Abstracts Book

19º Congresso SPNR Diagnóstica e Terapêutica

The Future of Neuroradiology: A.I. and the multidisciplinary and translational approach

Sociedade Portuguesa de Neurorradiologia Diagnóstica e Terapêutica

UAlg FCT Universidade do Algarve Faculdade de Ciências e Tecnologia

Centro Hospitalar Universitário do Algarve

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BOAS-VINDAS

Exmos. Senhores, Colegas e Amigos

É com enorme prazer que vos convidamos a participar no 19º Congresso Anual da Sociedade Portuguesa de Neurorradiologia Diagnóstica e Terapêutica (SPNR) que irá decorrer entre os dias 26 e 28 de setembro de 2024, no Campus de Gambela, em Faro, através de parceria com a Universidade do Algarve.

Apresentamos um programa abrangente, onde estarão presentes convidados de renome, nacionais e internacionais, não apenas na área da neurorradiologia, mas igualmente em áreas afins. Pretendemos que este congresso seja uma oportunidade de diálogo e partilha de conhecimentos, ideias e avanços científicos, salientando a importância da interdisciplinaridade no desenvolvimento das neurociências, numa era digital em constante evolução.

Agradecemos o contributo de todos, divulgando a sua experiência, sob a forma de trabalhos científicos, sejam comunicações orais ou pósteres, cujos resumos serão publicados na revista Neuroradiology. Só com o apoio e participação de todos, poderemos fazer o congresso científico da SPNR!

Toda a informação sobre o congresso será atualizada no sítio oficial da SPNR.

Até breve!

Com os nossos melhores cumprimentos,

Mavilde Arantes
Presidente Comissão Cientifica do 19º Congresso Anual da Sociedade Portuguesa

Jaime Conceição
Vice-Presidente Comissão Cientifica do 19º Congresso Anual da Sociedade Portuguesa

José Drago
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de Neurorradiologia Diagnóstica e Terapêutica

Ana Mafalda Reis
Presidente da Sociedade Portuguesa de Neurorradiologia Diagnóstica e Terapêutica

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C01
THE ROLE OF MRI IN DETECTING SIDE EFFECTS FROM INTRA-ARTERIAL CHEMOTHERAPY IN RETINOBLASTOMA: A TERTIARY CENTER'S EXPERIENCE

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Introduction: Retinoblastoma is the most common primary intraocular malignancy of childhood. Intra-arterial chemotherapy (IAC) delivers chemotherapeutic agents directly into the ophthalmic artery, resulting in higher drug concentration in the tumor and reduced systemic complications. However, periocular and intraocular side effects can occur, best visualized on MRI. This study aims to present the local side effects of IAC in children treated for retinoblastomas at our center.

Methods: We conducted a retrospective analysis of the clinical records from patients with retinoblastomas treated with IAC in our hospital between july 2015 and july 2024, who underwent follow-up MRI.

Results: The study included 44 children, of whom 24(55%) were male and 20(45%) female. A total of 247 IAC procedures were performed during the study period. Twenty-five patients (57%) had unilateral disease, while 19 (43%) had bilateral disease. Most treated retinoblastomas were classified as group D(66%) and group C(22%) according to the International Classification of Intraocular Retinoblastoma.

We detected side effects in 13% of procedures, with a mean interval of 32 days between the intervention and the identification of these changes. Periocular side effects included thickening or contrast enhancement of extra-ocular muscles (9 cases) and peri-orbital edema or inflammation (7 cases). Ocular side effects included retinal detachment (8 cases), vitreous hemorrhage (3 cases), vitreous opacification (1 case), choroidal ischemia (1 case), and vascular proliferation (2 cases).

Discussion/Conclusion:Inflammatory changes were the most commonly observed side effects, typically self-limiting and managed conservatively. Retinal detachment was the most frequent ocular complication, likely due to tractional forces exerted by the shrinking tumor post-treatment. While IAC is an effective and safe treatment for retinoblastoma, neuroradiologists should remain vigilant for its potential side effects.

C02
A MILLION SHADES OF A LYMPHOMA

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Introduction: Primary central nervous system lymphomas (PCNSL) is restricted to the central nervous system (CNS) and accounts for about 5% of all malignant primary CNS neoplasms, affecting both immunocompetent and immunocompromised patients.

Methods: We reviewed our department database of confirmed PCNSL and selected twelve illustrative cases with different and characteristic imaging patterns. We also selected those representing rare subtypes of PCNSL.

Results: PCNSL often has characteristic imaging findings, due to its high cellularity and disruption of blood/brain barrier, with solitary or multiple parenchymal lesions with solid homogeneous or mildly heterogeneous enhancement, usually near a CSF surface, like ventricular ependyma or pia. Linear perivascular enhancement may be suggestive. Markedly heterogenous and peripheral enhancement is frequent in immunocompromised patients, particularly in AIDS-related PCNSL, in which haemorrhage is also common. Other less common subtypes of PCNSL are also presented here, including intravascular lymphoma, with diffuse ischemic-like cortical and subcortical lesions, and an atypical lymphomatosis cerebri-like presentation, characterized by diffuse white matter hyperintensity and unexpected contrast-enhancing lesions in the posterior fossa. Atypical locations such as sellar and dural involvement were also observed, along with cases of extensive dissemination through the choroid plexus and initial schwannoma-like presentation with subsequent rapid dissemination along multiple cranial nerves.

Conclusion: Recognition of the different imaging patterns of PCNSL, especially its rare presentations, is essential to an early diagnosis and to prevent treatment delay.

C03
REFINING BRAIN TUMOR CHARACTERIZATION THROUGH ADVANCED IMAGING TECHNIQUES: THE ROLE OF PSR IN DSC-MRI

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Unidade Local de Saúde Almada-Seixal

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Introduction: Differentiating contrast-enhancing brain tumors, such as primary central nervous system gliomas and cerebral metastases, using conventional MR imaging remains challenging. In this context, perfusion-weighted MRI, particularly Dynamic Susceptibility Contrast (DSC) imaging, offers valuable insights, with relative cerebral blood volume (rCBV) serving as a marker of neoangiogenesis. The percentage of signal intensity recovery (PSR) measures the extent to which signal intensity returns to baseline following the first pass of a contrast agent, reflecting factors such as contrast agent leakage, extravascular space size, and blood flow rate. Therefore, PSR provides critical information regarding both neovascularization and capillary permeability. This study aimed to assess the value of PSR in distinguishing between common contrast-enhancing brain tumors.

Methods: This retrospective analysis included pathologically diagnosed high grade gliomas, low grade gliomas and metastasis in 21 patients (10 men and 11 women; mean age: 52 years) who had undergone MRI with DSC perfusion. For measurement of the PSR, postprocessing was performed with the AW Server application (GE Healthcare, Chicago, United States).

Results: Our analysis revealed that PSR values were distinct among different tumor types: Metastases exhibited significantly lower PSR values (34.41 ± 5.4), high-grade gliomas had intermediate PSR values (51.96 ± 12.6), and low-grade gliomas showed higher PSR values (82.25 ± 6.1). These differences were statistically significant, with a p-value < 0.05, as determined by the Independent Samples Mann-Whitney U Test.

Conclusion: These findings suggest that PSR could be a valuable supplementary parameter in clinical practice, aiding in the preoperative differentiation of brain tumors and potentially guiding treatment decisions.

C04
DELAYED POST-RADIATION VASCULOPATHY: A DIAGNOSTIC CHALLENGE BEYOND THE OBVIOUS

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Introduction: Radiation-induced vasculopathy is a rare but significant complication of cranial radiotherapy. The clinical presentation is variable and may mimic neoplastic processes. We present a case of longpost-vasculopathy in a patient with a history of radiotherapy decades earlier, which posed a diagnostic challenge as other more immediate etiologies were considered first.

Methods: A 52-year-old female with a six-month history of headaches and cognitive deterioration presented to the ER following an episode of seizure. Investigations included CSF analysis, MRI scans with advanced techniques, and a medical record review - disclosing a history of radiotherapy as a treatment for craniopharyngioma at age 16.

Results: Initial MRI revealed a heterogeneously enhancing lesion in the right temporal lobe, with spontaneous hyperintensity in T2/FLAIR, elevated rCBV, and post-critical diffusion restriction in the hippocampus. However, one week later, without established treatment, a follow-up MRI reported uncal hyperintensity in T1 with microhemorrhage spots in SWI, alongside significant lesion size and contrast enhancement reduction; while VWI revealed marked irregularities in the right MCA and ACA, plus concentric enhancement of the A1 segment. Spectroscopy identified a high Cho/Cr ratio and low NAA/Cr, with a small lactate peak.

Discussion: The initial MRI marked a differential diagnosis of a glial tumor versus the less likely case of radionecrosis or encephalitis. The follow-up MRI found the typical concentric enhancement of vasculitis and irregular vases, which fits as vasculopathy - likely radiation-induced, due to a high ESR, normal CSF analysis, and no suspicion of infection. Even though the spectroscopy suggested a high-grade glioma, the quick and favorable imagiological evolution further supported the diagnosis of post-radiation vasculopathy, and the patient was discharged with antiepileptic.

Conclusion: An extensive differential diagnosis, supported by multidisciplinary collaboration, was essential in this complex case. Integrating advanced neuroradiological techniques helps ensuring accurate diagnosis and appropriate management, avoiding unnecessary interventions.

C05

UNRAVELING THE FACTORS BEHIND ARACHNOID CYST INVOLUTION AFTER HEAD TRAUMA: INSIGHTS FROM A RETROSPECTIVE STUDY AND SYSTEMATIC REVIEW

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Introduction: Arachnoid cysts are congenital cerebrospinal fluid accumulations that are usually asymptomatic and stable. However, a small number may involute over time, often following head trauma.

Objectives: This study aimed to identify clinical and imaging predictors of arachnoid cyst size reduction after head trauma.~

Methods: We conducted a systematic review using PubMed to find cases of arachnoid cyst involution post-trauma, adhering to PRISMA guidelines. A retrospective analysis of our hospital's imaging database identified cases with stable cyst dimensions post-trauma. We analyzed clinical data (age, sex) and imaging features (location, laterality, ipsilateral subdural collections, intracystic hemorrhage and type of trauma) using univariate and multivariate logistic regression analyses in R.

Results: Eighteen patients with cyst involution and thirty-six with stable cysts were identified. Younger age (b=-1.13, p=.04) and the presence of ipsilateral subdural collections and/or intracystic hemorrhage (b=3.6, p=.004) were significantly associated with cyst size reduction.

Conclusions: Arachnoid cyst involution is an infrequent phenomenon that predominantly occurs in the context of head trauma. The findings of this study indicate that younger age and the presence of ipsilateral subdural collections and/or intracystic hemorrhage at the time of trauma are independent predictors of arachnoid cyst involution. These findings support the idea that cyst wall rupture and changes in cerebrospinal fluid dynamics contribute to non-spontaneous involution

C06
NEURORADIOLOGIST ASSISTANT APP FOR DEMENTIA AND MOVEMENT DISORDERS

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Introduction: Technological advancements are simplifying various aspects of neuroradiology. Tools that automate repetitive tasks and manual calculations can assist neuroradiologists in clinical practice. Our aim is to develop an app to support neuroradiologists in reporting brain scans, with a focus on dementia and movement disorders.

Methods: We developed a Shiny web application in R. Two neuroradiologists and a neuroradiology resident reviewed the scientific content. The application is free, user-friendly and the code is open-source, ensuring transparency and the opportunity for further development by the medical community.

Results: This application includes the following features (1) Atrophy Scales: Global Atrophy Scale (GCA), Medial Temporal Lobe Atrophy (MTA) Score, Entorhinal Cortical Atrophy (ERICA) Score, and Posterior Atrophy (PCA) Score; (2) Substantia Nigra Evaluation: Assessment of T1 and SWI hyperintensity in the substantia nigra; (3) Movement Disorders Calculations: Midbrain/Pons Ratio, Magnetic Resonance Parkinsonism Index (MRPI) and MRPI 2.0; (4) Small Vessel Disease Evaluation: Lacunar infarcts, Fazekas scale, and microbleeds and superficial siderosis.

Discussion: We provide a user-friendly platform for consulting, inputting results, and calculating scales and scores in dementia and movement disorders. It includes visual guides and explanations to streamline the evaluation process and enhance learning. Additionally, the app incorporates checklists for detailed reporting, ensuring that all relevant findings are systematically documented.

Conclusion: This application assists neuroradiologists in calculating and reporting findings from brain scans of patients with suspected dementia and movement disorders. Future developments aim to include a structured report with results interpretation in both English and Portuguese.

