrcited diffusion was seen in our patients. After corticosteroids treatment, edema decreased.

Conclusions
- Cerebral amyloid angiopathy (CAA) is a common entity, of increasing prevalence probably due to improvement in MRI technique (SWI).
- CAA related inflammation is an uncommon complication, that requires early and accurate diagnosis, as a potential reversible cause of rapidly progressive dementia.

C0080 Utility of 3d-fiesta sequence of magnetic resonance in the diagnosis and follow-up of acoustic neuroma

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Introduction
3D-FIESTA sequence of MR is accurate for the detection of small masses in the internal auditory canal. Gadolinium-enhanced images must be used when the pathology is first detected and during the patients' follow-up. Treatment is not well established and depends on the tumor´s size and growth rate; patient´s age must be also considered. Therapeutic options include: observation and follow-up, radiosurgery and microsurgery.

Material and Methods
6-year retrospective study of MR studies with 3D-FIESTA sequence in patients with unilateral auditory symptoms.
The following variables were analyzed: sex of the patient, age at onset, tumor's localization and size (maximum diameter), MR controls and treatment received by the patients.

Results
11 cases of acoustic neuroma were diagnosed. Patients' ages ranged from 46 to 79 years, with a mean age at diagnosis of 63 years. No significant differences were found in patients' gender.
In regards to the tumor's size, 7 were small (1 to 10 mm), the smallest being 3.6 mm and four were medium (11 to 25 mm), the largest being 23.5 mm.
Regarding the localization, there were 6 intracanalicular (Grade I), 4 intra-extra canalicular that protruded into the cerebellopontine angle with no contact to the brain stem (Grade II), and 1 contacted with the brainstem without deforming it (grade III).
For treatment, 6 patients were followed-up with, 4 patients received surgical treatment, and 1 patient was treated with Gamma-Knife radiosurgery.
MR controls were performed to evaluate the evolution of the tumor: 5-years stability in 1 patient, 3-years stability in 2 patients, 1-year stability in 2 patients. There was significant growth at 6 months in one patient and significant growth at 3 years in two patients.

Conclusions
3D-FIESTA sequence is useful in the diagnosis of acoustic neuroma.
MRI allows the assessment of the location, size, and growth of the tumor in order to facilitatesubsequent treatment planning.

C0081 Correlation between brain volume change and t2 relaxation time in patients with clinically isolated syndrome

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Introduction
Regional volumetric studies have suggested that reversible brain volume changes (pseudoatrophy) are mostly confined to the white matter. The aim of this study is to correlate pseudo-T2 values (a marker of hydration status) with brain volume changes in patients with clinically isolated syndrome (CIS).

Material and Methods
96 patients with CIS were included (62 women; median age, 33 [19, 49] years; EDSS median, 2 [0, 4.5]; mean disease duration, 3.78 months). Baseline and 12 months dual echo T2-weighted, and 3D T1-weighted (MPRAGE) sequences were acquired on a 3.0T. The dual-echo sequence was used to produce pseudo-T2 maps (pT2). Pseudo-T2 values were evaluated in regions of normal appearing white matter. MPRAGE sequence was used to obtain white and grey matter volumetric fractions. Association between month 12 and baseline studies in pT2, white and grey matter fractions were evaluated by the Spearman rank correlation. Changes in pT2, white (WM) and grey (GM) fractions among non-

Gadolinium(Gd) and Gd-enhanced groups at baseline and month 12 were evaluated by the Kruskal-Wallis test, and Dunn's test (Benjamini-Hochberg option) for post-hoc analysis.

Results
A significant, though weak positive correlation (r=0.276, p=0.006) between changes in pT2 and in WM was found. Changes in GM did not correlate with changes in pT2 (r=-0.002, p=0.982). Differences among non-Gd (non-Gd0, non-Gd12) and Gd-enhanced (Gd0, Gd12) groups were found for changes in pT2 (p=0.036). Post-hoc analysis revealed that these differences were only between non-Gd0 and non-Gd12 versus Gd0 and non-Gd12 (p=0.049), and Gd0 and non-Gd12 versus Gd0 and Gd12 (p=0.03).

Conclusions
The results suggest that white matter volume changes in patients with multiple sclerosis can be partially explained by fluctuations in brain water. They also support the value of pseudo-T2 measures to assess white matter water changes, and its potential role in distinguishing reversible (pseudoatrophy) from irreversible (atrophy) brain tissue loss.

C0083 Sella-suprasellar region lesions: diagnosis according to their location and patient's age
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Introduction
Knowledge of the sella/suprasellar region's anatomy in order to classify those lesions that we could find while performing a brain MRI study or a pituitary gland MRI study. We distinguish four main locations: pituitary gland, infundibulum or pituitary stalk, hypothalamic-optic chiasm region and others (miscellaneous).

Material and Methods
Our aim is to study the pituitary gland and suprasellar region's pathology according to some patient's aspects such as his age (childhood or adulthood), signs and symptoms referred (headache, macrocrania, hydrocephalus, diabetes insipidus, hypopituitarism…) and according to the lesion's location, shortly describing the distinctive or typical features of some of these lesions that will lead us to a certain diagnosis.

Results
The radiologist will establish a differential diagnosis depending on where he determines the lesion is originated:
- Pituitary gland: Adenomas, pituitary hyperplasia (physiologic), lymphocytic hypophysitis, pituicytoma, lymphoma/leukemia, metastasis, neurosarcoidosis…
- Infundibulum (pituitary stalk): Germ cells tumors (germinoma), Langerhans cell histiocytosis, lymphocytic infundibuloneurohypophysitis, metastasis, neurosarcoidosis…
- Hypothalamus/optic pathways region: Gliomas, tuber cinereum hamartoma, teratoma, lipoma, neurosarcoidosis…
- Other locations: Craniopharyngioma, Rathke cleft cyst, arachnoid cyst, dermoid or epidermoid cyst, meningioma, saccular aneurysm, tuberculosis…

Once we have defined the lesion's location we will move on its characteristics of MR imaging with due regard to the patient's age and the clinical presentation to set a correct diagnosis

Conclusions
When finding a sella/suprasellar lesion the radiologist should try to define its situation, as well as pay attention to the patient's age (adult or child) and his signs or symptoms in order to establish an accurate diagnosis and a subsequent treatment.

C0085 Neuropediatric mri: from new-borned to two-year old infants, what we need to know for being confident
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Introduction
- To summarize Paediatric neuroanatomy and normal brain characteristics depending on the age: tips and tricks
- To explain typical radiological findings we should recognize depending on the different sequences.
- To introduce common pathological radiological patterns and pathologies that present with them.

Material and Methods
Writing a report on a new-borned or short-aged kid is not always an easy task because we are not used to it and we feel insecure about our knowledges on this field.

Results
It is essential to have clear ideas about the evolutional changes on brain MRI based on the age (such as changes in cortical folding, involution of the germinal layer, myelination, growth of different regions of the brain…)
Furthermore, it is mandatory to use different sequences and parameters (for example the immature brain has higher water content and this associates an increase in T1 and T2 values) and fully understand their normal and abnormal appearance.
Moreover, beyond normal findings we daily describe abnormal patterns: from hypoxic ischaemic injuries in new-borned (altered restricted diffusion on the first 24 hours) to encephalitis in infants (T2 hyperintensity in affected grey and white matter) as well as congenital abnormalities such as encephalocele

Conclusions
It is necessary to know how to write a report on a pediatric brain MRI and what typical findings we can not miss or misunderstand.
The basis of this knowledge is to have a clear idea about the developmental changes and the typical patterns depending on the most common widespread pathology.

C0086 Is this a real posterior reversible leukoencephalopathy syndrome? misdiagnoses in paediatrics and youths
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Introduction
- To describe reversible posterior leukoencephalopathy syndrome (PRES) and population at risk among youths and paediatrics.
- To summarize PRES radiological features on MRI and CT.
- To focus on differentiation between PRES and images that mimic PRES: illustrative cases

Material and Methods
PRES disease is a reversible finding and has to do with the inability of posterior circulation to autoregulate in response to acute changes in blood pressure which causes vasogenic oedema most commonly in the parieto-occipital regions. That is why it is also known as hypertensive encephalopathy.

Results
The key is to have a clear idea about when and in whom we have to think about PRES to avoid its misdiagnoses. We will focus on youths and paediatrics such us pregnants, patients that are immunosuppressed, those that have severe infectious disease.
We will present illustrative cases about a wide range of pathologies that can resemble PRES because the radiological findings on CT and MRI are inespecific and can mimic a great variety of pathologies.
Conclusions
We have to highlight the importance of correlating radiological images with clinical data for avoiding PRES misdiagnosing and overtreatment of patients.

C0087 The new frontier: hybrid mer device for carotid stenosis

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Introduction
- To expose the problem of carotid stenosis and explain which kind of patients we should treat.
- To review a series of patients (23) from our hospital and present our results after carotid angioplasty with MER stent.
- To present MER stent device: procedural characteristics during carotid angioplasty and its technical features.

Material and Methods
Stroke is the third global cause of mortality and carotid atherosclerotic disease is the cause of almost a third of these attacks. Carotid artery stenting has been widely probed as a feasible alternative to carotid endarterectomy when this one is contraindicated due to severe comorbidities or unfavourable anatomy.
Carotid artery is subject to greater mobility as well as external compressions. That is the reason why several different stent structural and composition designs have been tested with different outcomes. The conclusion is that stenting design is mandatory.

Results
We present our experience with the latest generation of hybrid (it combines open and closed cell technology: z-liked shaped cells) nitinol autoexpandible carotid stent (MER stent).
It has got properties that allow excellent pushability and trackability with exceptional flexibility and high radial force. It also includes angiographic visibility secondary to its platinum markers at both ends. All these properties are necessary in the tortuous and narrow anatomy of carotid bifurcation obtaining adequate safety profile.

Conclusions
All stents were successfully implanted and adhered well to the vessel anatomy. There were no cases of thrombus formation. After one month follow-up all treated carotid arteries were patent and we didn´t report major complications.
MER stent provides excellent technological qualities for the appropiate treatment of carotid stenoses lowering the rates of perioperative morbidity and mortality.

C0089 Visual and quantitative assessment comparison of 18f-florbetaben and 18f-fdg pet in patients with mild cognitive impairment in a multicenter clinical series.

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Introduction
The amyloid plaque-binding molecula 18F-Florbetaben (FBB) is used as an Alzheimer´s disease (AD) diagnostic tool.
Our aim was to compare visual reading of 18F-FBB images with quantitative analysis and 18F-FDG in AD diagnosis.

Material and Methods
Thirty subjects with MCI, fulfilling Amyloid-PET criteria (Johnson), were recruited prospectively and consecutively through two centers. They underwent PET-CT brain images acquired in GE-STE system (according international guidelines) during 20-min, 90-min after 370MBq of 18F-FBB injection. Afterwards a 30-min brain-PET was acquired (on the same camera), 30-min after 185MBq of 18F-FDG injection. FBB and FDG blinded and random images were graded as AD and no-AD (negative for AD or abnormal but no AD) by three nuclear medicine experts, reaching final diagnosis by consensus. CortexID Suite quantified FBB and FDG-PET, obtaining standardized uptake value ratio (SUVR) of multiple regions for FBB (reference region=cerebellar cortex). The positive threshold SUVR value was >1.17, according to literature. Interobserver concordance between visual and quantitative assessment were evaluated by "k-Statistic". Discrepant cases were revised.