C07

COMPARATIVE ANALYSIS OF ARTERIAL SPIN LABELING (ASL), MRI-BASED BRAIN VOLUMETRY, AND CLINICAL DIAGNOSIS IN DEMENTIA: ADVANCING NON-INVASIVE TECHNIQUES

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Introduction: Arterial Spin Labeling (ASL) is an advanced MRI perfusion technique with the potential for detecting hypoperfusion patterns in dementia, aligning with FDG-PET hypometabolism findings. This study assessed ASL's diagnostic utility by comparing its imaging data with volumetric analysis and clinical diagnoses.

Methods: We prospectively reviewed clinical records of patients who underwent ASL protocol at our hospital between July and September 2023. Inclusion criteria were: 1) clinical suspicion of dementia; 2) no prior neurological conditions; 3) absence of hypothyroidism or 4) brain abnormalities that could interfere with ASL imaging. Spearman correlation and univariate linear regression analyses examined the relationships between Global Cortical Atrophy (GCA) score, ASL signal intensity on a visual scale, and cortical volumetric measurements, including total/regional cortical volume and thickness. Diffusion Tensor Imaging (DTI) protocol was also used, and a total of 64 diffusion sampling directions were acquired.

Results / Discussion: Seventeen patients participated, with diagnoses including Alzheimer's, Lewy Body, Frontotemporal and Mixed Dementia. Four patients were excluded due to motion artifacts. The study sample (n=13) had a median age of 71 years, with 61.5% (n=8) females. No statistically significant correlations or effects were found between GCA score or ASL signal intensity and total/regional cortical volume and thickness. However, near-significant correlations and effects were noted between ASL signal intensity and normalized cortical thickness, both in Spearman correlation (Rho = - 0.529, P = 0.095) and univariate linear regression (B = -0.02, 95% CI: -0.05 to 0.00, P= 0.074).

Conclusion: While the results did not show significant associations between GCA score or ASL signal intensity and cortical volumes, the near-significant findings between ASL signal intensity and normalized cortical thickness should prompt further research with larger datasets to further develop our results and validate potential clinical applicability.

C08
CEREBROSPINAL FLUID LEAKS: THE ROLE OF CT CISTERNOGRAPHY

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Introduction: A cerebrospinal fluid (CSF) leak occurs when there is a defect in both the bone and dura mater at the skull base, establishing a direct connection between the subarachnoid space and the extracranial space, often resulting in CSF discharge. Computed tomography (CT) cisternography is a minimally invasive imaging technique that visualizes intracranial CSF cisterns by injecting an iodinated contrast medium into the subarachnoid space.

Methods: A review of the literature was conducted, and four cases of CT cisternography performed at Hospital Pedro Hispano were presented.

Results: CSF leaks can be categorized as traumatic, non-traumatic, or spontaneous. Two of our cases had a history of prior trauma, and in one of these cases, CT cisternography clearly identified the site of CSF leakage.

Discussion: The cribriform plate is the most common site of CSF rhinorrhea, whereas transverse fractures of the temporal bone are typically associated with CSF otorrhea. Persistent CSF leaks significantly increase the risk of serious infections such as meningitis or encephalitis, highlighting the need for early diagnosis and intervention. A positive CT cisternography result is indicated by the presence of a skull base defect along with contrast opacification in the sinus, nasal cavity, or middle ear. To facilitate detection in our cases, conventional radiography was taken of the cotton previously placed in the nostrils and external ear canals while the patient was in the Trendelenburg position. Although CT cisternography is valuable for detecting active CSF leaks, its effectiveness is limited in cases of intermittent leaks, as its sensitivity can vary.

Conclusion: The primary objectives of imaging are to confirm the diagnosis, identify any underlying causes, precisely locate and characterize the defect site before surgical repair, and rule out the presence of an associated meningocele at the defect site.

C09
A NOVEL NEUROIMAGING INDEX TO DIAGNOSE INTRACRANIAL HYPERTENSION

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Introduction: Optic nerve sheath diameter (ONSD) is frequently used as a surrogate for intracranial pressure (ICP), however significant measurement and cutoff variability across sites prevent widespread clinical use. We aimed to describe a new imaging marker based on optic nerve anatomy and evaluate its diagnostic accuracy to predict increased ICP.

Methods: We conducted a prospective cohort study of patients with suspected increased ICP and scheduled to undergo lumbar puncture for invasive assessment of ICP. An optic nerve ultrasonography was performed and the ONSD and a novel imaging index – the dimensions of arachnoid bulk (DAB) ratio – were measured. We assessed the correlation between imaging parameters and ICP and performed a receiver operating characteristic (ROC) curve analysis to determine diagnostic accuracy.

Results: Thirty patients with suspected increased ICP were included in the study, with a mean age of 39 years and including 24 female participants (80%). Participants with elevated ICP showed a 38% higher DAB ratio compared to those with normal ICP (0.58 vs. 0.42, P<.001) and a 14% larger ONSD. An optimal cutoff for DAB ratio of 0.5 had a sensitivity and specificity for elevated ICP of 100% and 94%, respectively. DAB ratio showed a stronger correlation with opening pressure on lumbar puncture compared to ONSD (rs=0.87, P<.001 vs. rs=0.61, P<.001). The optimal cutoff for ONSD was 6.5mm and had a sensitivity of 92% and specificity of 83% for elevated ICP. DAB ratio also outperformed ONSD in diagnostic accuracy with a higher ROC AUC (0.98, 95% CI 0.95-1.00 vs.0.86, 95% CI 0.71-0.95, p=.047).

Discussion and Conclusion: Our proposed imaging ratio better predicts ICP by specifically assessing the relative anatomy of CSF space, demonstrating a strong correlation with ICP values, suggesting its potential utility as a neuroimaging marker in clinical settings, namely in scenarios with low pretest probability for hypertension.

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C10
CLINICAL AND IMAGING FEATURES OF NEURO-BEHÇET DISEASE – A TERTIARY CENTRE EXPERIENCE

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Introduction: Behçet's disease (BD) is a multisystem inflammatory disease of unknown etiology that may affect the CNS – Neuro-Behçet (NB). Our aim was to evaluate the clinical and imaging features of the neurological involvement in our cohort of NB patients.

Methods: Retrospective analysis of BD patients' clinical, laboratory and imaging data (1993-2023).

Results: We identified 296 BD patients, with a median age at the initial manifestation of 34 years, and 69.3% females. Definite NBD was identified in 30, probable NBD in 2 and "other neurological symptoms in BD" in 26 patients. The definite NBD group had 44 neurological attacks: 55% parenchymatous and 45% non-parenchymatous. The most common syndromes were brainstem (27.3%) and multifocal (25.6%). In the definite NBD group, brain MRI revealed predominant involvement of the deep cerebral white matter (WM) (n=15), brainstem (n=10) and diencephalic-mesencephalic transition (n=8), basal ganglia (n=4), and pyramidal tract (n=3), with many patients presenting coexisting lesions. Conversely, the probable NBD and "other neurological signs in BD" group predominantly exhibited normal MRI or deep focal WM lesions (n=13). Follow-up MRIs were available in 12 patients of the definite NBD group and showed resolution or regression of most lesions after effective treatment.

Discussion: The involvement of classically described brain regions was more significant in the definite group, suggesting greater specificity, and consistent with their more severe manifestations. Multiple focal WM lesions predominated over more typical regions, which may indicate a predominance of small vessel disease or vasculitis. Nonetheless, focal scattered WM lesions can be non-specific and often found in other inflammatory and non-inflammatory disorders.

Conclusions: Neuroimaging has a crucial role in characterizing lesions topography and aiding in the definite diagnosis.

C11
MRI LESION PATTERNS IN LEBER'S HEREDITARY OPTIC NEUROPATHY – A SYSTEMATIC REVIEW

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Introduction: Leber's hereditary optic neuropathy (LHON) is the most common inherited optic neuropathy, representing an important cause of blindness in young adults. Due to its heterogenous clinical presentation, LHON is often underdiagnosed. Paraclinical tests such as MRI could facilitate the diagnosis. We conducted a systematic review on brain and/or orbit MRI findings in LHON.

Methods: We performed a search of published articles between 2008 and 2023 using databases from PubMed, EMBASE, SCOPUS and Web of Science Core Collection. This review was performed in accordance with PRISMA guidelines.

Results: A total of 130 cases of LHON (between case reports and case series) were selected. Median time from vision loss in the first eye to MRI was 7,5 weeks (IQR 6-22). MRI visual pathway abnormalities were present in 68% of cases. Most early reported findings occur in younger patients (mean age 43) and comprised T2 hyperintensities (63%) and/or gadolinium enhancement (24%) involving both intra-orbital/intra-canalicular segments of optic nerves (45%). Male gender and simultaneous loss of vision in both eyes were more associated with MRI abnormalities (p=0.01 and p=0.003, respectively).

Discussion: Imaging findings in LHON seem to be present in most patients during the acute stage of the disease, and may mimic MRI patterns commonly seen in non-genetic acquired optic neuropathies such as aquaporin-4 and MOG-related diseases. Importantly, the abnormalities on MRI might reflect early progressive anterograde axonal degeneration of the optic nerve in the context of severe retinal ganglion cell loss, and not intrinsic inflammation seen in non-mitochondrial optic neuropathies.

Conclusion: In cases of suspected LHON, MRI findings in the optic pathways can be expected in a majority of patients in early stages. Awareness of these MRI patterns is therefore crucial when evaluating patients with suspected mitochondrial optic neuropathy, prompting early diagnosis and better outcomes.

C12
MEDULLARY SYNDROME IN A HEALTHY YOUNG WOMAN: THE REVELATION OF THREE SIGNIFICANT LESIONS IN THE NEURAXIS

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Introduction: Medullary syndromes in young, healthy women typically direct investigation toward demyelinating or inflammatory etiologies. A delay in recognizing the symptoms may compromise prognosis, especially in cases of aggressive and rapidly progressive neoplasms within the neuraxis.

Methods: We present the case of a 22-year-old previously healthy woman who initially experienced non-radiating low back pain, treated as mechanical in origin. She initially ignored complaints over sensory changes in both lower limbs and only sought emergency care after six months - with a presentation of spastic paraparesis, urinary incontinence, and inability to walk. The patient was therefore admitted to the Neurosurgery department. Results: An initial dorsal MRI revealed a large intramedullary lesion at D9-D12, showing heterogeneous contrast enhancement - suggestive of an ependymoma - with an exophytic component compressing the spinal cord and conus medullaris. Additionally, tumoral dissemination was observed along the posterolateral medullary surface between D1-D9, with associated medullary edema. The study was then extended to the entire neuraxis, revealing a second, similar lesion at the cervicodorsal junction; extending from the clivus to the odontoid process, while occupying the anterior epidural space and compressing the bulbomedullary junction. A third lesion was identified in the right middle cerebellar peduncle, with central contrast enhancement.

Discussion: The decision to extend imaging to the entire neuraxis was crucial for deciding management, including initial surgery to remove the dorsal lesion. The diagnosis was confirmed as an anaplastic ependymoma with MYCN gene amplification, grade 3 (WHO 2021), associated with an aggressive phenotype and poor prognosis. The Oncological group decided on craniospinal radiotherapy for local control.

Conclusions: This case highlights the importance of a broad differential diagnosis in medullary syndromes, particularly in young patients. It also underscores the need to extend imaging studies to the entire neuraxis in atypical cases, even in the absence of other apparent neurological focality.

C13
CAROTID PLAQUE COMPOSITION AND CEREBRAL MICROBLEEDS: A POPULATION-BASED STUDY

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Introduction: Cerebral vascular pathology is a leading cause of morbidity and mortality. While the composition of carotid plaques has been described as an independent risk factor of stroke events and associated with incidental cortical infarcts but not lacunar infarcts or white matter lesion load, the association between plaque characteristics and the presence of cerebral microbleeds remains under explored. Here, our aim was to investigate carotid plaque composition in relation to the presence and location of cerebral microbleeds.

Methods: Cross-sectional cohort study based on the population-based Rotterdam Study. Selected participants with carotid intima-media thickening on ultrasound underwent carotid magnetic resonance imaging (MRI) to assess plaque characteristics, including intraplaque hemorrhage (IPH), lipid-rich necrotic core (LRNC) and degree of stenosis (>30%), and brain MRI to determine the presence and location of cerebral microbleeds. Chi-squared and logistic regression models were performed to assess the association of plaque characteristics and cerebral microbleeds.

Results: We included 737 participants (mean age 76 y, females 45.5%). LRNC was present in 50.3% of participants, IPH in 37.2% and >30% stenosis in 22.3%. Cerebral microbleeds were observed in 30.8% of participants; strictly lobar in 17.4% and deep or infratentorial in 10.6%. Higher prevalence of microbleeds (36.5% vs 27.4%, $\chi 2$=.01) were observed in individuals with IPH; no significant results were found in LRNC or >30% stenosis. Logistic regression analysis confirmed IPH associated with microbleeds (odds ratio (OR): 1.46, 95% Confidence Interval [CI]: 1.03-2.07) and deep or infratentorial microbleeds (OR: 1.91, [CI] 1.14-3.07) after adjusting for age, sex, plaque stenosis and antithrombotic medication.