Results
Readers classified fifteen FBB scans (50%) as AD, the same for FDG images.K coefficient was 0.8 comparing visual reading and quantitative assessment of FBB. We obtained k=1 for FBB and FDG visual reading comparison and k=0.80 for FBB and FDG quantitative comparison. In one case quantitative FBB assessment classified AD whereas readers graded non-AD for FBB and FDG, it was graded as AD after revision. Two patients obtained non-AD by FBB quantification whereas visual FBB and FDG reading graded AD, concordant with clinical diagnosis, indeed SUVR was negative in average but positive in some regions.

Conclusions
In our series with excellent agreement between FBB and FDG reading and quantitative assessment, FBB quantification non demonstrated significant advantage over visual analysis but warned us one mistake, however SUVR seemed inaccurate in two cases, so longitudinal follow-up with more cases is required.

C0090 Correlation between cervical doppler ultrasonography and carotid mr-angiography in the detection of carotid stenosis in patients with cerebro-vascular disease.

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Introduction
Carotid doppler ultrasonography (DUS) and carotid MR-angiography (MRA) are imaging diagnostic methods usually practised in combination in the diagnostic work-up of patients with cerebrovascular disease. Both techniques are well tolerated and their morbility is minimal.
The aim of this study is to determine the concordance degree between both techniques in the diagnosis of proximal internal carotid artery (ICA) stenosis in our institution.

Material and Methods
We studied a series of 79 patients, 60 males and 19 females, with an age range of 34-84 years (median age: 66 years). Carotid DUS was practised with high-resolution linear probe. Carotid MRA was performed in 1,5T field magnets with intravenous injection of paramagnetic contrast. Data from each scan were collected and analysed independently by two radiologists, who where only aware of the results of their assigned technique.

Results
When detecting ICA stenosis lower than 50%, radiologists were concordant in 112 arteries. In 12 arteries DUS detected stenosis greater than 50%, and MRA lower than 50%. In 7 arteries, MRA identified stenosis greater than 50% and DUS below 50%. In 27 arteries both techniques detected stenosis greater than 50%. The Kappa index correlation between both techniques was 66%. For a threshold of 70% stenosis, the corresponding results were: 131 arteries (for which DUS and MRA were concordant diagnosing stenosis below 70%), 6 (DUS detected stenosis >70%, MRA <70%), 5 (DUS stenosis <70%, MRA stenosis >70%) and 16 (DUS and MRA were concordant for stenosis >70%), obtaining a Kappa index of 71%.

Conclusions
In our institution, there is a substantial correlation degree between DUS and MRA in the detection of proximal ICA stenosis.

C0092 The hippocampus, the big forgotten

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Introduction
The hippocampus is a region of the brain located in the medial temporal lobe. Anatomically, it is part of the limbic system, a set of brain structures that manage primitive physiological responses. The hippocampus exerts fundamental functions related to memory and spatial perception and participates in the formation of new memories from experiences. Therefore, lesions of the hippocampus generally result in serious difficulties for the formation of new memories, being the long-term memory the latest affected.

Material and Methods
We reviewed CT and MRI studies labelled as hippocampus pathologies from our centre's clinical archive. Afterwards, we conducted a study of the hippocampus anatomy with high-resolution MRI and vascular anatomy with CT angiography, in order to find the principal clues for a fast and precise diagnosis of these diseases.

Results
We review the most usual diseases affecting the hippocampus, which includes: degenerative diseases (Alzheimer's disease, in which the hippocampus is one of the brain regions affected earlier, frontotemporal dementia), vascular pathology (ischemic stroke, hypoxic-isquemic encephalopathy, vascular malformations, transient global amnesia), anatomical variants (malrotation, remnants cysts of hippocampal sulcus), tumoral pathology (glioma, metastases), infectious disease (encephalitis HSV1, HHV6, HIV), and pathology associated with epilepsy (mesial temporal sclerosis, cortical development malformations, status epilepticus).
It is essential to have a precise knowledge of the anatomy of so complex structure as the hippocampus to understand and correctly diagnose the main diseases that affect it.

Conclusions
In conclusion, the hippocampus is a highly important region in the brain, and therefore a thorough radiological study of this structure will allow us an earlier detection of the various diseases that affect it, in order to start the therapeutic process as soon as possible, therefore resulting in smaller and later clinical deterioration.

C0093 Spine rising with spine-jack

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Introduction
Vertebral fractures are a major cause of functional deterioration in people over 50 years old, and its most common manifestations are back pain, neurological deficits, and, static and dynamic spine changes.
The main causes of vertebral fractures are osteoporosis, malignancies (primary or metastatic), myeloma, trauma (especially traffic accidents) and metabolic disorders (Paget, hyperparathyroidism).
The first therapeutic option is conservative management. However in patients with untreatable pain, drug intolerance, thrombophlebitis, fracture's progression, respiratory failure or need of early mobilization, intervention is indicated, either by vertebroplasty or by interventional procedures such as Spine-Jack kyphoplasty or Balloon kyphoplasty (BKP). Besides, in some cases, conservative treatment represents a significant increase in morbidity and mortality in the long term.

Material and Methods
Retrospective analysis of all the patients with back pain treated with Spine-Jack kyphoplasty in our centre between 2013 and 2016.

Results
Spine-Jack kyphoplasty is a percutaneous procedure, usually of short duration, which corrects the height of the vertebral body, and reduces the pain from the fracture. It can be performed without hospitalization (ambulatory) or with one-night stay, achieving not only treatment costs savings by reducing hospital stay, but also reducing the complications arising from extended hospitalization.
The procedure, guided by fluoroscopy, involves accessing the vertebral body percutaneously through a trocar, inserting two expandable prostheses ("jacks"), followed by slow and controlled injection of radiopaque cement composed mainly of methyl-methacrylate, and sometimes combined with hydroxyapatite, to fill the interior of the vertebral body and reinforce it.

Conclusions
We have found that the use of Spine-Jack allows for a significant reduction of chronic back pain in these patients, as measured by scales such as VAS scale or through quality of life questionnaires, as well as, early walking and discharge, usually within 24 hours after the intervention.

Conflict of interest
We are greatful to Vexim for all the help provided.

C0100 Successful intracranial mechanical thrombectomy for occlusive acute ischemic stroke in children

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Introduction
Acute ischemic stroke in children is difficult to diagnose and manage due to atypical clinical presentation and imaging challenge. As recent reports have indicated the superiority of mechanical thrombectomy over other approaches in the treatment of acute cerebral ischemia in adults, this technique is increasingly being extrapolated to paediatric stroke. This study aims to analyse the safeness and effectiveness of modern endovascular therapy in paediatric intracranial recanalization.

Material and Methods
From October 2012 to June 2016, prospective study of three patients younger than the age of 18 years with an angiographically verified occlusion who underwent mechanical thrombectomy was performed. Baseline characteristics, successful recanalization (TICI grade ≥2b), procedure time, dramatic clinical improvement (≥10 points decrease in NIHSS score at 24 hours), and independent functional outcome (mRS ≤2) at 3 months were recorded.

Results
Mean age at treatment was 13.7, all female. Patients presented with hemiparesis (n=2) and aphasia (n=1). Median NIHSS score was 13 (7-19) on arrival and 3 (4-5) at 24 hours after the procedure. No patient needed general anaesthesia. On first angiogram occlusion site was left middle cerebral artery (n=2) and basilar artery (n=1). All three patients achieved successful recanalization. Mean time from groin puncture to final recanalization was 68±36 min and from groin puncture to initial flow restoration 25±18 min. We combined stent retriever technology plus distal aspiration approach in two patients (number of device passes: 1) and direct aspiration first pass technique in one (duration of aspiration: 30 s). All procedures resulted in good clinical improvement and functional independence at 3 months. No complications were reported.

Conclusions
The current three cases treated with modern thrombectomy devices showed that children presenting with acute ischemic stroke with significant neurological deficits should be considered for endovascular therapy to allow safe and effective recanalization and reduced time to flow restoration leading to improved outcomes.

C0101 Mechanical thrombectomy in anterior circulation acute ischaemic stroke beyond the 6-hour window: experience of a single centre

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Introduction
New randomised trials were published in 2015 with positive results using mechanical thrombectomy with stent retriever (MTST) for ischaemic stroke. Most patients were treated within 6 hours from symptom onset. Two studies included patients beyond this time, reporting a trend towards benefit; currently there are two other ongoing trials. The 6-hour threshold is stablished in current guidelines, and additional data is needed to prove effectiveness of MTST beyond this time. The aim of our study was to analyse the outcome of patients treated in our centre outside the 6-hour window.

Material and Methods
In 2015, 74 MTST were performed; 61 in anterior circulation. From this subgroup, six patients beyond the 6-hour window were included based on a mismatch of symptoms/ischaemic core on nonenhanced CT (NECT) and CT Angiography (CTA).

Results
Patients were mostly women (4/6) with a mean age of 67 years, all previously independent (prestroke mRankin score 0 or 1); four were "wake-up" strokes and two had a mean time of 20h from symptom onset. Median NIHSS score at presentation was 18 (4/6 with more than 16) and median ASPECTS was 8. Local of occlusion was the M1 segment of left middle cerebral artery in three patients; right M1 in two, and left M2 in one. Successful recanalization (mTICI scale 2b/3) was obtained in all patients with a median NIHSS of 11 points post procedure. One patient had a minor intracerebral haemorrhage, with complete recovery. At follow-up, four of the six patients had a mRankin score of 2 or less at 3 months, with zero mortality rate.

Conclusions
Overall, positive results were obtained with MTST outside the 6-hour window. In spite of the limited sample size, these data support our conviction that these patients, if rigorously selected, namely with an evident mismatch symptom/ischaemic image changes, shoul not be excluded from endovascular treatment.

C0102 Aortic arch plaque characterization by computed tomography angiography in acute ischemic stroke

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Introduction
Aortic atheromas have been suggested as a potential ischemic stroke determinant in the elderly, especially in cases of cryptogenic stroke. Computed tomography (CT) angiography can provide a quality of vessel analysis comparable to that achieved with digital subtraction angiography, being a standard technique in acute intracranial occlusion diagnosis. This study aims to investigate CT angiography findings to characterize aortic arch plaque in acute stroke patients.

Material and Methods
From March 2010 to April 2016, 152 consecutive patients who underwent CT angiography within 8 hours from symptoms onset were prospectively enrolled in a single-centre study. Baseline characteristics, neuroimaging pattern, occlusion site on first angiogram, and successful recanalization (Thrombolysis in Cerebral Infarction grade ≥2b) were recorded. Maximal plaque thickness was measured in the ascending aortic arch, perpendicular to the aortic wall. Complex aortic plaques (CP) were defined as plaque more than 4 mm in thickness or those with irregular ulcerations. Ulcerated plaques (UP) were defined as having one or more craters at least 2 mm in depth and width. Plaque instability gradation was assed by composition: calcic, fibrolipid or mixed.