Discussion and Conclusion: Our preliminary findings suggest that IPH is associated with higher odds of cerebral microbleeds, particularly deep or infratentorial. These findings underscore the potential value of multimodal imaging in guiding stroke prevention strategies.

C14

PREDICTIVE VALUE OF INTERPEDUNCULAR CISTERN HEMORRHAGE DENSITY AND VARIOUS CLINICAL PARAMETERS FOR VASOSPASM FOLLOWING ANEURYSMAL SUBARACHNOID HEMORRHAGE

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Introduction: Aneurysmal subarachnoid hemorrhage (aSAH) is a life-threatening condition resulting from the rupture of a cerebral aneurysm, sometimes leading to delayed cerebral ischemia, primarily due to angiographic vasospasm. Accurate prediction of vasospasm is crucial for improving patient management and outcomes. Therefore, this study aimed to assess the predictive value of various clinical, analytical and imaging parameters for vasospasm in aSAH patients.

Methods: We conducted a single-center retrospective study involving aSAH patients who underwent an initial CT scan within 24 hours of ictus. Clinical and analytical data were collected, and Hounsfield Unit (HU) measurements were independently performed by two observers. Statistical analyses were conducted to identify significant predictors of vasospasm.

Results: Vasospasm was observed in 40% of patients (46/115). The odds ratio for vasospasm was 1.253 (95% CI: 1.044–1.504; $p = 0.016$) per 5 HU increase. Significant associations with vasospasm were found for intracerebral hemorrhage (ICH) ($p = 0.01$), HU in the interpeduncular cistern ($p = 0.002$), and chloride levels on admission ($p = 0.004$). A combined predictive model that included these variables demonstrated improved accuracy, with an area under the curve of 0.742 (95% CI: 0.649–0.836, $p < 0.001$).

Discussion and conclusion: Our study identified significant predictors of vasospasm in aSAH patients, including HU values, presence of ICH, and chloride levels. The combined predictive model enhances the ability to stratify high-risk patients, potentially guiding more personalized follow-up and timely interventions. Further prospective multicenter studies are recommended to validate these findings and incorporate them into clinical practice.

C15

BEYOND CONVENTIONAL IMAGING: THE IMPORTANCE OF PERFUSION-WEIGHTED IMAGING IN DETECTING HIGH-GRADE BRAIN LESIONS WITH LOW-GRADE IMAGING FEATURES

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Introduction: Glioblastomas are highly aggressive primary brain tumors, presenting with features like hyperintense T2/FLAIR signals, heterogeneous gadolinium enhancement, extensive edema, and irregular borders. Detecting them can be challenging if imaging characteristics are subtle or atypical. In such cases, perfusion MRI may be crucial, revealing increased perfusion even when conventional imaging is inconclusive or lacks clear enhancement, making it valuable for identifying lesions with minimal traditional malignancy features.

Methods: Case reports of a 38-year-old female and a 74-year-old male, both with no significant prior medical history. The female had new-onset seizures, while the male experienced confusion and memory loss. Initial evaluation included contrast-enhanced CT followed by MRI with perfusion studies. The lesions were then biopsied. Immunohistochemical and genetic analyses were performed, and follow-up imaging monitored disease progression.

Results: MRI showed infiltrative lesions (multiple in one case) with hyperintense T2/FLAIR signals, but no DWI restriction or contrast enhancement. Differential diagnoses included low-grade neoplasms and inflammatory processes. Perfusion MRI revealed high rCBV areas despite lack of enhancement. Biopsy confirmed glial tumors. Histology showed no necrosis, mitosis, aberrant vessels, or high nuclear proliferation; IDH mutations were absent. Further genetic testing identified TERT mutations, consistent with high-grade glioblastoma.

Discussion: These cases highlight the diagnostic challenges with subtle MRI features. Initial imaging suggested low-grade neoplastic or inflammatory processes, but perfusion MRI revealed a pattern indicative of aggressive neoplasms. Biopsy and genetic testing confirmed it.

Conclusions: Perfusion MRI is vital for diagnosing malignancy, especially when initial imaging is inconclusive or atypical. It underscores the need for comprehensive diagnostic approaches in complex neuro-oncological cases.

C16

4D TWIST MR ANGIOGRAPHY COMPARED WITH DSA FOR THE CHARACTERIZATION OF BRAIN ARTERIOVENOUS MALFORMATIONS: A FEASIBILITY STUDY

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Introduction: Digital subtraction angiography (DSA) is the gold standard for assessing brain arteriovenous malformations (AVMs). Noninvasive techniques like three-dimensional time-of-flight magnetic resonance angiography (3D-TOF-MRA) offer good diagnostic accuracy but lack the spatial resolution and dynamic hemodynamic information necessary for AVM characterization. Four-dimensional contrast-enhanced MRA (4D-MRA) aims to address these limitations by providing enhanced temporal and spatial resolution. This study evaluates the performance of 4D-MRA at 3T for characterizing AVMs compared to DSA.

Methods: We included 5 patients with untreated brain AVMs who underwent both 4D-MRA and DSA within a 6-month period between 2020 and 2024. 4D-MRA was performed using time-resolved angiography with stochastic trajectories (TWIST) on a 3-T MRI scanner, while DSA was conducted using a biplane angiography system. Two experienced neuroradiologists independently reviewed the 4D-MRA images, blinded to each other's and the DSA findings. Bland-Altman analysis and Intraclass Correlation Coefficient (ICC) were used to assess agreement and correlation between 4D-MRA and DSA.

Results: The mean age of participants was 36.0 ± 15.3 years, with 4 out of 5 patients being male. Bland-Altman analysis revealed that 4D-MRA underestimated nidus size by an average of 2.4 mm, despite excellent agreement between readers (ICC=0.960; 95% CI 0.674-0.996). 4D-MRA was less effective at detecting intranidal or perinidal aneurysms and had limited sensitivity for distal and smaller arterial feeders.

Conclusion: While 4D-MRA is useful for gross AVM characterization, it lacks sensitivity for detecting finer angioarchitectural details, such as aneurysms and distal arterial feeders.

C17
VERTEBRAL LESIONS: A REVIEW BASED ON LOCATION, PATIENT AGE AND IMAGING FEATURES

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Introduction: Vertebral lesions, while common findings on imaging, may constitute a diagnostic challenge. The main objective of this pictorial essay is to review the main vertebral lesions, describing the main findings in different imaging modalities (CT and MRI), allowing the radiologist greater confidence in establishing the differential diagnosis, through a systematic approach and characterization of the lesions.

Methods: In this review, we present multiple conditions, some of them rare, that should be recognized by the Neuroradiologist, organized by their nature (benign and malignant lesions). We propose a diagnostic algorithm, according to the location of the lesion in the spinal segment, as well as to the location in the vertebra (vertebral body or posterior elements).

Results: Hemangioma is the most common primary benign lesion, involving the vertebral body, demonstrating the typical "polka-dot" pattern. Other benign lesions are bone dysplasias, such as osteopoikilosis, a rare disease that can mimic osteoblastic metastases, and Paget disease. Osteoma osteoid, osteoblastoma and aneurysmal bone cyst are lesions that affects the pediatric population / young adults, usually found in the posterior elements. Bone pain, mainly at night, relieved with salicylates, is highly suggestive of osteoid osteoma. Metastatic disease, myeloma and lymphoma are the most common malignant spinal multifocal lesions.

Discussion and Conclusion: Knowledge of imaging characteristic patterns is essential for establishing the nature of the lesion (benign or malignant). Patient age, clinical history, number of lesions and lesion location are also important to narrow the differential diagnosis. Some lesions can be misinterpreted for their aggressiveness, due to their heterogeneous appearance on CT and on MRI, which may lead to excessive and, in some cases, invasive inappropriate etiological investigation.

C18

IMPLEMENTING DYNAMIC CONTRAST ENHANCED MRI FOR INTRADURAL SPINAL LESIONS: CHALLENGES, FEASIBILITY, AND CLINICAL APPLICATIONS

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Introduction: Advanced imaging for assessing spinal intradural/cord lesions faces challenges due to the cord's small size and propensity for artifacts of pulsation, breathing, swallowing and bowel movement-induced signal irregularities. Research on MR perfusion, especially dynamic contrast enhanced (DCE) imaging for spinal intradural/cord lesions remains limited, although its feasibility has been demonstrated.

Methods: DCE sequences were performed on a 3T scanner (Siemens Magnetom Vida). T1 mapping was executed using two T1 acquisitions with flip angles (FA) of 2° and 15°. Dynamic imaging was conducted with a 3D time-resolved angiography with stochastic trajectories (TWIST) sequence, with the following parameters: TR/TE/FA= 3.10ms/1.63ms/20º, FOV = 300 mm, matrix size = 224 × 224, measurements = 20, slice thickness = 2mm, parallel imaging with GRAPPA factor of 2, temporal resolution = 4.66s and a total acquisition time = 4min and 7s. The contrast administration started after 2–3 measurements, using an automated contrast injector with a 3 mL/s Gadovist bolus (0.1 mmol/kg), followed by a 25-30 mL/s saline flush. The MR imaging protocol also incorporated standard clinical sequences.

Results: All patients with spinal lesions were already undergoing imaging with gadolinium administration. The DCE MRI examinations were technically successful, with no significant motion artifacts, and provided clear visualization of contrast enhancement in the dynamic series. Examples of different intradural lesions encountered included a hemangioblastoma, diffuse midline glioma, lymphoma and schwannoma.

Discussion/Conclusion: DCE MRI is a feasible advanced imaging technique that can be integrated into clinical practice to study spinal intradural/cord lesions. It offers the potential to add diagnostic information with minimal increase in MRI protocol complexity or post-processing requirements. Further research is required to assess its utility in differentiating between nonneoplastic and malignant intradural intramedullary and extramedullary lesions, as well as in monitoring treatment responses during follow-up.

C19

MIDDLE MENINGEAL ARTERY EMBOLIZATION TO TREAT CHRONIC SUBDURAL HEMATOMAS – SINGLE-CENTER INTRAPROCEDURAL DATA

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Introduction: Chronic subdural hematomas (CSH) occur frequently in the elderly and are thought to relate to neomembranes supplied by the middle meningeal artery (MMA), which might explain their frequent recurrence. This year, major randomized controlled trials results were published for the first time showing clear benefit of MMA embolization for CSH. Multiple questions remain regarding patient selection, timing of embolization and intraprocedural best- practices.

Methods: In our single-center initial experience, we analyzed demographand intraprocedural data of patients in our center, submitted to MMA embolization for subdural hematomas, from January 2019 until September 2024.

Results: Our single-center initial experience pertains to 18 patients matching the criteria. The mean age of the patients was 77,39 ± 12,91 years, and 5 were female. 11 patients were submitted to MMA embolization without surgical drainage, 6 patients after surgical drainage, and 1 patient was submitted to surgical drainage within 48 hours after MMA embolization. All of our procedures were performed with femoral artery access. The median time until embolization after CSH diagnosis was 14 days, and on average those previously surgically drained were submitted to 1,17 surgical drainages before MMA embolization. Initial hematoma maximum width was 19,38 ± 4,82, of which 5 had midline Shift but <5mm and 8 had a midline shift of >5mm. 77,78% of patients were under general anesthesia and 22,22% under conscious sedation. Our embolization media varied from particles (77,78%), particles with n-Butyl cyanoacrylate (11,11%) and Squid (5,56%). 11,11% of patients were submitted to bilateral MMA embolization. One procedure was complicated by femoral artery occlusion, and one patient experienced persistent unilateral visual deficit 48 hours after the procedure. None of our patients required rescue surgical drainage. None of our patients had facial palsy or major stroke after undergoing MMA embolization.

Discussion and Conclusion: We leverage this data to share our single-center intraprocedural initial experience, namely our do's and don't gathered from the past five years. Since this treatment was only widely adopted recently, long- term follow-up data is still needed.

C20
A REAL AND F(L)AIR DEAL: INVERSION RECOVERY SEQUENCES FOR HYDROPS IMAGING

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Introduction: The diagnosis of Meniérè's disease (MD) is challenging due to its nonspecific symptoms, which may occur intermittently. Initially, MRI was used to rule out secondary causes of vertigo-like symptoms. Nowadays, MRI enables the detection of endolymphatic hydrops (EH), the pathological hallmark of MD, using high-resolution inversion recovery sequences.

Methods: Our department established a hydrops imaging protocol using 3D SPACE FLAIR and 3D REAL-IR sequences 4 hours post-intravenous gadolinium administration, with a total study time of 17 minutes and 21 seconds. Imaging was conducted on a 3T scanner (Siemens Magnetom Vida), using a 32-channel head coil. Initially applied to patients with definite or probable MD, this protocol was extended to those with sudden sensorineural hearing loss (SSNHL). If no previous study available, posterior fossa 3D SPACE T2, 3D T1 VIBE/3D T1 SPACE pre- and post-gadolinium, and axial T2/TSE and DWI whole-brain were included to exclude other diagnosis. EH was graded according to the imaging criteria proposed by Bernaerts/Antwerp group.

Results: Seventeen patients have undergone this hydrops protocol, between May 2022 and July 2024. Seven had a diagnosis of definite MD, 3 probable MD, 2 probable MD/vestibular migraine and 5 SSNHL. All examinations included a 3D SPACE FLAIR with additional 3D REAL-IR in 8 cases. Signs of EH were found in 11 patients, including all with definite MD, and across all classification grades. Additional findings included a probable intravestibular schwannoma and lateral semicircular canals' dysplasia.

Discussion/Conclusion: Hydrops sequences have the potential for diagnosing and monitoring patients with MD. As this protocol is still being refined, ongoing validation is being pursued, as well as applications in other inner ear pathologies. Familiarity with these imaging techniques is crucial for neuroradiologists to ensure better and more precise characterization of these pathologies.

C21
THE PARATHYROID PUZZLE: SOLVED WITH 4D CT

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Introduction: Four-dimensional (4D) computed tomography (CT) for parathyroid imaging is a technique that was first reported in 2006. This enables precise localisation of parathyroid adenomas in both eutopic and ectopic locations, as well as the detection of multiglandular disease in patients with hyperparathyroidism. Primary hyperparathyroidism is characterised by excessive secretion of parathyroid hormone (PTH). The majority of primary hyperparathyroidism cases are attributed to a parathyroid adenoma (88%), followed by multiglandular disease due to double adenoma (4%), multiple gland hyperplasia (6%) and carcinoma (< 1%).

Methods: For this retrospective study, we did a literature review of the imaging technique and the resultant imaging findings. We also reviewed our department's database and selected illustrative cases of patients who underwent 4D CT for parathyroid evaluation.

Results: We selected a sample of 24 patients (100%) and 87.5% were female (n = 21) with a mean age of 58 years. Only 2 patients had elevated PTH with normal calcaemia (8.3%), while the remaining patients had elevated PTH with hypercalcaemia (91.7%). Of the entire cohort, 16 patients underwent surgery (66.6%), 3 patient remains under imaging surveillance (12.6%) and 5 patients are awaiting a follow-up consultation to determine whether to proceed with surgery (20.8%). On 4D CT, most patients presented with oblong lesions that were hypodense on non-contrast acquisition, with intense contrast uptake during the arterial phase and early washout in the venous phase. Among the 16 patients who underwent surgery, 2 did not demonstrate typical imaging features of parathyroid adenoma. Histopathological analysis of these cases confirmed parathyroid adenoma/hyperplasia in 14 patients, indicating an 87.5% correlation between imaging and pathological findings.

Conclusion: 4D CT has emerged as a valuable imaging modality for detecting parathyroid lesions responsible for primary hyperparathyroidism, serving as a powerful tool for the preoperative localisation of abnormal parathyroid tissue and facilitating minimally invasive parathyroidectomy.

Posters

P01
VOLUMETRIC SIGNATURE ALONG THE LONGITUDINAL AXIS OF THE HIPPOCAMPUS IN SUSPEC-TED NON-ALZHEIMER'S DISEASE PATHOPHYSIOLOGY

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P02
DETECTING METACHROMATIC LEUKODYSTROPHY THROUGH MRI: INSIGHTS FROM A CASE OF MOTOR REGRESSION

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Introduction: Metachromatic leukodystrophy (MLD) is a rare, severe neurodegenerative genetic disorder caused by deficient arylsulfatase A activity, leading to accumulation of toxic sulfatides and demyelination. The most common disease subtype, late infantile, typically appears between 1 to 2 years of age. MRI is the preferred imaging method, often yielding findings highly suggestive of the disease.

Methods: Case description of a 20-month-old girl who presented to the emergency department of a tertiary hospital with a 3-month history of motor regression (progressive loss of capacity to sit and walk independently). She had normal psychomotor development until then, with a history of febrile urinary tract infection at 7 months and acute gastroenteritis a week before admission.

Results: Neurological examination showed normal cognitive function, global hypotonia, and tetraparesis. She was unable to stand, had a kyphotic posture when seated, difficulty manipulating toys, hyporeflexia, and bilateral Babinski sign. MRI revealed bilateral, symmetrical involvement of the supratentorial white matter, with T2 and T2/FLAIR hyperintensity and T1 hypointensity in periventricular and deep white matter, extending to the corpus callosum, and sparing the U-fibers. A "tigroid" pattern was observed, indicating perivascular white matter preservation. Spectroscopy revealed decreased N-acetylaspartate, elevated choline and myoinositol, and a slight increase in lactate. Retrospectively, CT scan (at the emergency department) also showed hypodensities in the affected regions.

Discussion: The clinical and radiological findings strongly suggested the diagnosis of late infantile MLD, later confirmed by genetic and biochemical testing.

Conclusion: This case highlights the importance of thorough neurological evaluation and imaging in children with motor regression. Early recognition of developmental deterioration is crucial, as timely referral to a specialty center can greatly influence care.

P03
EPISTAXIS: HOW SHOULD NEURORADIOLOGISTS APPROACH IT?

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Introduction: Epistaxis is a prevalent symptom, affecting approximately 60% of the population. It is classified as anterior or posterior, depending on the anatomical source of bleeding. Although its cause can be readily identified through clinical examination in most cases, usually related to mucosal trauma or irritation, some demand a more thorough evaluation. Imaging might be pertinent in these cases, including the use of computed tomography (CT), magnetic resonance imaging (MRI) and digital subtraction angiography (DSA).

Methods: We reviewed a group of cases from our institution to illustrate how neuroradiologists should approach epistaxis, focusing on the main etiologies in which imaging plays a pivotal role, i.e. mass lesions and inflammatory disease of the nasal cavity/paranasal sinuses.

Case review and discussion: The frequency of both benign and malignant nasal/paranasal masses depends on the age group, with benign masses constituting 80% of pediatric and 60% of adult nasal masses. Sarcoma and lymphoma are the most common malignant lesions in children, whereas squamous cell carcinoma prevails in adults. Bone erosion, invasion of neighboring structures, low T2 signal and restricted diffusion should raise suspicion for malignancy.

Inflammatory disease may also present with epistaxis, with invasive fungal sinusitis, organized hematomas and granulomatosis with polyangiitis being the most frequent entities requiring imaging.

Conclusion: The neuroradiologist plays an important part in the differential diagnosis of epistaxis in more complex cases. CT and MRI have complementary roles and DSA may be needed for diagnosis and treatment in specific cases.

P04
NEUROIMAGING IN PERINATAL HYPOXIC-ISCHEMIC ENCEPHALOPATHY

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Introduction: Neonatal hypoxic-ischemic encephalopathy (HIE) is a common cause of brain injury in newborns (NB) and affects about 1 to 8 NBs per 1000 live births in developed countries. HIE is characterized by a transient period of reduced blood flow and interruption of oxygen availability during the perinatal period, leading to a hypoxic-ischemic event in the brain. This condition remains an important cause of neurological injuries and developmental sequelae in term NBs, with the neurological outcome depending on the severity of the event.

Methods: This is an observational study conducted at a tertiary hospital, with a retrospective analysis of Magnetic Resonance Imaging (MRI) images between 2011 and 2022, using the Weeke Score.

Results: Ninety-two newborns with a gestational age of over 36 weeks were included, who underwent Therapeutic Hypothermia in accordance with the national consensus, and were evaluated through complementary MRI studies, in the first week of life.

Diffusion imaging is the first to show changes, even within the first few hours after the insult, due to the presence of cytotoxic edema. The most affected areas within the first 24 hours are the basal ganglia, thalami, peri-rolandic cerebral cortex, optic radiations, and hippocampi. The lesions observed on MRI were grouped into three categories according to the Weeke score: deep gray matter, white matter/cortex, and cerebellum.

Conclusion: Neuroimaging is still considered the best complementary study to assess the severity, etiology, and chronological age of brain injuries in newborns with HIE, with the aim of guiding future therapeutic decisions and assisting in prognosis prediction.

P05
WHEN METRONIDAZOLE MEETS THE BRAIN

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Introduction: Metronidazole-induced encephalopathy is an uncommon but potentially severe complication of metronidazole treatment. Although the exact pathophysiology remains elusive, proposed hypotheses include RNA binding, neurotoxicity from free radicals, and modulation of neurotransmitter receptors. Most cases demonstrate improvement upon discontinuation of metronidazole, highlighting the importance of early recognition. Magnetic resonance imaging plays a critical role in diagnosing metronidazole-induced encephalopathy, with characteristic imaging findings frequently observed in the dentate nuclei and corpus callosum.

Case description: A 63-year-old man was admitted for intravenous antibiotic therapy with metronidazole for complicated lumbar spondylodiscitis with multi-resistant Bacteroides fragilis isolated in blood cultures. He underwent a 12-week course of metronidazole treatment based on the antibiotic sensitivity testing. On the 70th day of metronidazole therapy, he presented with confusion, abnormal behaviour, and sensory and cerebellar ataxia and therapy was stopped. Magnetic resonance imaging revealed characteristic bilateral hyperintense lesions in the cerebellar dentate nuclei, corpus callosum, and brainstem. Prompt recognition and discontinuation of metronidazole led to symptom resolution.

Conclusion: This case underscores the importance of clinicians and radiologists being aware of this condition and emphasizes the pivotal role of magnetic resonance imagining in establishing the diagnosis.

P06
SCHISTOSOMIASIS: A RARE CNS MANIFESTATION IN AN IMMUNOCOMPETENT PATIENT

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Introduction: Schistosomiasis is a parasitic disease caused by trematodes of the Schistosoma genus. Cerebral involvement occurs when the eggs migrate to the CNS, triggering inflammation and granuloma formation. Here, we present a case of schistosomiasis with CNS involvement.

Methods: Case report of an inpatient in the Neurology department at ULS Algarve.

Results/Discussion: A male patient, 25 years old, born in S. Tomé and Príncipe, came to the ER presenting with seizures (previous 3 seizures in the last 4 months) followed by a headache on his right side, with moderate intensity. His neurological exam was normal. He had two hospitalizations in the previous two months with the same complaints. Blood tests were negative including serologies for autoimmune diseases and infections. CSF analysis showed an increase in proteins, presence of oligoclonal bands but was negative for viral, bacterial and parasitic infections; no neoplastic cells were found. During the first hospitalisation, brain MRI showed two hyperintense T2 and T2/FLAIR cortical-subcortical right temporal and occipital lesions with post-contrast enhancement. One month later, the MRI revealed a new lesion involving the left cingulate gyrus. After treatment with methylprednisolone the MRI showed a reduction in size of the lesions. During the current hospitalisation, MRI showed a new lesion located on the right medial fronto-parietal subcortical white matter with SWI punctate hypointensities. Intravascular lymphoma and MELAS were considered as diagnostic hypotheses. A brain biopsy was performed and histopathology results showed findings compatible with Schistosomiasis.

Conclusion: Parasitic brain infections are rare in most European countries, however in low-income countries they are relatively common. Even in young healthy patients, with no other signs and symptoms of parasitic infection, Schistosomiasis CNS infection could mimic other diseases such as intravascular lymphoma. A definitive diagnosis can only be made by demonstrating eggs on brain biopsy.

P07
MYTHBUSTERS: CONTRAST MEDIA IN NEURORADIOLOGY

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Introduction: Contrast agents in neuroradiology can be critical for enhancing the diagnostic accuracy. Some myths persist regarding their risks, particularly in patients with renal insufficiency, asthma, thyroid disorders, pregnancy. These myths may lead to unnecessary contrast avoidance, potentially disrupting proper workflow or, at worst, delaying diagnosis and therapeutic decisions.

Methods: This study reviewed current literature to assess the validity of common myths about contrast administration. Key areas included contrast-induced acute kidney injury (CI-AKI), gadolinium retention, contrast use in special populations, allergic reactions, preprocedural fasting and management of contrast extravasation.

Results: Recent data indicate that CI-AKI is a real, albeit rare, entity, particularly with appropriate patient screening and hydration protocols. Gadolinium retention in the brain showed no adverse clinical outcome. During pregnancy, iodinated contrast agents are classified as category B drugs, whereas gadolinium-based contrast agents are classified as category C. Iodinated contrast medium does not affect thyroid function in patients with a normally functioning thyroid gland. Asthma is not a contraindication for contrast use and patients with controlled asthma should not be denied justified iodinated contrast administration. There is no cross-reaction between contrast agents and seafood allergies. Contrast extravasation is generally mild, and most patients recover without clinically important sequelae. Preprocedural fasting has no preventive effect on the risk of nausea, vomiting, or aspiration.