Results
Mean age was 69±12, 52% female. Baseline NIHSS score, imaging findings, occlusion site, and recanalization rates were similar among patients. CP were detected in 30% (28.6% of cryptogenic stroke patients). CP patients were older than non-CP (78 y vs. 69; p=0.002) and also had higher percentage of diabetes (28.3% vs. 13.3%; p=0.028). CP location was 60% in distal arch and 40% in proximal. Supraaortic branch vessels were involved in 28% with CP criteria in 60% vs. 14% (p<0.01). Most common plaque composition was fibrolipid (34%), UP 33.3% vs. non-UP 6.5% (p=0.017).

Conclusions
CT angiography allowed quick and accurate evaluation of aortic atheromas, being useful for measuring plaque thickness, discovering ulceration, and examining it components in acute ischemic stroke. CP prevalence in supraaortic branch vessels was remarkable.

C0109 Regional evaluation of the subventricular zone in patients with multiple sclerosis through a high-resolution diffusion tensor imaging examination

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Introduction
Multiple sclerosis (MS) is a chronic inflammatory, demyelinating disease with an important neurodegenerative component. The subventricular zone (SVZ) is one of the neuro-genic regions in brain and contains multi-potent neural stem cells (NSC) (1). It has been shown that cellularity and density of the NSC change in elderly and patients with neurodegenerative disorders. The aim of this work is to characterize the SVZ by DTI metrics, looking for subtle differences in the SVZ to understand their role in the evolution of MS.

Material and Methods
Thirty-seven patients with MS and 11 healthy controls participated in the study. All of them underwent a MR examination (Philips Achieva 3T) with a high-resolution DTI sequence (32 directions, b-value=1300, TR=7000ms, TE=75ms, FA=90°, 66 contiguous slices with no gap, voxel size 1.58x1.58x2, NEX=1). Additionally, a high-resolution T13D image was acquired to select the SVZ (spoiled GRE, TR=11.83ms, TE=5.77ms, FA=8°, 264 contiguous slices with no gap, voxel size 0.48x0.48x0.50, NEX=1). SVZ was delineated using a semiautomatic technique based on the fixation of an initial seed and subsequent morphological erosions and dilatations. Fractional anisotropy (FA), Apparent Diffusion Coefficient (ADC) and asymmetry indexes were analyzed with SPSS.

Results
Age and sex did not differ between groups (ANOVA;p=0.83;F=0.42), (Chi-Square; p=0.12), respectively. FA values showed a significant increase (ANOVA;p=0.014;F=6.49) in the left SVZ in patients with MS when compared with control subjects. The asymmetry index also showed a significant effect between groups (ANOVA;p=0.001;F=12.01). The ADC did not show significant differences. Neither FA nor ADC values showed significant correlations with different time of evolution of the disease.

Conclusions
This work showed macroscopic significant differences of the tissue structure in the left SVZ in patients with MS (2). These results will be combined with further functional and morphometric studies to help to understand the role of the SVZ in the clinical course of MS.

C0112 Incomplete partition type iii. ct utility previous to surgery.

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Introduction
There are inner ear abnormalities in 20% of neurosensorial hipoacusias.

Material and Methods
From Januery 1995 to Januеary 2016 we performed 468 cochlear implantation. Incomplete partition-type III anomaly is no common finding in a prospective candidate for cochlear implantation, in our serie there were two patients (4 inner ears) with this malformation.

Results
High-resolution multidedector computed tomography (MDCT) and magnetic resonance imaging were performed preoperatively in all patients. MDCT revealed that there was bulbous dilatation at the lateral ends of internal auditory canals (IAC) in all patients. There were also enlargements of labyrinthine segments of facial and superior vestibular nerve canals. Patients with the basal turns of cochlea incompletely separated from IAC were also presented.

Conclusions
It is necesay the perfect knowledge of dfferent inner ear abnormalities for the correct diagnosis and treatment of these patients.

C0117 Neuromyelitis optica diagnostic criteria update

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Introduction
Neuromyelitis Optica (NMO) is an inflammatory demyelinating disorder characterized by myelitis and optic neuritis. In 2015, the International Panel for NMO Diagnosis updated the diagnostic criteria for this disease. Therefore, our objectives are to review the new diagnostic criteria for NMO and describe the differences with multiple sclerosis.

Material and Methods
Retrospective study of clinical reports, laboratory data and radiological studies of all the patients that fit into the new NMO criteria of our Hospital.
The reported imaging findings were spinal cord, optic nerves and cerebral grey matter damage.

Results
MRI proved spinal cord involvement in 100% of the patients, dorsal location being the most frequent with central grey matter predilection and more than 3 vertebral levels extension. The optic neuritis was identified in 50% of the cases, most of them bilateral. 100% of the studies revealed grey matter damage with millimetric lesions with periependimary distribution without specific morphology.
100% of the patients presented NMO compatible clinic.
50% of the cases revealed Ac-NMO positivity in the analytical tests.

Conclusions
MRI, together with clinical and analytical support is the imaging test of choice for NMO, allowing to differentiate from multiple sclerosis.

C0119 Extranodal head and neck lymphomas: our experience in 12 years

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Introduction
Lymphoma is the second most frequent malignancy in the head and neck area. Whereas Hodgkin lymphoma (HL) usually manifests as isolated cervical lymphadenopathies, in cases of Non-Hodgkin lymphoma (NHL), extranodal involvement is present in up to a third of patients, with the most common affected zone lying in Waldeyer's ring. Our aim is to present our series of cases and describe imaging characteristics of extranodal head and neck lymphomas.

Material and Methods
This study compiles our experience in diagnostic imaging in cases of extranodal HL and NHL involving the head and neck region in the last 12 years. We retrospectively reviewed clinical records and imaging studies for all patients included.

Results
Twenty-three cases of extranodal head and neck lymphoma lesions were diagnosed, 7 females and 16 males, with a median age of 75 years. The most frequent diagnosis was B-cell NHL (86%). We also found three cases of HL in infrequent extranodal sites. The most common locations were the base of the tongue and the orbit (17,3% each) followed by the thyroid gland (13,7%). All patients were studied with MRI, CT or US after clinical diagnostic workup. Tumoral spread was classified using Lee's patterns, the predominant type being 2b (43%).

Conclusions
Our case series shows extranodal locations of head and neck lymphoma, with an overall majority of involvement outside Waldeyer's ring. Extranodal lymphoma must be considered among the differential diagnosis of head and neck neoplasms, and the distinction with epidermoid carcinoma is especially relevant for tumors arising close to epithelial surfaces. The absence of classical risk factors and some imaging characteristics, sometimes mimicking lymphoid tissue hyperplasia, should increase clinical suspicion.

C0120 Thyroid abnormalities as collateral findings in cervical spine mri

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Introduction
To evaluate the incidentally detected thyroid abnormalities rate in patients asymptomatic for thyroid disease who underwent cervical spine MRI.

Material and Methods
From January 2013 to September 2013, 98 patients (40 males, 58 females, age 26-64, average 48,1± 9,9 SD) underwent cervical spine MRI (0,25-T MR Unit, S-Scan, Esaote, Genova, Italy). Thyroid was evaluated on axial T2-weighted slices (3D-HYCE sequences) and sometimes also on standard T1- and T2-weighted sagittal images. Patients with thyroid abnormalities underwent ultrasound (US) examination and blood tests. One thyroid nodule underwent fine-needle aspiration biopsy (FNAB).

Results
MRI showed thyroid nodules in 5/98 patients (solitary nodule 4/98, more nodules 1/98), hypotrophic gland (12/98, all without nodules, 10 with light hypothyroidism and 8 with thyroiditis at blood tests, both requiring pharmacological therapy), hypertrophic gland (7/98 without nodules, 1/98 with more nodules, 2 with light hyperthyroidism and 1 with thyroiditis at blood tests, both requiring pharmacological therapy). US examination confirmed the MRI findings in all patients. In particular only one solitary nodule demonstred vascular pattern IV and underwent FNAB (malignant cells) and then surgery.

Conclusions
It is very important to perform an accurate evaluation of all images in a cervical spine MRI, in order to identify any thyroid abnormality, because an early diagnosis allows to start an adequate, and sometimes more effective, treatment, before the onset of symtoms. More generally, also in order to avoid legal implicantions, all significant collateral findings must be always reported.

C0122 Primary cns lymphoma: image findings and radiopathological correlation in a series of cases

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Introduction
Primary CNS lymphomas are uncommon malignancies that represent less than 1% of all lymphomas. The absence of systemic disease must be excluded at diagnosis. In inmunocompromised patients they have a different frequency and behaviour. We review and describe image findings and their histological correlation in a series of cases in our institution.

Material and Methods
This is a retrospective analysis of 10 cases diagnosed in our institution of CNS lymphoma between 2006 and 2016. We review epidemiology, clinical presentation, topography, MR and CT findings with special attention to the correlation between histopathological and image findings.

Results
A total of 10 primary CNS lymphomas were diagnosed; 6 in males and 4 in females. Age ranged 40-74 years. The most frequent clinical presentation was neurological deficit and altered consciousness. In eight cases deep supratentorial masses were found, mainly in frontotemporal lobe and basal ganglia, involving periventricular white matter and corpus callosum in three cases. MR shows a parenchimatous mass with tumour homogenous enhancement and vasogenic oedema in most of cases being at CT homogeneous hypedense. The most frequent histological diagnosis was large B cell diffuse lymphoma.

Conclusions
Primary CNS lymphoma is an uncommon malignancy that should be excluded in differential diagnosis of intracranial expansive lesions in adults. They usually present as a supratentorial mass in close contact with arachnoid and/or ependimary surface being their imaging features mainly related to a dense cellularity.

C0123 Detection of spinal cord lesions in clinically isolated syndrome patients: comparison of t2, proton density, stir and combined t2-stir sequences

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Introduction
To compare the sensitivity and specificity in the detection of spinal cord (SC) lesions of different sagittal sequences STIR, T2 and proton density (PD)-weighted, and combined T2-STIR sequences] acquired at 3.0T, in patients presenting with a clinically isolated syndrome (CIS)

Material and Methods
MRI of the whole SC of 84 patients presenting with a CIS were was retrospectively analyzed by two independent observers (O1, O2). Presence of SC lesions was evaluated on all sequences availables. The reference standard (RS) was obtained by a third experienced neuroradiologist using all sequences available, in order to calculate a definitive lesion counts. Sensitivity, specificity and interobserver agreement were assessed for each sequence

Results
The percentage of patients with at least one SC lesion was 31% (O1) and 59.5% (O2) on STIR; 45.2% (O1) and 46.4% (O2) on T2-STIR images; 34.5% (O1) and 50% (O2) on PD; while 36.9% (O1) and 41.7% (O2) on T2 images
Sensitivity detecting lesions by observers was 72.0% (O1) and 72.0% (O2) for STIR; 72.0% (O1) and 60.8% (O2) for T2-STIR; 51.4% (O1) and 60.8% (O2) for PD, and 54.2% (O1) and 57.0% (O2) for T2.
Sensitivity and specificity in detecting patients with at least one SC lesion were 83.3% and 98.2% (O1) and 96.7% and 61.1% (O2) for STIR; 96.7% and 83.3% (O1) and 90% and 77.8% (O2) for T2-STIR; 80.0%, and 90.7% (O1) and 93.3% and 74.1% (O2) for PD; and 76.7% and 85.2% (O1) and 80.0% and 79.6% (O2) for T2.
The interobserver agreement for the detecting patients with at least one SC lesion was moderate to good.