Discussion: These myths likely stem from outdated information and a lack of awareness of recent research. Dispelling these misconceptions allows clinicians to make informed decisions, improve patient outcomes, and minimize unnecessary risks. This review emphasizes the importance of individualized patient assessment and adherence to updated contrast media guidelines.

Conclusion: Addressing myths regarding contrast administration is crucial. Evidence-based practices and appropriate patient evaluation ensure safe and effective use of contrast agents, leading to more accurate diagnoses and better outcomes.

P08
ACCESS ROUTE FOR ENDOVASCULAR NEUROINTERVENTION: A COMPARATIVE REVIEW

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Introduction: Neurovascular procedures require stable catheter access to the intracranial circulation. The femoral approach is widely used, with the radial approach and direct carotid puncture as viable alternatives, each presenting distinct advantages, limitations, and potential complications. This study examines these three access routes and provides real examples from our center for each approach.

Methods: A comprehensive review of recent literature was conducted, focusing on studies comparing different approaches in endovascular neurointervention. The key metrics analyzed included procedural success rate, complication rate, patient comfort, and recovery time. We also selected cases from our database to illustrate the main limitations, complications, and key lessons for each approach.

Results: The femoral approach remains the gold standard because of its familiarity and the larger caliber of the vessel, offering high procedural success rates. However, it carries risks, such as groin hematomas and longer recovery times. The radial approach is increasingly popular for its lower complication rates, quicker recovery, and reduced risk of bleeding, although it presents challenges in navigating the vasculature, particularly in tortuous or small vessels. Direct carotid puncture provides the most direct access, reducing procedure time and improving success in complex cases; however, it is associated with higher risks of neck hematomas, cranial nerve injury, and patient discomfort.

Discussion: Transfemoral access remains the standard approach, offering reliability and a low rate of adverse events. The radial approach, which is safer and more comfortable for patients, requires new dedicated hardware and greater familiarity with the technique. Direct carotid puncture can bypass anatomic variations that are unnavigable via standard approaches but carry significant risks, limiting its use to experienced operators and selected indications.

Conclusion: Each access route has its own advantages and limitations. The selection of the approach should be guided by patient-specific anatomical and clinical factors to maximize procedural success and minimize complications.

P09
GASPERINI SYNDROME - A RARE CASE REPORT

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Introduction: Peripheral facial paresis and vestibular neuritis are generally isolated and idiopathic, however these symptoms may denote pathology of the central nervous system and imaging it's crucial for the diagnosis.

Case report: An 87-year-old female presented to the Emergency Department due to dizziness, vomiting and diarrhea with one day evolution and left facial paresis.

On summary neurological examination she showed left peripheral facial paresis, mild dysarthria, asynergy on the left side without dysmetria and hypoacusis with Positive Head Impulse Test on the left. She also had hypoesthesia on the right face and left hemibody and nystagmus to the right with limited abduction of the left eye.

It was conducted an analytical study which was normal. Brain CT revealed left middle cerebellar peduncle and lateroinferior left cerebellar hemisphere hypodensity suggestive of acute ischemia. Head and neck CT angiography showed filiform filling of the left Anterior Inferior Cerebral Artery (AICA). During hospitalization, brain MRI imaging was performed, which confirmed lesions of ischemic etiology.

Discussion: Posterior fossa strokes can mimic other common pathologies such as Bell's palsy, vestibular neuritis or acute gastroenteritis, and an atypical clinical presentation for these pathologies and presence of vascular risk factors should lead to the suspicion of central lesions. Gasperini syndrome is a rare brainstem syndrome resulting from a lesion in the caudal pontine tegmentum usually due to occlusion of the basilar or AICA. After its first description in 1912, there have only a few reported cases. It is characterized by cranial nerve V, VI, VII and VIII palsies (ipsilateral facial hypoesthesia, ocular abduction, peripheral facial paresis, ipsilateral vertigo and nystagmus) and spinothalamic tract lesion (contralateral hemihypostesis). GS may also present with other neurological deficits, such as conjugate gaze palsy, tongue deviation, ataxia, contralateral facial hemihypalgesia, hearing loss and hemiparesis.

P10
A DIAGNOSTIC DILEMMA: NOT EVERYTHING IN THE SPHENOID SINUS IS SINUSITIS!

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Introduction: Isolated sphenoid sinus pathology is uncommon and often presents with nonspecific symptoms. While sinusitis is frequently considered, serious conditions such as chordomas, plasmacytomas, and metastases should be included in the differential diagnosis, particularly when imaging findings are atypical.

Methods: We describe the case of a 39-year-old man with no significant medical history, presenting with a 10-day history of worsening bilateral occipital headache, photophobia, and nocturnal awakenings.

Results: Initial CT imaging revealed a large, heterogeneous, predominantly isointense soft tissue mass obliterating the left sphenoid sinus with associated focal bone erosion. An initial diagnosis of inflammatory sinusitis was made, and only supportive treatment was provided. Over the next 5 years, the patient experienced intermittent headaches, eventually worsening with vision loss and left eye proptosis. Repeat imaging showed progression, leading to a more accurate presumptive diagnosis of a tumoral lesion. Surgical removal and biopsy confirmed spheno-clival chordoma.

Discussion: Spheno-clival chordomas can present with nonspecific symptoms like headaches, cranial nerve deficits, and visual disturbances, depending on tumor size and location. In this case, the subacute headache and partial relief with analgesics could easily mislead clinicians toward a benign diagnosis such as sinusitis. However, worsening symptoms with atypical features like photophobia, orbital pain, Valsalva exacerbation, and nocturnal awakenings should prompt further imaging to exclude more serious conditions. Radiologic red flags included bony destruction and an isolated heterogeneous sphenoid mass.

Conclusion: Clivus chordomas can be easily misdiagnosed as common conditions like sphenoid sinusitis due to overlapping clinical and imaging features. This rare tumor should be considered in the differential diagnosis of soft tissue masses of the sphenoid sinus. This case highlights the need for careful interpretation of imaging studies and high index of suspicion when evaluating headaches with atypical features.

P11
HIV-ASSOCIATED NEUROINFECTIONS: KEY RADIOLOGICAL AND DIAGNOSTIC INSIGHTS

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Introduction: Despite advances in antiretroviral therapy (ART), neuroinfections remain a significant burden in HIV-infected individuals, often due to non-compliance, unawareness of disease status, or ART resistance. Common neuroinfections and associated complications include cerebral toxoplasmosis (CTox), progressive multifocal leukoencephalopathy (PML), cryptococcal meningoencephalitis (CME), cytomegalovirus (CMV) encephalitis, and CNS tuberculosis. Accurate diagnosis should rely on clinical presentation, cerebrospinal fluid (CSF) analysis, and neuroimaging. This study reviews key radiological features and highlights potential diagnostic challenges on computerized tomography (CT) and magnetic resonance (MR) imaging.

Methods: A retrospective review of clinical and imaging cases of HIV-infected patients from our Hospital, between 2019-2024, was conducted. Scans were identified using specific keywords in the ByMe® database and the PACS-SECTRA® platform. Clinical and laboratory data, including CD4-counts, were correlated using electronic patient records.

Results: A total of 9 patients were included (7 males) with a mean age of 43.9 ± 6.5 years. All presented with CD4-cell count under 250 cells/μL. CTox presented as multiple ring-enhancing lesions in the basal ganglia with significant mass effect. PML showed asymmetrical white matter lesions without mass effect and no gadolinium enhancement. CME exhibited leptomeningeal enhancement and the presence of gelatinous pseudocysts. CMV encephalitis presented with ventriculitis and periventricular enhancement. CNS tuberculosis showed basal meningeal enhancement and tuberculomas.

Discussion: The imaging findings described are consistent with established patterns of neuroinfections in HIV patients, including number of lesions, location, mass effect, and enhancement patterns. While each has distinct imaging features, we highlighted that overlapping or atypical presentations can occur, and how these pitfalls can be avoided.

Conclusions: Typical imaging features can strongly suggest an etiology, however a final diagnosis should not rely solely on neuroimaging and must be correlated with clinical and laboratory data. Imaging is crucial in evaluating HIV-associated neuroinfections and should integrate all available information.

P12
PROGRESSIVE SUBACUTE ATAXIA – A CASE REPORT

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Introduction: Creutzfeldt Jakob Disease (CJD) is an untreatable and fatal neurodegenerative pathology caused by malformed prion proteins. It is characterized by rapidly progressive dementia, accompanied by a variable clinical spectrum, especially in early stages, so initial diagnosis may be challenging.

Case report: A 50-years-old female presented with 4 months of progressive gait imbalance, associated with fatigue, insomnia and headache. She had several medical appointments in recent months, having undergone treatment with trazodone, betahistine, and vortioxetine without significant improvement. Neurological examination showed slight psychomotor slowing, bilateral appendicular ataxia and a wide-based gait. Brain MRI revealed DWI and FLAIR high signal in the caudate and putamen. A lumbar puncture was performed and revealed Tau 7140 pg/ml and presence of Protein 14-3-3. Electroencephalogram was normal.

Discussion: The diagnosis of sporadic CJD remains a challenge due to clinical variability, especially in the early stages mimicking a primary psychiatric illness. As the illness progresses, neurological signs and symptoms become more prominent. Distinct changes on Brain MRI may precede clinical findings, which play a relevant role in the evaluation, and the pattern on DWI may suggest the probable diagnosis of this rare disease, with sensitivity similar to the presence of the 14-3-3 protein in the cerebral spine fluid. Early CJD is characterized by variable increased DWI in cortex, corpus striatum with the apparent diffusion coefficient (ADC) values decreased.

Despite prevalent cerebellar symptoms associated with intense neuropathological phenotypic changes of the cerebellum, the cerebellum is typically normal on MRI. The definitive diagnosis is made by biopsy of the brain tissue and identification of the anomalous PrPsc protein, however a probable diagnosis with non-invasive tests is usually sufficient. There is no effective treatment for CJD, and it is universally fatal. Death usually occurs within a year of the onset of symptoms.

P13
EXUBERANT PNEUMOCEPHALUS IN THE CONTEXT OF AIR PRESSURE CHANGES IN A PATIENT WITH PREVIOUS ETHMOIDAL SURGERY

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Introduction: Pneumocephalus occurs when air presents intracranially secondary to skull defects, most often caused by trauma (including barotrauma), or spontaneously. Presentation may be asymptomatic or include headaches and neurological deficits due to mass effect. A major risk factor for pneumocephalus is previous cranial or endonasal surgery that, if unrepaired, can lead to severe complications. Methods: Case presentation of complicated pneumocephalus in a patient with history of ethmoidal surgery.

Results: A 65-year-old male with history of ethmoidal sinus' surgery 12 years before presented to the emergency department following headache of sudden onset and development of recurrent posterior pharyngeal secretions. The patient reported two intercontinental flights in the previous week. CT scan revealed cribriform plate defect and severe intracranial pneumocephalus without significant mass effect. Lumbar puncture suggested meningitis for which the patient was treated with later endoscopic surgery for skull defect closure. Subsequent imaging revealed progressive complete reabsorption of pneumocephalus. Patient was discharged after 19 days, asymptomatic.

Discussion and Conclusion: Rare cases have shown that severe pressure changes may be associated with CSF leaks. Our patient presented with a recent history of intercontinental flights which, in the background of anterior cranial fossa fragility secondary to ethmoidal surgery, likely contributed to the clinical picture. This case highlights the role of various factors in the development of pneumocephalus, CSF leak and meningitis, raising the need for a good clinical history for prompt diagnosis and repair of skull defects.

P14
NEUROIMAGING APPROACH TO TOXIC AND METABOLIC BRAIN DISORDERS AFFECTING THE BASAL GANGLIA AND/OR THALAMI

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Introduction: Toxic and metabolic brain diseases include a vast group of pathologies that affect the central nervous system and can lead to catastrophic results, especially in the absence of early suspicion. Along with medical history, neuroimaging plays a key role in the diagnostic approach. MRI studies generally present signal characteristics and topographic distributions that should raise suspicion for such diagnoses providing compatible clinical context. Most cases affect the deep gray nuclei, thalami and may also involve the dentate nucleus, cortical gray matter, periventricular white matter and the corpus callosum. However, the diagnosis remains challenging, considering that it represents a heterogeneous group of diseases, with imaging characteristics that may be nonspecific and common to several pathologies.

Methods: We retrospectively reviewed brain MR imaging of patients with toxic and metabolic diseases involving the deep gray nuclei and thalami from the imaging database of our tertiary center from January 2019 to July 2024. A practical radiological approach to address the imaging findings of these diseases is proposed. Discussion: A systematic approach with practical clues for diagnosis based on the most common imaging patterns involving the basal ganglia and thalami encountered in clinical practice is proposed, including (1) T2-weighted imaging (WI) and Fluid Attenuated Inversion Recovery (FLAIR) hyperintensity; (2) T2-WI hypointensity; and (3) T1-WI hyperintensity. The neuroimaging differential diagnosis of toxic causes, including carbon monoxide intoxication, medicines, such as vigabatrin, and metabolic etiologies, including liver and kidney failure, Wernicke encephalopathy and calcium metabolism disorders are discussed.

Conclusion: Toxic and metabolic conditions affecting the basal ganglia and thalami may present specific imaging patterns that may narrow the differential diagnosis. A thorough medical history is essential to determine underlying causes over other disease groups with similar imaging features.

P15
NOT EVERYTHING IS WHAT IT SEEMS! TIPS & TRICKS FOR SPOTTING HIGH-GRADE GLIOMA IN DUBIOUS CASES

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Introduction: Ring-enhancing lesions (ReLs) share a variety of differential diagnoses which often include abscesses, metastases, high-grade glioma (HGG) and immunodeficiency-associated lymphoma. Our purpose is to highlight imaging features that favor HGG when clinico-radiological scenarios point otherwise.

Methods: Case reports. Literature review.

Results:
Case1: A 39-year-old female, HIV+ with previous ocular toxoplasmosis, presented with a ReL in the periventricular white matter, extensive surrounding edema, without central restricted diffusion. The lesion showed high intratumoral susceptibility signal (hITSS) on T2* and enhancement extended beyond the T2 hypointense rim. Perfusion was markedly elevated (relative cerebral blood volume(rCBV) 21; percentage signal recovery(PSR) 66%). Deep location and solitary lesion disfavored metastasis whereas elevated perfusion and enhancement pattern favored HHG over lymphoma or toxoplasmosis, histologically-proven after gross resection.

Case2: A healthy 45-year-old male presented with 2 distinct-lobar juxtacortical ReLs. Although well-circumscribed on pre-contrast images without evidence of cortical infiltration, non-enhancing solid tumoral component (nSTc) and scattered foci of enhancement were present in adjacent white matter, exceeding the T2 hypointense and enhancing rims. Lesions showed hITSS and elevated perfusion (rCBV 20, PSR 60%, tending towards baseline). Despite multicentricity, presence of nSTc, hITTS, enhancement and perfusion patterns favor HGG over metastases, confirmed histologically after biopsy.

Discussion: Imaging diagnosis of ReLs, although challenging, highly impacts management and surgical planning. In HGG, enhancement occurs beyond the T2 hypointense microhemorrhagic rim, suggesting parenchymal infiltration, whereas in abscesses ring enhancement matches the T2 hypointense fibrocollagenous capsule. Additionally, hITSS has shown to differentiate HGG from solitary metastasis, lymphomas and nontumorous lesions. Furthermore, rCBV<1.3 was reported to

distinguish infection from primary brain tumor, whereas lymphomas demonstrate lower rCBV, with rCBV<2.56 as threshold to discriminate from HGG and a characteristic intensity time curve overshooting baseline.

Conclusion: Features favoring HGG over other diagnoses include presence of nSTc, enhancement beyond the T2 hypointense rim, hITSS and elevated rCBV.

P16
BEYOND TRAUMA: UNVEILING HIDDEN DIAGNOSES THROUGH CLINICO-RADIOLOGICAL CORRELATIONS IN NEONATAL

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Introduction: Preterm infants are at a heightened risk of neonatal complications due to the relative immaturity of their organ systems, a risk that is further exacerbated in cases of traumatic births.

Results: A female infant born at 35+2 weeks via vacuum extraction developed hypovolemic shock probably related to significant subgaleal hemorrhage, requiring supportive measures, including fluid resuscitation and blood product transfusions. Neurological examination, revealed an asymmetrical Moro reflex and limited movements of the left upper limb, suggestive of a lesion of the left brachial plexus, with hand grasping preserverd. Left-sided Horner's syndrome was also identified, but only after MRI being performed. Brain CT scan performed immediately after delivery confirmed bilateral subgaleal hematomas and few subdural blood over the tentorium cerebelli. A subsequent transfontanelle ultrasound showed pathological echogenicity in the bilateral periventricular and occipital regions, suggesting a probable hypoxic-ischemic lesion, but also accompanied by unilateral frontoparietal cortical involvement. MRI scan confirmed probable hypoxic-ischemic involvement of parieto-occipital regions, associated with restricted diffusion of the corpus callosum, forceps minor and optic radiations, consistent with axonal injury. Furthermore, cortical-subcortical recent arterial infarcts were also identified in the left fronto-parietal and left lateral temporal regions, and posible venous infarcts in profound cerebral white matter.

Conclusion: MR neuroimaging revealed different lesional patters only justified by different etiological mechanisms, including hypoxic-ischemic (related to global hypoperfusion), venous infarcts (probably due to traumatic delivery) and left hemispheric cortical-subcortical arterial infarcts (by embolism or hypoperfusion). Particularly, the later drew attention to a possible carotid injury together with intrapartum brachial plexus injury, also supported by the later evidence of Horner's syndrome. This case underscores the importance of detailed imaging in differentiating between various types of neurological injuries in newborns.

P17
WHY EMBRYOLOGY MATTERS! DYSTOPIC OS ODONTOIDEUM: A RARE VARIANT OF THE CRANIOVERTEBRAL JUNCTION ANATOMY

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Introduction: 'Dystopic os odontoideum', also termed 'os avis', is a rare anomaly of the craniovertebral junction (CVJ) anatomy, in which the apical dens of C2 is attached to the basiooccput and thus not fused to the main dental stem. Although usually congenital in origin, it may lead to atlantoaxial instability. Methods: Retrospective review of a clinical case.

Results: A 38-year-old male with unremarkable medical history presented with 'stabbing' cervical pain radiating to his right upper limb, accompanied by paresthesia in all right-hand fingers, which ensued after physical exertion. Cervical spine radiograph revealed a large, well-corticated ossicle above C2 and an increased atlanto-dens interval. A subsequent cervical CT scan confirmed the presence of dystopic os odontoideum, partially fused with the clivus on the right, above a flattened dens. Additional findings included a hypertrophied anterior arch of C1 and vertebral canal stenosis at C1 level.

Discussion: Regarding embryogenesis, the primordium of the apical dens and the basiooccput share a common origin from the proatlas centrum, which, in turn, derives from the union of the fourth occipital somite with the first cervical somite. Lack of proper resegmentation of the proatlas centrum inhibits necessary cleavage and subsequent descent and fusion of the apical dens with the centrum of the first cervical sclerotome to complete the dental pivot. This prevents separation of the skull-vertebral column and final installation of the axis-dens assembly. The etiology of this failure is unknown but Hox cleavage genes may play a role. Conclusion: Proatlas resegmentation defects are rare CVJ anomalies likely to hinder imaging interpretation in a variety of settings. A sound understanding of CVJ embryological development helps contextualize and bring awareness to this entity, allowing for its accurate detection and classification on craniocervical CT, which proves pivotal for correct diagnosis and treatment.

P18
TO HERNIATE OR NOT TO HERNIATE: THAT IS THE PRESSURE! PARIETAL INTRADIPLOIC MENINGOENCEPHALOCELE: A CASE PRESENTING WITH FOCAL NEUROLOGICAL DEFICITS

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Introduction: Meningoencephaloceles are herniations of intracranial structures through congenital or acquired osseous-dural defects in the skull. Intradiploic meningoencephaloceles are particularly rare, involving herniated brain parenchyma that invades the inner skull table, while the outer table remains intact.

Methods: Retrospective review of a clinical case.

Results: A 74-year-old male, m-Rankin 0-1, with a history of unspecified cranial trauma in the 1970s and an incidental diagnosis of a left parietal intradiploic meningoencephalocele in 2017, presented with progressive right hemiparesis, motor discoordination and gait instability, causing significant loss of autonomy. Initially diagnosed with an acute ischemic stroke via CT scan, he began treatment with aspirin. One month later, motor deterioration prompted further imaging, which demonstrated worsening of brain parenchyma herniation through the calvarium osseus defect. He was referred to neurosurgery and new MRI revealed gliosis in the herniated tissue and vasogenic edema in the surrounding frontal and parietal white matter. Functional MRI with tractography indicated that motor areas, although not contained in the defect, appeared retracted in its proximity, affected by vasogenic edema. Conversely, sensory fibers were included, suggesting postcentral gyrus herniation.

Discussion: Meningoencephaloceles are more common as congenital developmental anomalies, with acquired forms being rare and seldom associated with head trauma. In this particular case, the absence of detailed information concerning clinical background hinders determination of a possible correlation between the two factors. Presenting symptoms often include seizures, CSF leakage and meningitis. Regarding this patient, conservative management allied to poor follow-up led to progressive expansion of the herniated tissue, strangulating sensory cortex areas with surrounding vasogenic edema affecting motor areas, resulting in neurological deficits.

Conclusion: This rare intradiploic meningoencephalocele case presenting with neurological deficits highlights the possible dangers of conservative management and underlines the importance of regular follow-up in order to prevent the onset of potentially irreversible neurological complications.

P19
A DVATING PATH: NAVIGATING UNCERTAIN ROADS IN PEDIATRIC HEMORRHAGE

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Introduction: Cerebral vascular lesions are the leading cause of spontaneous intracerebral hemorrhage in children (pSICH), with arteriovenous malformations (AVMs) being the most frequent etiology. Although uncommon, developmental venous anomalies (DVAs) can also present symptomatically, often due to flow-related complications. Imaging plays a critical role in diagnosing pSICH, though pinpointing the exact etiology remains a challenge.

Clinical Case: A 3-year-old boy presented with left-sided hemiparesis, rightward oculocephalic deviation, and fluctuating consciousness. Imaging revealed an acute right thalamic hemorrhage and calcifications in the contralateral thalamus and mesencephalon. CT-Angiography and MR-Angiography identified multiple DVAs draining the thalami, basal ganglia, and mesencephalon, along with a filling defect and T2/GRE blooming in a venous pouch on the vein of Galen, indicating a potential thrombus. Initial digital subtraction angiography (DSA) suggested an arteriovenous shunt in the thalamic region, although the nidus was not visible, which possibly could have been masked by overlapping DVAs draining into the ampulla of Galen. A follow-up DSA, one month later, failed to disclose a nidus but confirmed the DVAs' complex angioarchitecture, with arterial phase filling, indicative of increased arterial flow from "microshunting." Partial recanalization of the thrombosed venous pouch was noted, with evidence of slow flow, and small ectasias in the "Medusa head" veins were also observed. The hemorrhage's etiology remains uncertain, with possibilities including a micro-AVM or DVAs with microshunts and associated thrombosis. The patient is under clinical surveillance, with progressive neurological recovery. MR-Angio shall be repeated within 6 months, with subsequent DSA if deemed necessary.

Discussion/Conclusion: In cases involving complex DVAs, it is crucial to keep in mind possible complications from increased arterial flow due to shunting/microshunts, as well as outflow obstruction from stenosis or thrombosis. These considerations should be integrated into the differential diagnosis to ensure thorough evaluation and guide management.

P20
A TWIST IN THE TALE: UNCOMMON CHOROID PLEXUS METASTASIS IN A PATIENT WITH NON-UTERINE LEIOMYOSARCOMA

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Introduction: Choroid plexus tumors are rare, comprising 0.3-0.6% of intracranial neoplasms, with metastases being a relatively uncommon subgroup. Given their rarity, diagnosing such metastases is very challenging due to their rarity and non-specific symptoms, often requiring adequate neuroimaging, detailed patient history and, in some cases, histopathological evaluation.

Methods: We analyzed the case of a 51-year-old male with a history of dorsal musculature leiomyosarcoma, with an osteosarcomatous component, who presents with a 3 week history of dizziness, imbalance, tinnitus and progressive left-sided hemiparesis.

Results: Brain computed tomography (CT) revealed an irregular right-sided parieto-temporal hyperdense tumor with apparent involvement of the choroidal plexus of the lateral ventricle, with a large calcified mass, solid and cystic components, extensive brain edema and causing moderate midline shift. Brain magnetic resonance imaging (MRI) provided further detail, apparently locating it to the choroid plexus and better revealing hemorrhagic plaques, with susceptibility-weighted imaging (SWI) highlighting these. Review of patient history, as well as the primary lesion, particularly of its osseous component, led to the hypothesis of a secondary lesion. After surgical removal, histopathological analysis confirmed metastasis from the osteosarcomatous component of the primary leiomyosarcoma, a rare occurrence in the choroid plexus.