Conclusions
Highest sensitivity was achieved with STIR and combined T2-STIR images for detecting SC lesions in CIS patients.

Conflict of interest
* Annalaura Salerno has nothing to disclose
* Julian Gutièrrez has nothing to disclose
* Cristina Auger has received speaking honoraria from Biogen, Stendhal and Novartis
* Elena Huerga has nothing to disclose
* F Xavier Aymerich has nothing to disclose
* Juan Francisco Corral has nothing to disclose
* Manel Alberich has nothing to disclose
* Mar Tintoré has received compensation for consulting services and speaking honoraria from Bayer Schering Pharma, Merck-Serono, Biogen-Idec, Teva Pharmaceuticals, Sanofi-Aventis, Novartis, Almirall, Genzyme, and Roche.
* Georgina Arrambide has received compensation for consulting services from Biogen-Idec and research support from Novartis.
* Xavier Montalban has received speaking honoraria and travel expenses for participation in scientific meetings, has been a steering committee member of clinical trials or participated in advisory boards of clinical trials in the past years with Almirall, Bayer, Biogen, Genzyme, Merck, Novartis, Receptos, Roche, Sanofi-Genzyme and Teva Pharmaceutical
* Alex Rovira serves on scientific advisory boards for Biogen Idec, Novartis, Genzyme, and OLEA Medical, has received speaker honoraria from Bayer, Genzyme, Sanofi-Aventis, Bracco, Merck-Serono, Teva Pharmaceutical Industries Ltd, OLEA Medical, Stendhal, Novartis and Biogen Idec, and has research agreements with Siemens AG.

C0124 Tonsilar lymphoma: a series of cases review

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Introduction
Waldeyer´s lymphatic ring is a ring-shaped arrangement of lymphoid tissue consisting of pharyngeal, palatine and lingual tonsils. Lymphoma is the second most frequent malignancy behind squamous carcinoma (90%), usually presenting as an ipsilateral tonsilar hypertrophy that may be associated to massive cervical lymph node swelling. Rarely, tonsilar malignanacies are secondary neoplasms from lung, breast, kidney or skin carcinomas. Our aim is to review imaging findings in tonsilar lymphoma and stablish radio-pathological correlation through a series of cases in our institution.

Material and Methods
A retrospective analysis of tonsilar lymphomas diagnosed in our institution between 2007 and 2014 was performed, reviewing epidemiology, clinical presentation, CT and MR imaging findings and histological correlation.

Results
A total of 11 cases of non Hodgking diffuse large B cell lymphoma were diagnosed, with a sex ratio of 1:1 and a median age of 59 years. Radiological findings mostly consisted in tonsilar-associated soft tissue mass with regional lymph node swelling (82%). There were no differences between uniilateral/bilateral adenopathies or the presence of necrosis.

Conclusions
Lymphoma is the second most frequent tonsilar neoplasm which requires histological confirmation. Notwithstanding clinical and imaging findings may suggest it which implies a different management and prognosis comparing to epidermoid carcinoma.

C0130 Cheek lesions: differential diagnosis with clinical and histopathologic correlation.

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Introduction
The purpose of this study is to show a wide variety of processes predominantly involving the malar region, presenting as cheek palpable masses and to evaluate their imaging characteristics with US, CT and MRI, correlating with cytological/histologic and clinical data.

Material and Methods
We retrospectively reviewed our hospital records for patients with cheek palpable masses as main or first clinical sign as reason for consultation. We show images of those processes with CT, US or MRI and pathology samples when they were obteined.

Results
We present different, frequent and infrequent, processes arising on or affecting predominantly the malar region including: infectious (odontogenic and non odontogenic), inflamatory (Paget disease), vascular tumours and malformations (bone and soft tisue hemangioma, respectively), congenital (nasoalveolar cyst, normal anatomical variants), yatrogenic (cosmetic procedures), bening bone lesions (fibrous dysplasia, osteoma), bening soft tissue tumors (lipoma), glandular neoplasms (pleomorphic adenom, metastases) ad malignant bone or soft tissue lesions (fibrosarcoma, MALT lymphoma, epidermoid carcinoma, plasmocytoma).

Conclusions
Cheek palpable masses area a common clinical complaint in adults and can represent a diagnosis challenge. Although US exploration must be the first modality of choice when evaluating a malar mass, other complementary techniques as CT and MRI can help in differential diagnosis.

C0131 Horner syndrome: imaging assessment of the oculosympathetic pathway

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Introduction
Horner syndrome is an entity characterised by the triad miosis, ptosis and forehead anhidrosis. This syndrome results from a lesion ocurring anywhere

along the oculosympathetic pathway from the first neuron (hypothalamus), which descends through the brainstem and spinal cord to the second neuron (from C8-T1 to the superior cervical ganglion) and the third neuron (after the superior cervical ganglion). Therefore, it can be anatomically classified in three subtypes: central, preganglionic and postganglionic. Depending on the anatomic location and the underlying pathologic process, Horner syndrome is usually associated with unique clinical features.

Material and Methods
We retrospectively reviewed several representative cases of the three Horner syndrome subtypes showing their CT and/or MRI imaging findings. A review of the literature was also performed.

Results
Central Horner syndrome is relatively uncommon and can usually be identified on the basis of the presence of associated hypothalamic, brainstem or spinal cord signs. The most common presentation of central Horner syndrome is as part of a lateral medullary infarction. Preganglionic Horner syndrome is most often caused by brachial plexus or cervicothoracic spinal cord trauma and tumors, including Pancoast tumor. The lesions causing postganglionic Horner syndrome can be variable and are categorized in three ways according to their location: those affecting the internal carotid artery, those at the skull base and those at the cavernous sinus and orbital apex.

Conclusions
Horner syndrome assessment includes an exhaustive list of underlying processes which may range from relatively insignificant to life-threatening and that can extend from the hypothalamus to the thorax, carotid artery and orbit. Given the broad anatomic spectrum of the disease, understanding of the anatomy of the oculosympathetic pathway and an accurate clinical evaluation is essential to select the best imaging technique for the etiologic differential diagnosis of this complex condition.

C0135 Normal pressure hydrocephalus in adults: statistical assessment of its radiological signs.

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Introduction
To review the imaging features of normal pressure hydrocephalus in adults, statistically assessing the different radiological signs.

Material and Methods
Case-control study made up of 28 patients at our hospital, 14 diagnosed with normal pressure hydrocephalus, 14 under control and showing other neurological alterations (cognitive decline, Parkinsonism, headache).
Two observers analyse 9 variables in CT and MRI: Ventriculomegaly, periventricular hypodensities or hyperintensities, dilatation of Sylvius, sulcal effacement of the parasagittal convexity, ballooning of the corpus callosum, upper corner or the corpus callosum, callosal marginal sulcus, anteroposterior ballooning of the third ventricle, and permeability of the aqueduct of Sylvius.
Statistical analysis performed and literature reviewed.

Results
To highlight the most substantive radiological signs and their predictive value for diagnosing this disorder, and those which appear in the same form in other pathologies.

Conclusions
To stress the most specific and significant radiological signs in this pathology.

C0136 Gaze disorders: the secret in your eyes.

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Introduction
Gaze control mechanisms allow the alignment of the greatest visual acuity area of our retina, the fovea, with the world around us.
There are 4 basic types of eye movements.

- Saccades allow us to focus on a new object on our field of vision, to read or to watch a tennis match.
- Smooth pursuit allow us to track a slow-moving object.
- Vergence allows the image of an approaching object yo be held simultaneously in both foveae.
- Vestibular an optokinetic adjust the visual axes according to the position of our head and body.

These movements are coordinately-carried out by the oculomotor nerves, in response to the activation of the gaze-controlling centers in the brainstem by information provided by areas in the cerebral cortex and the cerebellum.
Damage to these structures causes symptoms such as diplopia, decreased visual acuity or blurred vision which are a frequent reason for consultation.

Material and Methods
After a comprehensive review of the anatomy and physiology of gaze control mechanisms, we reviewed MRI images and clinical records of gaze pathology cases in the neurology archive of our hospital to clarify the symptom-topograpy relationship of different gaze palsies.

Results
71 cases of gaze disorders were found of which 43% were males and 57% females. 57% were over 60 years old. The most common symptom was diplopia. Neurologic exam showed abnormalities in 57%, but the culprit lesion was only found in a minority of cases, most of them young patients with demyelinating disease who presented internuclear ophthalmoplegia.

Conclusions
Magnetic resonance imaging (MRI) in gaze-related disorders yielded low diagnostic performance, except in demyelinating disease. A deep knowledge of the anatomy of the visual system and careful review of the MRI images are essential to assess these disorders since, in many cases, the lesion may be subtle and easily overlooked.

C0141 Functional imaging in glioblastoma: advanced mri and pet-18f-choline. new targets for radiotherapy?

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Introduction
Glioblastoma multiforme(GBM) is the most common primary brain tumor. The treatment is based on surgery, radiotherapy and chemotherapy. In radiotherapy planning to add functional information provided from advances sequences in MRI (aMRI: diffusion-weighted imaging and diffusion tensor imaging, perfusion-weighted imaging (PWI) and positron emission tomography (PET) could be essential.
However, the relationship between the findings of both imaging modalities has not been well established.

Material and Methods
Our objetive was to analyze the relationship between functional markers of aMRI (perfusion and diffusion) and PET with 18F-fluorocholine (PET-F·CHOL) in radiotherapy planning of patients with GBM.

We have considered a serie of 7 cases diagnosed GBM (Jan/2015/-Apr/2016) which underwent aMRI and PET-F·CHOL studies, prior to radiotherapy planning. Demographics data, histology and type of surgery were included. Diffusion values were calculated using the ratio ADC (rADC); perfusion ratio of cerebral blood volume (rCBV) and intensity of uptake of F·CHOL by standard uptake value (SUV: minimum, maximum and mean indexes) in differente target areas of tumoral and healthy tissue. Statistical analysis was performed using SPSS version 15.0, considering statistical significance when p<0.05.

Results
Seven patients (2 women/5 men, mean age: 59.43 ± 8.50 years) were included. The most frequent location was the temporal lobe 5/7 cases (57.1%) with predominance of the left side 5/7 (71.4%). In most cases, surgery was performed a partial gross resection (71.4% cases). Bivariate correlations analysis showed a strong correlation between the SUV mean and diffusion parameters (r= 0.90; p= 0.037) and perfusion (r= -0.90; p= 0.037) in the tumor area selected for spectroscopy.

Conclusions
In the radiotherapy planning of patients with GBM, in our series of only 7 cases, there is a significant relationship between the functional parameters of MRI and 18F-fluorocholine PET study.

C0142 Carotid wall structure influences agreement for intima-media thickness measurement by ultrasonography: data from 242 subjects with different atheromatosis burden.

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Introduction
Inconsistencies about reproducibility for the carotid intima media thickness (IMT) measurement by ultrasound could explain the recent emerged questions about its value as cardiovascular biomarker. We aimed to determine whether carotid wall structure can influence on IMT reproducibility.

Material and Methods
The study was approved by the Institutional Ethics Committee. 242 subjects with different expected atheromatosis burden underwent a blinded carotid ultrasound by two expert operators and under a strict protocol.
The agreement for the average (IMTmean) and the maximum (IMTmax) of three carotid IMT measurements in each side was evaluated by the Intraclass Correlation Coefficient (ICC). The structural carotid features assessed were tortuosity, depth, layer definition, intima-lumen regularity and degree of IMT. Mann Withney, Kruskall Wallis and paired-samples Student T tests were employed to evaluate IMT differences, as appropriate.