Discussion: Metastasis to the choroid plexus from non-uterine leiomyosarcoma is exceptionally rare and requires proper imaging, particularly MRI, to differentiate it from primary CNS tumors. In this case, the rare nature of the primary tumor resulted in a very characteristic finding, namely a lesion with an exuberant osseous component. While a high level of clinical suspicion may guide the initial approach, histopathological confirmation is important to provide a definitive diagnosis.

Conclusion: Although rare, choroid plexus metastasis should be considered in patients with atypical neurological symptoms and a history of malignancy. Neuroimaging and, when appropriate, histopathological evaluation are crucial for detection and guiding treatment strategies.

P21
A NOT SO USUAL STROKE MIMIC ON CT– A CASE REPORT

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Introduction: Cerebellopontine angle (CPA) lesions, such as vestibular schwannomas, can present with symptoms similar to cerebrovascular events, complicating the diagnostic process. This case report describes the initial misdiagnosis of a right cerebellar stroke in a patient who was later found to have a schwannoma, highlighting the importance of thorough imaging and differential diagnosis.

Methods: We report a case from our stroke centre of a schwannoma initially thought to be a stroke Results: A 60-year-old female with no relevant medical history presented to the emergency department with a one-day history of nausea and vertigo. A CT scan revealed a large, heterogeneous lesion in the right cerebellum, primarily hypodense with intra-lesional hyperdensities. This lesion was initially interpreted as a right cerebellar stroke with hemorrhagic transformation. The patient was subsequently transferred to the Stroke Unit for further monitoring, and an MRI was conducted to provide a more detailed assessment of the lesion. The MRI revealed an extra-axial expansive lesion located in the cistern of the right cerebellopontine angle, extending into the right internal acoustic meatus. The lesion was multicystic, containing both chronic and subacute blood components, and was compressing adjacent structures with imaging characteristics consistent with a vestibular schwannoma, leading to the correct diagnosis.

Conclusions: This case emphasizes the need for comprehensive imaging in the evaluation of patients with symptoms that mimic stroke, particularly when initial CT findings are ambiguous. MRI proved essential in distinguishing a vestibular schwannoma from a hemorrhagic stroke, avoiding misdiagnosis and ensuring appropriate management. Accurate differential diagnosis through advanced imaging techniques is critical in cases where clinical presentation overlaps with multiple potential pathologies, such as CPA lesions and stroke.

P22
MIDDLE CEREBRAL ARTERY OCCLUSION DUE TO A SHOTGUN PELLET: A RARE CAUSE OF ACUTE ISCHEMIC STROKE

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Introduction: Intracranial injuries from gunshot wounds are rare but still occur, often associated with severe trauma and complex surgical challenges. Shotgun wounds are particularly notable due to multiple pellet fragments. This case presents a rare instance of an M1 segment occlusion of the right middle cerebral artery (MCA) caused by a shotgun pellet, leading to acute ischemic stroke. The presence of projectile fragments in the intracranial vasculature adds complexity to both diagnosis and management, presenting unique challenges in neuroradiology and surgical intervention.

Methods: We present a case from our emergency center involving middle cerebral artery occlusion due to a shotgun pellet. Results: A 50-year-old female presented to the emergency department following a shotgun blast to the face and head. Initial computed tomography (CT) revealed multiple metallic fragments throughout the intracranial, maxillofacial, and cervical regions. CT angiography (CTA) identified occlusion of the M1 segment of the right MCA, with a projectile fragment located distally to the occlusion site. Follow-up CT scans confirmed ischemic changes in the entire right MCA territory.

Conclusions: This case highlights a rare and striking imaging finding caused by a shotgun pellet, and it serves as a notable example of the complex imaging scenarios that can arise from gunshot injuries.

P23
ENHANCING DIAGNOSTIC PRECISION IN SALIVARY GLAND TUMORS: THE ROLE OF ADVANCED MRI TECHNIQUES

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Introduction: Neoplastic lesions of the salivary glands account for approximately 6% of all head and neck tumors, the vast majority occurring in the parotid gland. While benign tumors, including Pleomorphic Adenoma and Warthin Tumor, are more common (80%), a significant proportion of salivary gland neoplasms are malignant.

MRI is the preferred imaging modality for assessing parotid tumors and determining the extent of disease. Given that Fine Needle Aspiration (FNA) yields non-diagnostic or inconclusive results in approximately 15% of cases, accurate preoperative differentiation between malignant and benign neoplasms is essential due to the distinct therapeutic approaches and prognostic outcomes associated with each.

Conventional MRI lacks the specificity to reliably differentiate between malignant and benign lesions. To enhance diagnostic accuracy, a combination of functional imaging techniques, particularly Diffusion-Weighted Imaging (DWI) and Perfusion-Weighted Imaging, such as Dynamic Contrast-Enhanced MRI (DCE-MRI), is preferred.

Methods: In this retrospective analysis, we assessed patients with parotid tumors in our department who had undergone advanced imaging studies.

Results: DWI is helpful in differentiating malignant from benign parotid tumors, with diffusion restriction and low Mean Apparent Diffusion Coefficient (ADC) value (cut-off 1.4×10-3 mm2/sec) favouring malignancy. DCE-MRI allows analysis of parameters such as time to peak and washout. In the study of parotid tumors, three distinct TIC patterns can be identified, aiding in the differentiation of various lesion types.

Discussion: Various interpretation algorithms combining DWI and DCE curves regarding parotid tumors and functional MRI have been proposed. We present a pictorial review of parotid tumors from our department, with a particular focus on the utility of DWI and DCE-MRI in differentiating between benign and malignant tumors and propose an interpretation algorithm.

P24
PUMICE STONE SIGN - A TELLTALE SIGN OF EMPHYSEMATOUS OSTEOMYELITIS

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Introduction: Emphysematous osteomyelitis is a rare form of osteomyelitis due to gas-forming bacteria. Approximately 40% of the cases are located in the vertebrae and E.coli is one of the most common pathogens. Methods: Case report with review of the patient's clinical data and imaging findings.

Results: A 79-year-old female with past medical history of arterial hypertension, fell two days prior and is seen at the emergency department with dyspnea and posterior thoracic pain. Clinical status worsened and the patient was admitted to the ICU with the diagnosis of septic shock of unknown origin. Initial CT scan showed a compression fracture at D8 with a vertebral body height reduction of 20%. Control CT scan 2-days later showed bilateral pleural effusions and gas within the bone marrow of the D8 and D9 vertebral bodies, in keeping with “pumice stone sign”, as well as the surrounding soft tissues. MRI confirmed these findings and better showed the associated inflammatory/infectious process, which extended into the vertebral canal causing spinal cord edema, as well as the perivertebral soft tissues with bilateral abscesses. E.coli was isolated in the blood cultures and was presumed to be the etiologic agent. The patient was treated accordingly with improvement of clinical and imaging status.

Discussion: The pumice stone sign is an imaging appearance very suggestive of emphysematous osteomyelitis. It is described as clusters of spontaneous gas of irregular sizes in the bone marrow, resembling the surface of a pumice stone.This type of infection, in addition to being rare, usually doesn't present with the typical cortical erosions of most osteomyelitis. Therefore, its presence helps in the early diagnosis and treatment of a life-threatening condition.

Conclusion: This case highlights an unusual origin for a septic shock, as well as the significance of the pumice stone sign as a telltale sign of emphysematous osteomyelitis.

P25
DIPLOPIA: AN ANATOMICAL OVERVIEW

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Introduction: The mechanical systems and information processing involved in controlling eye movements are a remarkable natural engineering project. The movement of the eyes and eyelids occurs continuously, most of the time imperceptibly, making it possible to maximize the information derived from the relatively small visual area represented in the fovea. The muscles, nerves and nuclei involved allow precise, smooth eye movements to occur in a synchronized and coordinated manner. Abnormalities of the pupils and eye movements are often warning signs of pathologies of the brainstem or cranial nerves.

Methods: Pictorial review with collection and selection of computed tomography (CT) and magnetic resonance imaging (MRI) images from PACS and preparation of illustrative anatomical diagrams. Results: CT and MRI images were obtained from patients followed up at the differentiated Neurology Vision and Balance consultation at ULS Coimbra for diplopia whose cause had an imaging translation along the path of the III, IV and VI cranial nerves, as well as pathology of the ocular muscles.

Discussion: Various pathologies, such as tumor, inflammatory or vascular, can be the cause of diplopia. Often, these lesions are subtle and small, which can result in falsely negative imaging studies or poor clinical-imaging correlation. Understanding the orbital structures and neural pathways involved in eye movements makes it possible to delineate the imaging target, adapting the protocol and increasing diagnostic sensitivity.

Conclusion: The neuroradiologist must have a precise knowledge of the anatomy of the structures involved in eye movements for the study of patients with diplopia, allowing the selection of appropriate imaging protocols and the thorough search for lesions in strategic locations.

P26
THE ROLE OF SPINAL PERCUTANEOUS INTERVENTION IN THE EARLY DIAGNOSIS OF SPONDYLODISCITIS (AND ENDOCARDITIS): A CASE REPORT AND LITERATURE REVIEW

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Introduction: Vertebral bone infection can occur spontaneously or in association with a distant infectious focus, such as in the context of infectious endocarditis. The objective of this case report is to highlight the importance of spinal percutaneous intervention in the early diagnosis of spondylodiscitis (and consentaneous infectious endocarditis), in a patient with persistent lumbar pain.

Methods: We report a case of spondylodiscitis with isolation of Staphylococcus epidermidis in a CT-guided bone biopsy, in a patient with history of a recent pacemaker implantation, who had a subacute development of fever and persistent lumbar pain for three months.

Results: The patient had multiple visits to the ER room (with two consecutive negative lumbar spine CT two-weeks prior). Due to persistent pain the patient recurred, with a new CT-scan demonstrating two lytic lesions in the D12 vertebral body. In the absence of known oncologic disease, vertebral biopsy was promptly proposed in the day after the admission. Bone sample was positive to Staphylococcus epidermidis, and in the context of subacute fever, concomitant infectious endocarditis was subsequently identified (as a possible source of infection).

Discussion: In infectious endocarditis, Staphylococcus epidermidis is more frequently isolated in individuals with cardiac devices and intravascular catheters and is associated with a subacute to chronic course. Although comprising a rare causative agent, given the time course of device implantation, these individuals are at higher risk for distant infections, such as spondylodiscitis. Vertebral biopsy was particularly useful in this case for the early diagnosis of spinal infection (with a discovery of a rare causative agent) as the initial presentation of infectious endocarditis.

Conclusion: We report a case of a patient with Staphylococcus epidermidis-related spondylodiscitis and concomitant endocarditis. Multidisciplinary approach and prompt vertebral bone biopsy allows microbiologic identification and exclusion of differential diagnosis, leading to directed therapeutic approach.

P27
SEEING IS BELIEVING: WHEN MRI OUTSHINES CSF IN DIAGNOSING PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY

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Introduction: Progressive multifocal leukoencephalopathy (PML) is a rare demyelinating disease of the central nervous system, typically caused by reactivation of the John Cunningham virus (JCV) in immunocompromised individuals. While cerebrospinal fluid (CSF) analysis is crucial for detecting the virus, characteristic neuroimaging findings play a dominant role in establishing the correct diagnosis, even when other tests suggest different conditions.

Methods: We present a clinical case from our center, conducting a retrospective analysis of the patient's medical history.

Results: A 68-year-old woman with Non-Hodgkin Lymphoma, undergoing treatment with Rituximab, Cyclophosphamide, Vincristine, and Prednisolone, presented with a three-month history of psychomotor slowing. Neurological examination revealed anosognosia, left sensory extinction, left hemiparesis, and apraxia. MRI showed right fronto-parietal subcortical and juxta-cortical lesions with hyperintensity on T2 and FLAIR, marked hypointensity on T1 and diffusion restriction at the lesion margins on DWI, without gadolinium enhancement, suggestive of PML. Initial and follow-up CSF analyses were negative for JCV. Given the imaging-CSF discrepancy, a cerebral biopsy was performed, confirming PML pathology, but isolating Simian Virus 40 instead of JCV.

Discussion and Conclusion: Although PML is usually associated with JCV, the presence of SV40 in this case raises questions about its role, and further research is needed to clarify SV40's role in PML pathogenesis. A prior case with similar imaging-CSF dissociation has also isolated SV40 along with JCV, yet the association between SV40 and PML remains unclear. Studies in SIV-infected rhesus monkeys have suggested a link between SV40 and PML, but these findings have been inconsistent, and no definitive pathogenic connection has been established in humans.This case emphasizes the importance of neuroimaging in diagnosing PML, as MRI often provides crucial insights even when CSF tests are negative.