Results
The reproducibility was worst for tortuous arteries on right (IMTmean-ICC: 0.86 versus 0.773; IMTmax-ICC: 0.638 versus 0.505) and left sides (IMTmax-ICC: 0.726 versus 0.515).
The agreement was worst for deeper (IMTmean-ICC fell from 0.908 for superficial arteries to 0.788 for depth ones), undefined-layer (IMTmean-ICC fell from 0.853 for defined to 0.77 for undefined-layer carotids) and an irregular right carotids (ICC fell from 0.841 to 0.734 and from 0.63 to 0.419 for IMTmean and IMTmax, respectively). A thicker IMT could improve the agreement as happened in left carotid and aging subjects. However, IMT was also thicker in males and the agreement was worst in them (right-ICC: 0.713 versus 0.574; left-ICC: 0.747 versus 0.689 for IMTmax). On both sides, the thicker the IMT was, both the worse carotid-layer definition ($P < 0.001$) and the more irregular the interface lumen-intima were perceived ($P < 0.001$).
Conclusions
The structural features in the carotid artery wall are sources of variability between operators for measuring the carotid intima media thickness by ultrasound.

C0148 Undifferentiated nasopharyngeal carcinoma. imaging findings and radiopathological correlation in our institution

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Introduction
Nasopharyngeal carcinoma differs in clinical, epidemiological and histological behaviour from other head and neck carcinomas. It is not clearly related to alcohol and tobacco while interactions between genetical background and envirommental influences, including EBV infection, may underlie in its genesis. From the three types defined by WHO, type 3 (undifferentiated carcinoma) is the less common and holds a better prognosis.
The aim of this study is to review imaging findings and radiopathological correlation of this entity through a series of cases in our institution.

Material and Methods
A retrospective analysis of nasopharyngeal type 3 carcinomas diganosed between 2004 and 2012 was performed, paying attention to epidemiology, early and late clinical features, imaging findings and treatment.

Results
We review a total of 9 cases of undifferentiated carcinoma; 4 male and 5 females between 40 and 89 years. Clinical presentation inlcuded headache, craneal nerve palsy and cervical lymph node swelling.
Imaging findings shows soft tissue mass with regional lymphadenopathies in 55% of cases. Two cases were locally invasive and one presented metastatic disease. All patients received radiochemotherapic treatment with fairly good outcome (77% survival, one relapse and two related death)

Conclusions
Diagnosis of nasopharyngeal carcinoma is based on clinical exam and endoscopy with biopsy, being imaging techniques essential for local invasion and nodal evaluation.
Undifferentiated carcinoma presents less local invasion and a lower percentage of nodal metastasis at the moment of diagnosis when comparing with the other two types.

C0152 MDCT can measure cochlear basal turn and whole length accurately

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Introduction
Cochlear implants are audiologic devices that transform acoustic in electric energy and so proceed to stimulate the residual spiral ganglionic cells of the auditory nerve in patients with severe uni or bilateral deafness.

A wide variety of cochlear implants of different lengths are available.Some need to cover as much cochlear length as possible to preserve the tonotopic physiologic distribution of the frequencies within the cochlea.
Diverse theoretical methods that measure the cochlear lenght had been proposed but they are based on a few number of patients or have been realized in studies with corpses.
Our objective was to demonstrate that MDCT could measure the length of the cochlea accurately in vivo in order to help the surgeon to choose the most suitable cochlear implant according to the individual cochlear length.

Material and Methods
After institutional ethics committee approval,50 cochlear-implanted patients were retrospectively reviewed. Cochlear length was calculated with linear measurement after double oblique coronal reconstruction in 64-multidector CT prior and after implantation. Both in the basal turn and the whole cochlea, Pearson coefficients were obtained between presurgical and postsurgical cochlear measurement with the electrode guide carrier known length (considered to be the gold standard).

Results
Cochlear basal length ranged 16,90 -24mm whereas full cochlear length ranged between 25 and 37mm. 45 out of 50 cochlear implanted patient had at least basal turn coverage and so presurgical lineal CT measurement and gold standard correlation coefficient was 0,862 ($p<0,0001$) in the basal turn and 0,812 ($p>0,0001$) in the whole cochlea with 32 patients were obtained.

Conclusions
Cochlear length variability is big enough to consider individually selection of a suitable cochlear implant in order to cover as much frequencies as possible. Cochlear linear reconstruction can measure accurately cochlea basal turn and whole cochlea and so the radiologist can suggest the surgeon the most suitable cochlear implant length.

C0153 The hidden pyriform sinus

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Introduction
Epidermoid carcinoma is the most frecuent malignat neoplasm of the head and neck area. Smoking, poor dental hygiene and genetics are causative agents being alcohol a cofactor.
Hypopharynx is the location with the poorest prognosis and the pyriform sinus is the subsite of origin in 65% of them.
The aim of the current study is to determine: incidence of pyriform sinus carcinoma in our centre, correlation between clinical and radiological staging, type of treatment applied and outcomes. As well as identify those cases wrongly labelled as pyriform sinus carcinoma.

Material and Methods
This is a retrospective study of patients with pyriform sinus carcinoma, diagnosis between January 2010 and February 2016, in our centre. The following variables were analyzed: age, sex, CT, clinical and pathological staging, type of treatment and patient outcome.

Results
18 patients were diagnosed of epidermoid carcinoma of pyriform sinus, being 2 of them in fact supraglotic tumors. 87,5% were men of 63 years old of medium age. Smoking habit were present in all cases and alcohol in most of them.
In 5 cases there were discrepancies between clinical and CT staging giving a higher T score by clinical examination.

Conclusions
It is difficult to entirely explore the pyriform sinus in a routine examination, that is why the radiologist plays an important role in the diagnosis, staging and follow-up of epidermoid carcinoma originated in this area.

C0155 Full pituitary duplication: presentation of two cases and review of their findings by image.

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Introduction
The complete duplication of the pituitary gland is a very rare disorder, reported so far in 52 patients, which consists of the presence of two pituitary stems that originate on the floor of the third ventricle, thickened, and have a drive from medial to lateral direction external to the body of the sphenoid. In the distal end of each stem is a ámalo size complete pituitary glándula (adenohypophysis and neurohypophysis). Most of the described cases presented associated midline craneofaciales and oropharyngeal anomalies which include hypertelorism, cleft palate, persistence of the craniopharyngeal canal, the clivus defects, choanal atresia and presence of hypothalamic hamartomas

Material and Methods
We present two cases of duplication pituitary gland, their findings by image, associated alterations and a review of the literature and current Embryological concepts of this development anomaly

Results
Clinical case No 1.
25-month-old child referred for study because of delayed psychomotor development and features of facial and oropharyngeal dysmorphic. Global hypotonia. Not wandering. Practical absence of expressive language and little expressiveness facial. The MR showed duplication of the hypophysis, a small midbrain and the absence of bulbs and olfactory tracts, together with extensive cervical malformations, with vertebral bodies hipoplásicos, vertebrae in butterfly and platiespondilia.
Clinical case No 2.
10-year-old girl with background of precocious puberty and menarquia at the age of 9 sent for study for crisis of absence. Tris cases doesn't feature malformations. MR study was showed only duplication of the hypophysis.

Conclusions
The duplication of the hypophysis is a rare malformation that included a wide clinical spectrum, from cases incidental or related exclusively to hormonal disorders up to other partners associated with severe malformations. The MR is fundamental for his evaluation and that of possible aassociate de anomalies.

C0158 Diagnostic accuracy of intravenous c-arm conebeam ct angiography in the follow-up of cerebral aneurysm treated with coils: preliminary results.

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Introduction
A noninvasive method is necessary for the imaging follow-up of patients with cerebral aneurism treated with coils. We aimed to evaluate the diagnostic value of conebeam CT angiography with intravenous contrast in the assessment of vascular status following the implantation of coils.

Material and Methods
This was an ongoing prospective study from February to May 2016. For those patients with follow-up digital subtraction angiography for aneurysms treated with coils, a conebeam CT angiography with intravenous contrast was performed previous to DSA. This study had been approved by the institutional review board. All patients gave written informed consent to participate in the study prior to undergoing the procedure. Images of both studies were evaluated by two neuroradiologists to assess image quality, artifacts, recanalization status, stability and need for further treatment

Results
We studied a total of 13 patients, 3 patients were excluded (2 due to contrast extravasation and 1 case due to failure - impossibility to achieve vein canalization). We finally include 10 patients (3 men and 7 women) with a total of 13 aneurysms. The mean age was 58 (45-76) years old; the mean follow-up was 29 months (3-76). In all 13 aneurisms, the quality of the image was either good or excellent.
After the artifact evaluation, 6 cases were classified as "sufficient for the evaluation", finding a coincidence in 5 (83,3%) when compared to the arteriography. Only in one of the cases there was no coincidence with the diagnosis, probably due to the fact that the patient presented a slight residual neck which cannot be evaluated in the C-arm CT Angio. Regarding clinical decision, these 6 patients were classificated as "no need for retreatment" with C-arm as well as with DSA.

Conclusions
Conebeam CT angiography with intravenous contrast enhancement is potentially promising and useful for effective evaluation of the vascular status following intracranial coil.

C0164 Brain arteriovenous malformations. survival guide for resident physicians.
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Introduction
Review the main characteristics of brain arteriovenous malformations (AVM) through cases diagnosed and treated in our hospital.

Material and Methods
Brain Arteriovenous malformations are abnormal clusters of arteries and veins, with direct communication, with no blood capillaries or brain parenchyma between them.
They are usually diagnosed between the second and the fourth decade of life. These are the most symptomatic malformations, which include headaches and seizures without presenting a specific pattern. The greatest danger of AVM is hemorrhage, which occurs approximately between 2 and 4% of cases.
In computed tomography (CT) appear as serpiginous structures, calcified by up to 30% of cases, which enhance after administration of intravenous contrast. Magnetic resonance imaging (MRI), depending on the flow characteristics and the acquired sequences, may have a variable appearance, being typical "honeycomb" morphology.
However, the reference technique for the diagnosis of AVM remains digital subtraction angiography, specially sequences performed with selective injection of contrast.

Results
We analyzed data from more than 100 patients in our hospital, studying and classifying them according to age, clinical presenting, size, location, and the treatment they received.

Conclusions
The role of the radiologist will be key in the diagnosis and management of vascular malformations. It is fundamental to know the characteristic findings in different imaging tests.

C0171 Analysis and cuantification of cerebral bood flow as a possible biomarker in early alzheimer's disease.
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Introduction
Although formation of b-amyloid plaques and neurofibrillary tangles are the hallmarks of Alzheimer's disease (AD), most autopsy reports show the presence of vascular pathology. The search for biomarkers that can facilitate an early diagnosis is crucial for altering treatments. Cerebral blood flow appears to be a potential biomarker. The total inflow of blood to the brain can be measured using a non-invasive 2D-phase-contrast MRI technique (PC-MRI), a very fast sequence that can be easily added to the conventional examination.

Material and Methods
PC-MRI consists of a 2D gradient-echo-sequence (GRE) equipped with bipolar gradients for phase contrast velocity mapping with 4 encoding velocities (total scan time=35 s) to measure the total cerebral blood flow (TBF), by adding the blood flow through the internal carotid arteries (ICA-BF) and the vertebral arteries (VA-BF). Mean velocity and BF measurements were extracted. 104 subjects were distributed in four age-matched groups: healthy controls(HC) (n=32), subjects with subjective memory complaints(SMC) (n=17), patients with mild amnestic cognitive impairment (MCI) (n=34) and patients with early-stage AD (n=21).All subjects underwent neurological examination, cognitive assessment and brain MRI-3T. SMC subjects were added to the HC group for subsequent analyses. Statistical comparisons were performed using ANOVA and post-hoc tests. The statistical threshold for significance was set to 0.05, after correction for multiple comparisons. The effects of age and gender in TBF were evaluated using a general linear model.The correlation between TBF and Mini-Mental State Examination (MMSE) scores was also assessed.

Results
TBF decreased with increasing age independently of group ($p<0.0001$). TBF, ICA BF and ICA velocity showed significant differences between HC and AD, and between HC and MCI. No significant differences among groups were seen in VA-BF. A significant linear relationship was found between MMSE and TBF ($p<0.001$).

Conclusions
Our findings suggest a relationship between blood flow to the brain and AD pathology.

Conflict of interest
MINECO SAF2014-56330-R, RYC-2010-07161

C0181 extracorporeal membrane oxygenation and intracranial hemorrhage: report of two cases.

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HGU Gregorio Marañón (Madrid)

Introduction

The extracorporeal membrane oxygenation (ECMO) provides respiratory and cardiac support, requiring systemic anticoagulation. Deoxygenated blood is collected by the venous access and, after circulating through the membrane oxygenator, the oxygenated blood is sent back to the circulatory system. According to the returning cannulae, it can be classified as venovenous (VV) ECMO or venoarterial (VA) ECMO, the latter being subdivided into peripheral and central. The aim of this report is to describe the intracranial complications associated to ECMO support.

Material and Methods

We report 2 cases of intracranial hemorrhage during VA ECMO run.

Case 1

56 years male, with cardiogenic shock post-acute myocardial infarction, treated with ECMO. Because of neurological impairment, computed tomography (CT) scan was performed, depicting bilateral ischemic infarcts with hemorrhagic transformation. The patient was not subsidiary of neurosurgical treatment, and conservative management of the intracranial bleeding was decided.

Case 2

59 years male in the 2 ° day after a perianal abscess surgery, had a massive pulmonary embolism with cardiogenic shock, requiring ECMO. During sedation window, patient kept unresponsive. CT scan showed multiple ischemic lesions with hemorrhagic transformation phenomena affecting the left calcarine area and right MCA, with subfalcial and uncal herniation. It was necessary to withdraw the assistance of the ECMO and reverse systemic anticoagulation for decompressive craniotomy and evacuation of the hematoma. Cava filter was placed.

Results

Case 1

During the ICU stay, the patient presented a progressive deterioration of multiple organs and finally it was decided to limit therapeutic efforts.

Case 2

On the 11th postoperative day, the patient suffered extensive deep vein thrombosis of the right lower limb. The patient continues in the ICU, pending repermeabilization with thrombectomy, currently suspended because of a septic process.

Conclusions

These cases illustrate the risk of neurological complications in ECMO patients, which stress the critical role of patient selection.

C0183 Imaging of the central skull base. from anatomy to disease.

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Introduction

Educational electronic presentation intended to show: 1- The main indications of central skull base (CSB) imaging, related clinical scenarios, and impact of imaging on diagnosis and treatment.

3-Help the viewer get familiar with the complex embryology and imaging anatomy of the bony and neurovascular CSB.

4-Present common diseases in the CSB and establish a reasonable differential diagnosis.

Material and Methods

Reppresentative cases from our clinical practice along with figures and drawings, are used to illustrate of the embriology, anatomy, and pathology of this complex region.

Four interactive cases at the end of the presentation will test the reader´s knowledge after viewing the presentation.

Results

The following issues are reviewed:

1-Indications for imaging CSB.Relevant information for the surgeon and radiotherapist.

2-Embriology of the notochord, pituitary gland and bony components of the CSB.Anatomic variants and related disease entities.

3-Imaging anatomy: Limits of the CSB.Anatomy of sphenoid bone and CSB limits. Skull base foramina, neurovascular structures, and related spaces. Presentation of illustrative cases.

4-Differential diagnosis of CSB lesions based on their location, imaging features, and clinical scenario.

Conclusions

A detailed knowledge of both the anatomy and embriologic events leading to the formation of the central skull base are paramount to understanding the pathology of this complex anatomic area, as well as the implications of imaging findings on treatment and prognosis. Neurorradiologists should thus play a pivotal role in the multidisciplinary management of patients with central skull base lesions.

C0184 Usefulness of neurographic dwi and dti based tecnhiques for the evaluation of peripheral nerve tumors.

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Introduction

- Review the physical basis and technical specifications for the acquisition of DWI-Neurography and DTI-Neurography studies.
- Show the characteristics of peripheral nerves tumors using these techniques.

Material and Methods

Description of the basic sequence design and technical parameters required for the acquisition of DWI and DTI-Neurography studies.

Bibliographic update of the main applications of DWI and DTI-Neurography for assessing peripheral nerve tumors.

Illustrate, by own examples, the usefulness and limitations of DWI and DTI-Neurography studies for the evaluation of this kind of lesions.

Results

We present examples of benign lesions (Schwannoma and Neurofibroma), malignant lesions (Neurofibrosacroma) and pseudotumoral lesions such as neuromas or intraneural ganglion cysts. The characteristic sof theselesions, both in DWI and DTI, is detailed according to the degree of restriction of diffusion (signal intensity on DWI and ADC values) and their behavior in the study of DTI (FA values and relationship with the rest of the nerve in the 3D neurographic reconstructions (tractography).

The added value of these techniques over conventional sequences is discussed and the possible inclusion or not as a part

of routine MRI protocols for assessing tumoral lesions of peripheral nerves.

Conclusions
DWI and DTI Neurography studies allow to improve characterization of peripheral nerve tumors from both morphologically (using 3D reconstructions), and functional point of view, using parameters derived from their acquisitions (ADC, FA). This manner, differential diagnosis between them can be facilitated increasing our overall diagnostic accuracy.
These techniques are showing promising results and may be considered for inclusion as part of routine protocols for assessing peripheral nerve tumors.

C0185 Enterovirus 71-induced brainstem encephalitis and myelitis: mri findings in eight cases

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Introduction
Enterovirus 71(EV71) is a virus that has a vital etiological role in epidemics of neurological diseases in children typically below the age of three. Affected children can show severe central nervous system (CNS) complications, such as aseptic meningitis, brainstem encephalitis and myelitis. The main causes of death are brainstem encephalitis and respiratory and circulatory failure. Therefore, early diagnosis is critical for clinical management of the disease and to prevent fatalities. Our objective is to review eight different cases of children with enterovirus-related brainstem encephalitis and myelitis with emphasis on the MRI findings.

Material and Methods
We analyzed clinical and imaging data from eight cases of children with enterovirus-induced brainstem encephalitis and/or myelitis. All patients underwent anamnesis and physical examination, cranial and spine MRI scans, cerebrospinal fluid (CSF) biochemical analysis and detection of enterovirus nucleic acid by PCR in CSF and nasopharyngeal and rectal swab.

Results
All eight cases were positive on MRI exam. The primary location of the lesion for brainstem encephalitis was the cerebellar dentate nucleus (6 cases), followed by the dorsal pons and middle cerebellar peduncles (4 cases), midbrain (3 cases), thalamus (2 cases) and basal ganglia (1 case). Whereas for myelitis the primary location was cervical (7 cases) with one case affecting the conus medullaris. Plain T1- weighted images showed isointense or hypointense signals, however SPIR-FLAIR and T2-weighted images showed hyperintense signals. The most common neurological symptoms for brainstem encephalitis were tremor, ataxia and myoclonus. Enterovirus PCR was positive in all stool samples and negative in CSF exams.

Conclusions
The locations of EV71-induced brainstem encephalitis and myelitis lesions are relatively specific and matches the ones that have been described in other studies. MRI scans can provide important information for clinical assessment and monitoring of treatment of the disease.

C0189 Unstable degenerative spondylolisthesis: role of prone position mri in the detection of lumbar facet joint effusion

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Introduction
To evaluate the role of MRI, also with patient in prone position, for lumbar facet joint effusion (FJE) detection in the diagnosis of unstable degenerative spondylolisthesis.

Material and Methods
From April 2013 to September 2013, 20 patients with cronic low back pain, no previous spine surgery (13 males, 7 females, age 31-67, average 51,1± 5,9 SD) underwent lumbar spine MRI (0,25-T MR Unit, S-Scan, Esaote, Genova, Italy). Standard MRI was performed in supine position (T1and T2 weighted sagittal slices, T2 weighted axial slices), then T2 axial slices were performed with patient in prone position.

Results
In 14/20 patients standard MRI showed either FJE at a single level (10/20) or at multiple levels (4/20). Prone position MRI detected FJE in 18/20 patients (12/20 single level, 6/20 multiple levels), with 20% increased sensitivity.

Conclusions
In our little study prone position MRI increased the FJE detection rate. Therefore with only an additional short time sequence - and without dedicated and less available MR units - could be possible a better detection and evaluation of unstable degenerative spondylolisthesis, an important cause of low back pain. A larger study must be performed in order to confirm these preliminary results.
Prone position MRI was utilized also in the study and management of spinal cord retethering and in the study of adhesive arachnoiditis.

C0190 Direct puncture embolization of orbital vascular malformations. review of 10 cases

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Introduction
Direct puncture embolization is an alternative to surgery for the treatment of orbital vascular malformations. We describe the safety and efficacy of direct puncture embolization for treatment of orbital vascular malformations at our institution.

Material and Methods
Ten patients with orbital vascular maformations were treated with direct puncture embolization. The procedures were performed with general anesthesia under fluoroscopic guidance in the angiography suite. Treatment was performed by interventional neuroradiologists, with ophthalmologic assistance. Patients underwent ophthalmological assessment and orbital MRI before and after treatment.

Results
Of three men and seven women patients averaging 37 years old, four were diagnosed with orbital varix, four with dural arterio-venous malformations, and two with an orbital lymphangioma. Proptosis, eyelid swelling, conjunctival chemosis, pulsating exophthalmos and diplopia were the most common presenting signs and symptoms. Four patients with orbital varix were treated with direct intralesional injection of onyx (avegare dose: 6ml), followed by surgery. Two patients with orbital lymphangioma were treated with direct intralesional injection of

bleomycin (dose: 0.5 mg/kg; average dose: 12 mg). In three of these six patients (one patient with orbital varix and two patients with lymphangioma), in whom the lesion was not palpable, surgical exposure of the vascular malformation in the angio suite was required previous to direct puncture and embolization. Four patients with dural arterio-venous malformation were treated with direct surgical exposure and cannulation of the superior ophthalmic vein, and elective embolization of the venous outlet immediately adjacent to the fistula with detachable coils. All patients achieved a complete radiological resolution on follow-up MR studies. At 3-month follow-up, opthalmologic symptoms improved in all patients. There was one perioperative complication: one patient treated of orbital varix presented transient unilatheral opthalmoplegia that disappeared three months after treatment.

Conclusions
Direct puncture embolization is a safe and highly effective treatment for orbital vascular malformations with excellent radiological and opthalmological outcomes. In experienced centers, it should be considered as the first-line treatment for this condition.

C0193 Endovascular treatment in acute stroke over the age of eighty: a single center experience
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Introduction
More than 30% of acute strokes occur in patients over the age of 80. However, in the majority of studies this age group is excluded, even though, they present a major deficit, stroke and morbimortality than younger patients resulting in controversial therapeutic options.
The benefits obtained with endovascular procedures has been recently demonstrated in cases where direct systemic thrombolysis (rtPA) is contraindicated or when in failure after its use. No benefit has been demonstrated in these patients since these studies have been performed in patients under 80 years.

Material and Methods
A retrospective study was performed at our hospital which included octogenarian patients who underwent endovascular recanalization in acute stroke, in a period between January 2014 and May 2016. We assessed the previous situation of the patient, the time and the severity of the stroke; the multimodal imaging techniques and the clinical situation at discharge and three months after.

Results
Endovascular treatment was performed in 28 patients, with a mean age of 83.2 years, with no evidence of complications during the procedure. In 7 of these patients (25%) hemorrhagic transformation of the infarction occurred and 8 of them (28.5%) died during hospital stay. Monitorization after discharge was performed on the remaining patients. A total of 6 patients (21.4%) had a mRS favorable at three months.

Conclusions
The results obtained demonstrate that endovascular treatment is an option to consider in patients over the age of 80 in which direct contraindications are not present, improving short and long term prognosis.

C0196 Radiological study of the juvenile nasopharyngeal angiofibroma
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Introduction
To describe the typical findings and the importance of CT and MRI in the diagnosis of juvenile nasopahyngeal angiofibroma.

Material and Methods
We analyzed 12 cases with histophatology confirmation in our hospital from 1992 to present. All cases had CT and MRI studies and a preoperative embolization.

Results
The 100% of the cases were males between 9 and 29 years old with a mean of 16.5 yo. The 83% of the cases debuted with epistaxis and the 75% with nasal obstruction symptoms. We didn't apreciate a preferent side of the lesion, but the typical localization arise from the sphenopalatine foramen region.
CT helps in the anatomical study, tumoral extension and the dealineation of bony changes (75% shpenopalatine foramen widening, 100% erosion of the pterygoid plate, 66% other bony erosion and there were not cases that showed intracraneal extension) and the demostration of a marked contrast enhancement.
MRI is helpful in the evaluation of tumoral extention to adyacent structures and the caracterization and delimitation of the soft tissues lesion. All cases showed a T1 intermediate signal, T2 heterogenous signal with flow voids that showed a high enhancement post-gadolinium.
Once diagnosed, the 100% of the cases had a preoperative embolization before the surgical resection. The histopathology confimated all the cases. Recurrence has been reported in only 25%.

Conclusions
Juvenile nasopharyngeal angiofibroma occurs almost exclusively in males and usually in adolescents.
It has to be the first likely diagnosis when a soft tissues nasal tumour, that presents epistaxis and symptoms of nasal obstruction, is found.
CT and MRI are helpful in the evaluation of bony findings and tumoral extension respectively.

C0197 The involvement of the posterior fossa in childhood.
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Introduction
The aim of this poster is to review the anatomy of the posterior fossa and describe the MRI findings and specific signs that can diminish, the differential diagnosis list of pathologies that can involve the infratentorial area during childhood.

Material and Methods
A retrospective study has been performed. All the brain MRIs that have been done in our hospital this year have been reviewed, of which we have proceeded to select 40 cases with anomalies in the posterior fossa.

Results
We have found numerous pathologies, that affect this area of the Central Nervous System.
– Congenital malformations:
• Cystic malformations.
• Noncystic malformations.

– Posterior fossa tumors.
– Cerebrovascular diseases and vascular malformations.
– Metabolic disorders.
– Inflamatory and infectiuos lesions.

Conclusions
It´s very important for the radiologists to know the different pathologies that can affect the posterior fossa during the childhood, since the brain tumors are the most solid neoplasm in children, where besides infratentorial neoplasms are the most frequent localization between the ages of 3 to 11. Also familiarity with the spectrum of congenital posterior fossa anomalies, metabolopaties, infections and etc., and their well-defined diagnostic criteria is crucial for optimal therapy, an accurate prognosis, and correct genetic counseling.

C0199 Phace syndrome: report of five cases

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Hospital Universitario Gregorio Marañón (Madrid)

Introduction
PHACE syndrome is an acronym coined to describe a neurocutaneous syndrome encompassing the following features: posterior fossa brain malformations, large facial hemangiomas, arterial anomalies, cardiac anomalies and aortic coarctation, and eye abnormalities. When sternal clefting and/or supraumbilical raphe are also present it is termed PHACES syndrome.

Material and Methods
We report five cases of infants with the diagnosis of cervicofacial hemangioma and additional findings associated with PHACE syndrome, from clinical and imaging examinations (magnetic resonance angiography [MRA], plain magnetic resonance imaging [MRI] and cardiac MRI).

Results
The most common vascular anomaly detected on MRA was the absence of A1 segment of the anterior cerebral artery (4 cases), followed by vertebral artery hypoplasia (3 cases) and finally persistent trigeminal artery, carotid artery hypoplasia, hypoplasia of ACM M1 segment, posterior communicating artery agenesis and fetal origin of the posterior communicating artery (1 case for each of them). Plain MR imaging showed posterior fossa anomalies in two cases. Cardiac MRI revealed two cases of persistent left superior vena cava and one case of tetralogy of Fallot, coarctation of aorta, double aortic arch and tricuspid atresia.

Conclusions
PHACE syndrome should be considered in the differential diagnosis in any infant presenting with a large, segmental, plaque-type facial hemangioma. When the diagnosis is suspected, appropiate central nervous system imaging studies and cardiac evaluation should be done.

C0203 Usefulness of dynamic susceptibility-weighted and dynamic contrast-enhanced perfusion mri-derived permeability parameters in diffuse gliomas depiction

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Introduction
DSC imaging remains the most commonly used perfusion technique en glioma grading, but may be influenced by contrast leakage from tumor vessels.

The aims of the study were in a group of diffuse gliomas: 1) to evaluate diagnostic accuracy of permeability parameters in the discrimination between high- and low-grade gliomas; 2) to assess permeability differences in high-grade tumors classified on the basis of IDH and ATRX status; 3) to analyze relationship of permeability with OS and PFS; and 4) to compare DCE and DSC perfusion parameters.

Material and Methods
Forty-nine patients with histologically proved diffuse gliomas underwent DSC and DCE perfusion MRI. Post-processing was performed using the Olea Sphere software. Parametric maps of rCBV, rCBV leakage corrected, Ktrans, Vp, Ve, Kep and K2 were calculated. Histopathologic evaluation was based in the WHO 2007 criteria. High-grade gliomas were also classified according to IDH and ATRX status. Using SPSS software performed statistical analysis. A P value<0.05 indicated a statistically significant difference.

Results
The study included 28 male and 21 female patients, with age ranging from 16 to 78 years. Gliomas were classified into 41 high-grade and 8 low-grade tumors.
Mean leakage was significantly related to OS (p=0.006) and PFS (p=0.012). Leakage showed a linear correlation with Ktrans (310) and Vp (289). We also demonstrated significant differences in the leakage (p=0.01), K2 (p=0.004), Ktrans (p=0.002), Vp (p=0.032) and Ve values (p<0.001) between high- and low-grade tumors. Leakage was the best parameter discriminating high-grade gliomas classified based on IDH and ATRX status.

Conclusions
Both DSC and DCE perfusion parameters can serve as a noninvasive method for glioma grading. Ve is the best parameter distinguishing high- and low-grade gliomas. Leakage was significantly related to OS and PFS and was the best parameter discriminating high-grade gliomas classified based on IDH and ATRX status.

C0207 Lumbar facet syndrome. grading bone spect and its correlation with ct and mri

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Introduction
Degenerative facet joints are a recognised cause of chronic lumbar pain. Magnetic resonance imaging has been the technique of choice for studying lumbar pain. However, diagnosis of facet joint arthropathy continues to pose a challenge. SPECT's high sensitivity allows detection of actively remodeling bony lesions. The aim of the present study was to assess the utility of a bone-SPECT four point uptake scale.

Material and Methods
A retrospective study was conducted from January 2014 to July 2016, selecting a population of 40 consecutive patients with lumbar pain and clinical suspicion of lumbar facetary syndrome who underwent SPECT scanning. Indications for the scan, imaging reports and clinical management were reviewed. CT and MRi lumbar facet joints were graded using criteria similar to those published by Pathria et al. (from 0 to 3, being 0 normal and 3 severe degenerative disease). Bone-SPECT was graded using also a four point scale, from no uptake to high uptake. We performed a descriptive statistical analyses and agreement for each imaging modality.

Results
Correlation between CT and MRi was high, being principal differences between grade 0 and 1. Correlation between those and bone-SPECT was low for grades 0 and 1, and good for grades 2 and 3, being disagreements

very rare in such cases. Bone-SPECT identified less number of degenerative facet joints with low grades.

Conclusions
CT scans and MRI are more useful as they show the severe degeneration of the facet joints and can exclude other associated diseases, mainly the ones involving the intervertebral disc (discopathy/hernia). As reviewed in the literature, there is agreement between MRi and CT in the assement of severe lumbar facet joint osteoarthritis. Our four point uptake scale showed also good correlation for higher levels. Besides, when it comes to low grade osteoarthritis SPECT could be useful to make decisions about treatment, avoiding invasive procedures.

C0212 Resting-fmri for surgical planning in patients with brain tumors located in language-related areas.

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Introduction
Functional magnetic resonance imaging (fMRI) offers information about specific functional areas of the brain by obtaining brain maps of neuronal activation during performance of an activity (task-fMRI) or during rest (resting-state fMRI). The identification of functional areas can be helpful in neurosurgery to preserve eloquent brain during a surgical approach.
The objective is to identify speech language-related areas by using resting-fMRI and to compare the results with task-fMRI and intraoperative direct cortical stimulation (DCS).

Material and Methods
We present two cases of patients with low grade astrocytomas (WHO grade II), both located in left frontal lobe. An fMRI was performed with two steps: the first one consisted of naming several objects which were shown in a screen (task-fMRI); the second one consisted of staring at a mark in a screen without any performance.
All the images were pre-processed, without normalization, using SPM8 routines. The analysis of task-fMRI images was also performed with SPM8, while the images of the resting fMRI were examined by independent component analysis (ICA), using GroupICAT v.4.0a.
Both patients were operated by awake-craneotomy, mapping language areas with DCS.

Results
The results of task-fMRI showed the presence of activity restricted to bilaterally primary motor cortex (M1) and left inferior frontal gyrus (IFG), in both cases. In case 2 also right IFG activity was registered.
The ICA obtained a theoretical language-related-area component for each patient. These components, besides of the previously areas named for task-based fMRI, also shown activity in temporal and posterior parietal lobes, both belonging to comprehension and oral production aspects of language.
Finally, the DCS shown a good correlation to both, task-fMRI and resting-fMRI techniques.

Conclusions
The use of resting-fMRI could be a useful, non-invasive tool when planning surgical resection of lesions located in or next to language areas.

C0214 Identification of the mirror neuron system in patients with brain tumors by fmri.

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Introduction
The mirror neuron system (MNS) is associated with the understanding and imitation of actions. When it is damaged, motor and social cognition have been reported. This network is located in frontoparietal lobes, so its identification could be useful in neurosurgery to preserve its function. The objective is to identify the MNS in patients with brain tumor using restingstate functional magnetic resonance imaging (rfMRI).

Material and Methods
We studied four patients with intracranial tumors. We performed a preoperative fMRI to identify the MNS network. By thistechnique, functionallyconnected brain areas are detected in rest, without any task performance needed. Data were collected and analyzed using an independent component analysis (ICA).

Results
In all the four patients the MNS was identified, showing some variability among patients. In one patient the tumor induced distortion of the normal network.
By this method and analysis, other functional networks could be isolated.

Conclusions
By using fMRI the MNScan be identified before neurosurgical treatment. This could be useful when planning surgical approaches to tumoral pathology affecting brain eloquent tissue.

C0218 Incidence of intracranial hemorrhage after intravenous thrombolysis and/or endovascular therapy in the treatment of acute ischemic stroke

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Introduction
To analyze the incidence of intracranial hemorrhage (IH) after intravenous thrombolysis (IVT) and/or endovascular treatment (ET) in our hospital.

Material and Methods
Case-control study in which patients treated with IVT and/or ET have been analyzed from the 1st of January 2013 to the 31st of december 2015 with the objective of knowing if those patients had hemorrhagic transformation within the first 36 hours. We used CT scan within the first 24 hours, or sooner if it was necessary, to report IH.
A descriptive and inferential statistical analysis has been completed.

Results
227 patients formed the sample size and 71(31.3%) of them experienced IH. The average age of the sample was 65.6 years old (SD,12.8), 140(61.7%) of them were men and 87(38.3%) were women.
The average NIHSS score when the admission was 14.31(SD,5.23), being 15.76(SD,5.1) in cases with IH and 13.65(SD,5.17) in patients without IH. No Significant differences were found between mortality and NIHSS (p=0.39).
74 patients (32.6%) received TIV, 11(14.9%) of them developed IH; 74(32.6%) of them underwent TE, 26(35.1%) of whom developed IH;

and 79(34.8) of them were treated with IVT and ET together, 34(33%) of whom developed IH.
Regarding the average time (minutes) from the start of symptoms until the set-up of the treatment:
- IVT: 168,8'(SD,54,7). With IH:172,7'(SD,57,5) and without IH: 168,1'(SD,54,6).
- ET: 245,9'(SD,122,2).With IH: 248'(SD,111) and without IH: 244,8'(SD,129,2).
- Both: IVT 136,1'(SD,49,1) and ET 231,1'(SD,86,9). With IH: IVT131'(SD,57,6) and ET 240'(SD,107,1). Without IH: IVT 140'(SD,41,8) and ET 224,4'(SD,68,3).

Patients treated with both treatments presented more hemorrhagic transformations than those who received only IVT or ET (43% vs. 25%; OR, 2.27; 95% CI, 1.27 to 4.05; p <0.005), without being associated with higher mortality (p=0.508).

Conclusions
Combination of therapy was associated with an increase of the number of hemorrhagic transformations, eventhough it did not imply an increase in mortality.

C0219 Rheumatoid pachymeningitis. relevant mri findings, monitoring treatment and follow-up with conventional mri and arterial spin labeling.
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Introduction
Rheumatoid pachymeningitis (RP) is a rare complication of rheumatoid arthritis (RA). The magnetic resonance imaging (MRI) findings, associated with a long standing history of RA or histologic confirmation led to the diagnosis. Complete or sustained remission was achieved with medical treatment. The patients experienced alternating phases of relapse and remission. Our purpose is to describe the most relevant MRI findings at the moment of diagnosis, including arterial spin labeling and also those findings associated with clinical remission and recurrence.

Material and Methods
We reviewed MRI imaging findings in four patients. Three women and one man from 40 to 60 years. In two cases the diagnosis was made on basis of imaging findings and clinical history of long standing RA and in two patients biopsies were performed. MRI was obtained at the moment of diagnosis and repeated on basis of clinical evolution.

Results
All the patients presented neurological symptoms.
A similar MRI pattern was observed at the moment of diagnosis:
T1 post-Gd showed a supratentorial focal or multifocal meningeal and cortical enhancement on the pial surface with pachymeningeal thickening FLAIR and FLAIR post-Gd showed cortical hyperintensity with sulcal effacement and hyperintensity of deep white matter.
On diffusion (b-1000) we found subarachnoid hyperintensity.
Focal hyperperfusion pattern was observed in ASL.
With clinical response to treatment we observed a reduction of cortical enhacement, FLAIR and diffusion hyperintensities and normalization of ASL. Two patients had clinical course with remissions and relapses. During the relapse the dural enhacement increased, as well as FLAIR and diffusion hyperintensities and the focal hyperperfusion pattern in ASL.

Conclusions
The reported imaging findings with a history of long standing RA is suggestive of the diagnosis of RP. MRI with diffusion and ASL is a useful tool in the monitoring and follow up of clinical response in these patients with episodes of remission and relapses.

C0220 Intracranial hemorrhage after intravenous thrombolysis and/or endovascular therapy in the treatment of acute ischemic stroke. prognostic value
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Introduction
To analyze the relation between intracranial hemorrhage (IH) and prognosis in patients treated with intravenous thrombolysis (IVT) and/or endovascular treatment (ET).

Material and Methods
Case-control study in which patients treated with IVT and/or ET have been analyzed from the 1st of January 2013 to the 31st of december 2015 with the objective of knowing if those patients had hemorrhagic transformation within the first 36 hours. We used CT scan within the first 24 hours, or sooner if it was necessary, to report IH.
A descriptive and inferential statistical analysis has been completed.

Results
Among the 227 patients treated, 35(15,4%) experienced an hemorrhagic infarction (13 HI1 and 22 HI2), 36(15,9%) a parenchymal hematoma (4 PH1, 30 PH2 and 3 RPH1), and 7(3,1%) a SAH.
Among the 71(32,4%) patients with IH, 27(38%) experienced neurological deterioration and 23(32,4%) patients got a MRS score from 0 to 2 (non-disabling); whereas among the 155(65.2%) patients without IH, 101(64.7%) got a non-disabling MRS score.
3917,3%) patients died, 24(61.5%) of them had IH. From the remaining 187(82.7%) patients, 47(25.1%) had IH.
Among the cases with IH, 24(33.8%) of them died; whereas 15(9.7%) out of 155(65.2%) people who didn't have IH died.
IH was most frequently associated with high MRS scores (3 to 6)(66.2% Vs34,6%; OR, 3.7; 95% CI, 2.05 to 6.69; p <0.0001) and higher mortality (32, 4% Vs9,6%; OR, 4.5; 95% CI, 2.17 to 9.33; p <0.0001).
PH2 was most frequently associated with high MRS scores (3 to 6)(76,7%Vs39,6%; OR, 5,01; IC95%, 2,05-12,24; p<0,0001) and higher mortality (50%Vs11,7%; OR, 7,56; IC95%, 3,27-17,48; p<0,0001). Hemorrhagic infarctions had no significant differences with non-disabling MRS scores (p=0,57).

Conclusions
In our series, hemorrhagic transformation is associated with poor prognosis and an increase of mortality. PH2 has worse prognosis, although not all kinds of bleeding have worse prognosis.

C0225 CADASIL: Computed tomography and magnetic resonance imaging findings and differential diagnosis with principal leukoencephalopathies in young adults
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Introduction
CADASIL (Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy) is a non-frequent cerebral autosomal dominant pathology which consists of a hereditary small-vessel disease due to mutations in NOTCH3 gene on chromosome 19, affecting penetrating cerebral and leptomeningeal arteries and leading to subcortical infarcts and leukoencephalopathy.
It is characterized clinically by cephalea, recurrent ischemic episodes and/or progressive cognitive deficits in young to middle-aged adults. Clinical

signs must be combined with an accurate radiological approach, being MRI essential for the diagnosis of this disease.
Our objective is to describe its main CT and MRI findings in representative cases and to compare them to those present in other white matter diseases in young patients.

Material and Methods
We present relevant cases of patients with CADASIL disease describing radiological findings revealed in non-enhanced CT and MRI images, studied using standard protocol.
Parameters such as anatomic location, distribution, bilaterality and size of white matter lesions have been taken into consideration in order to approach the differential diagnosis with several representative cases of leukoencephalopathy in young adults.

Results
Affectation observed in patients studied included white matter lacunar or confluent areas of high signal intensity on T2-weighted and FLAIR images, which in most cases had anterior temporal lobe, frontal, parietal, periventricular and subinsular/external capsule involvement. Subcortical U-Fibers, frontobasal and occipital subcortical regions were spared. No affectation of infratentorial parenchyma was observed.
Main differential diagnosis should be made amongst the following pathologies: Arteriolosclerosis, MELAS Syndrome, Multiple Sclerosis, VIH Encephalopathy, Progressive Multifocal Leukoencephalopathy and CNS Vasculitis.

Conclusions
An accurate analysis of complementary cerebral MRI studies turns out to be an indispensable tool in differential diagnosis amongst CADASIL and other leukoencephalopathies in young patients.

C0227 Intracranial aneurysms treated with flow diverters. follow up and assessment of angiographic results.

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Introduction
Treatment of intracranial aneurysms with flow diverters has become common practice.
As opposed to coil embolization, FD cause aneurysms to occlude over time rather than immediately post-procedure. This explains why aneurysm occlusion rates continue to increase between 6 and 12 months with FD.
Current scales for assessment of angiographic outcomes following aneurysm treatment do not apply to aneurysms treated with FD

Material and Methods
Retrospective review of 22 patients with intracranial aneurysms treated using FD over a 6 year period of time, looking into aneurysm characteristics, complications and post-treatment angiographic findings.
We have also reviewed the published classifications to describe treated aneurysm with FD. We applied the classification by HS Cekirge and I Saatci "**Clasification of angiographic results after endovascular treatment with any technique**"

Results
19 of the 22 cases were anterior circulation aneurysms. Technical complications occured in 5 cases with just one patient with permanent morbidity.
When applying the clasification mentioned above, in the immediate postoperative angiography, 68% of cases showed aneurysm filling (class 4), 18% showed complete occlusion (class 1) and 13% presented incomplete occlusion (class 2 and 3). In the 6 month follow-up angiography, 77% showed complete occlusion, 17% incomplete occlusion and one case (6%) aneurysm filling (class 4).

Conclusions
FD show good angiographic results: a good rate of aneurysm´s oclussion and parent vessel anatomic reconstruction was achived.
The scale applied is simple and based on recognizable angiographic characteristics. It covers the entire spectrum of result possibilites. Application in bigger sample of cases is needed in order to confirm its reproducibility and its inter-observer agreement.
Many questions are still pending regarding FD and their follow-up: do we have any tool to predict occlusion rate? Could we predict the likelihood and rate of aneurysm closure with the initial angiographic findings? Are there any predictors that may help to prevent recanalization?