P28
VISUAL FIELD DEFECT: GLAUCOMA OR COMPRESSIVE OPTIC NEUROPATHY? THE ROLE OF NEUROIMAGING - A CASE REPORT AND LITERATURE REVIEW

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Introduction: Aberrant intracranial blood vessels are a known cause of cranial nerves dysfunction. In relation to the optic nerve, compression by an artery is a rare but potentially treatable cause of neuropathy. Although incidental contact of the cisternal optic nerve and internal carotid artery (ICA) is common, compressive optic neuropathy occurring intracranially has not been frequently described.

Methods: An 85-year-old woman with a diagnosis of primary open angle glaucoma and cataracts, with documented structural changes of right optic nerve with visual field defects was submitted to right eye phacoemulsification, with symptoms persistence after surgery.

Results: After surgery, due to persistent right eye visual loss, the patient was submitted to brain and orbits MRI, documenting clinoid ICA asymmetric position, with medialization and superior positioning of the right carotid artery, causing neurovascular contact with the intracranial segment of the optic nerve (which demonstrated signal changes), suggestive of being the cause of the symptoms.

Discussion: Visual loss from compression of the anterior visual pathways by dolichoectatic vessels is well recognized; however, even normal-appearing ICA has the potential to compress the optic nerve. Optic nerve compression from ICAs has been suggested to be one of the possible causes of visual field defects in patients with optic neuropathy, and in patients with glaucoma, with damage of the optic nerve head and visual field loss despite normal intra-ocular pression. Thus, compression of the intracranial optic nerve up to the junction of the anterior optic chiasm can produce visual field defects resembling glaucoma with sparing of central vision. Conclusion: Differential diagnosis in glaucomatous optic neuropathy should consider neuroimaging to exclude a compressive lesion mimicking glaucoma, in atypical cases suggesting an alternative diagnosis, namely in visual field defects with respect of the vertical meridian, mismatch between cupping and visual field loss and rapid deterioration of visual acuity.

P29
REVIEW OF TREATMENT APPROACHES FOR INDIRECT CAROTID-CAVERNOUS FISTULAS: A SUCCESSFUL CASE OF CONSERVATIVE MANAGEMENT

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Introduction: Indirect carotid-cavernous fistulas (CCF) are the second most common intracranial dural arteriovenous fistulas, mainly resulting from non-traumatic lesions that establish a slow-flow, low-pressure connection between dural branches of the internal carotid artery (ICA) and/or deep branches of the external carotid artery (ECA), and the cavernous sinus (Barrow types B, C and D).

Methods: This review describes the most frequent treatment options for indirect CCF, ranging from conservative methods to embolization techniques, focusing on a case successfully treated with manual compression. Results: A 64-year-old woman, with a history of hypertension, breast cancer, and depression, presents in October/2023 with right eye proptosis. Digital subtraction angiography (DSA) confirms the diagnosis of low flow right CCF Barrow type D with arterial supply from bilateral ICAs and ECAs. Carotid-jugular compressive treatment was initiated attending to the low flow and small caliber arterial feeders, and the absence of major vascular risks. Clinical deterioration after 2 weeks motivated a second DSA, showing resolution of the right ECA supply. Manual compression was maintained with frequent magnetic resonance imaging control. DSA after 6 months revealed complete exclusion of the fistula.

Discussion: Currently the preferred treatment approach for indirect CCF is transvenous embolization, by inserting embolic materials into the cavernous sinus. However, non-invasive treatment must also be considered, with intermittent self-administered external manual carotid-jugular compression obtaining a cure in up to 30% of spontaneous CCF. In our case, this technique resulted in a complete exclusion of the fistula and symptom resolution.

Conclusion: Although the most frequent approaches of indirect CCF are endovascular, conservative management must not be dismissed, showing excellent results in highly selected patients.

P30
COMPOUNDING MEDICINES IN THERAPEUTICS

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Introduction: The Pharmaceutical Industry is dedicated to the mass (large-scale) manufacture of medicines. However, industrially manufactured medicinal products do not meet all therapeutic needs, making compounding medicines, which are prepared on a small scale in community pharmacies and hospital pharmacy services under the supervision of a pharmacist, an important aspect of modern pharmacotherapy. There are various reasons for using compounding medicines, the primary one being the ability to customize therapy for specific patients, particularly concerning composition, dosage, and pharmaceutical dosage form. The main objective of this poster is to provide a historical overview of compounding medicines in Portugal, presenting practical examples and their therapeutic advantages. Additionally, the communication aims to chronologically outline the main legal documents that have regulated the preparation and dispensing of these types of medications.

Methods: The methodology involved a documentary analysis of various sources, with a focus on formularies (e.g., the Portuguese Galenic Formulary), pharmacopoeias (e.g., the Portuguese Pharmacopoeia), and scientific articles.

Results: According to Decree-Law No. 95/2004, of April 22, a compounding medicine is any magistral formula or officinal preparation prepared and dispensed under the responsibility of a pharmacist. A magistral formula is prepared according to a medical prescription that specifies the patient for whom the medication is intended, while an officinal preparation is made according to the compendial instructions of a pharmacopoeia or formulary.

Discussion and Conclusion: Compounding medicines play a fundamental role in the pharmacotherapy of several clinical situations, particularly in Pediatrics, Geriatrics, and Dermatology. In 2024, despite the high level of industrialization and technological development, the preparation and dispensing of compounding medicines by pharmacists remain a significant reality in some community and hospital pharmacies in Portugal.

P31
SYMBOLS OF PHARMACEUTICAL PROFESSION AND PHARMACEUTICAL SCIENCES

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Introduction: The primary goal of this poster is to provide a comprehensive review of the symbols of the Pharmaceutical Profession and Pharmaceutical Sciences, supported by various practical examples.

Methods: As for the methodology, a documental analysis of several sources was carried out, privileging primary sources.

Results: Among the symbols globally associated with Pharmacy, the mortar and pestle stand out as the most iconic, serving as the oldest and most widely recognized representation of medicine, even featured in the logo of the European Medicines Agency (EMA). Additionally, the green cross is an internationally recognized emblem placed in front of pharmaceutical establishments. Other symbols, like the snake and palm tree, are also utilized to represent organizations linked to pharmacy and pharmaceutical sciences, such as the Portuguese Pharmaceutical Society (OF). The World Health Organization (WHO) has employed a variation of the caduceus (a snake and a stick) as its logo, while the Cup of Hygeia, featuring a coiled snake, remains another prominent symbol of Pharmacy.

Discussion and Conclusion: The Pharmaceutical Profession and Pharmaceutical Sciences are represented by various symbols that embody their identity and significance. An ideal symbol for Pharmacy not only conveys the integrity and dignity of pharmacy and pharmacists, but also quickly establishes its recognition as an ancient, respected, and honourable profession in the public's perception.

P32
HISTORY AND INNOVATION IN THE TEACHING OF GENE AND CELL THERAPY AT THE UNIVERSITY OF ALGARVE

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Introduction: Advances and discoveries in the fields of Biological Sciences and Biotechnology have been gradually translated into new ways of treating diseases that affect human beings. In fact, disorders that until a very recent past proved to be incurable in the light of the conventional therapeutic arsenal, can now be treated using medicines that take advantage of revolutionary discoveries made over the past decades. The possibility that some diseases that have a known genetic cause could one day be treated by manipulating the genetic material of the cells was first stated in a seminal article published in the 1970s. The introduction of exogenous genetic material into cells or the manipulation of cell genomes is now a reality in the clinical practice. Some of the most innovative medicines that today represent unprecedented hope for various diseases, such as certain cancers or hereditary degenerative disorders, act by correcting genetic defects or by targeted alteration of cells.

Methods and Results: The area of Gene and Cell Therapy presents itself as a crucial point in the higher education of students dedicated to Biological and Health Sciences. The understanding of its bases and the critical exploration of its main ideas is enriched by a constant confrontation with the history, necessarily recent, of this area, where successes, failures and lessons can be highlighted. This past helps to understand recent developments, and to define the future of a field in remarkable expansion and of increasing interest.

Discussion and Conclusion: At the University of Algarve, the Gene and Cell Therapy curricular unit has been mandatory in the curriculum of the BSc degree in Biomedical Sciences since its creation, and MSc and PhD course units are also currently dedicated to this subject. This communication seeks to briefly outline the history of Gene and Cell Therapy and highlight the importance of approaching this subject in the higher education of Life and Health Sciences.

P33
HISTORICAL PERSPECTIVE OF ANTIEPILEPTIC DRUGS

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Introduction: Epilepsy is a complex group of chronic, noncommunicable brain diseases which affect 1-2% of the world population. It is characterised by recurrent seizures which are brief episodes of involuntary movement involving parts of or the entire body, sometimes accompanied by loss of consciousness or other symptoms. Its existence dates to 4000 BCE in ancient Mesopotamia, making it one of the oldest recognised neurological conditions. However, the first anticonvulsant drug, potassium bromide, was only discovered in 1857. Since then, new antiepileptic drugs (AED) with improved pharmacological properties have been steadily developed.

This poster evaluates the toxicological profiles of anticonvulsants over time and their efficacy in treating or preventing seizures in epilepsy patients.

Methods: A review on the scientific literature of epilepsy and modern AED was performed.

Results: It can be pointed out that, over the past 25 years, the development of AED has surged, driven by high-throughput screening and novel drug discovery methods like docking and in silico studies. These drugs can be divided into three generations: 1st generation (e.g., phenytoin, carbamazepine and valproate), 2nd generation (e.g., gabapentin, lamotrigine and topiramate), and 3rd generation (e.g., lacosamide, clobazam and perampanel). Despite the emergence of drugs with better pharmacokinetic profiles and novel molecular targets, their therapeutic efficacy has not significantly improved. This suggests that future drug development should focus on disease modification rather than traditional symptomatic treatment.

Discussion and Conclusion: Although epilepsy is one of the oldest known diseases, it is important to understand that epilepsy is also a highly complex set of pathologies with numerous causes. The previous fact is the main reason why researchers have still not found an effective treatment. While pharmacokinetics of AED has improved, their pharmacodynamic properties have not significantly changed, highlighting the need for treatments that address epilepsy by modifying pathophysiological mechanisms behind this disease instead of treating its symptoms (like traditional AED). Many epilepsy patients continue to rely on lifelong medication, underscoring the urgent need for more effective, disease-modifying treatments.

P34
PEDIATRIC SPINAL TUMORS - A CASE SERIES

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Introduction: Spinal tumors are rare in pediatric age, representing only 10% of all central nervous system tumors. They are classified according to their topography as extradural, intradural-extramedullary and intramedullary. Their main initial clinical manifestations are axial or radicular pain. These nonspecific symptoms are often overlooked, delaying their detection and worsening their prognosis. Therefore, it is important to understand the key clinical and imaging characteristics relevant to the diagnosis of pediatric spinal tumors.

Methods: A retrospective analysis was conducted using medical records of all children diagnosed with a spinal tumor at our center from April 2014 to April 2024. Their demographic, clinical, and imaging data were evaluated, and the main neuroimaging findings were reviewed considering the tumoral histological diagnosis obtained after surgery.

Results/Discussion: Forty-six children, aged from 3 months to 17 years, were included, 50% of whom had an extradural tumor, including primary bone tumors and extraspinal tumors with canal invasion; 24% had an intradural extramedullary tumor, with nerve sheath tumors and meningiomas being the most common, and 26% had an intramedullary tumor, mainly astrocytomas and ependymomas.

Conclusion: Despite being a relatively uncommon pathology in our clinical practice, pediatric spinal tumors can result in significant morbidity due to the development of neurological deficits and disabilities. Imaging, particularly MRI, plays a central role in diagnosis by evaluating their anatomical location, morphology and signal characteristics, particularly enhancement patterns, and tumor extension. Since prompt treatment is essential for rapid symptomatic relief and prevention of neurological sequelae, it is important to understand the key clinical and radiological aspects that can help in their diagnosis.

P35
ISOLATED CENTRAL NERVOUS SYSTEM RELAPSE OF ACUTE MYELOID LEUKEMIA AS MYELOID SARCOMA

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Introduction: Myeloid sarcoma (MS) is an extramedullary solid tumor consisting of immature myeloblast clusters. It may present prior to, simultaneously with, independently of, or as a relapse of acute myeloid leukemia (AML). MS has a prevalence of about 9.7% in AML patients, with only 0.4% occurring in the central nervous system (CNS).

Methods: We present a case of isolated AML relapse in the CNS as MS. Results: A 59-year-old male was diagnosed in 2019 with AML with myelodysplasia-related changes, responding only to an allogeneic hematopoietic stem cell transplant in 2020. A first relapse occurred in 2021, with a second transplant maintaining remission for over 30 months. In April 2024, he developed occipital headache, neck pain, vomiting, and diplopia. Examination revealed spatial disorientation, visual extinction in the lower left quadrant, strabismus, and positive Mingazzini and Babinski signs on the left. Brain CT and MRI revealed a right occipital dural mass (43×25×38 mm) extending to the falcotentorial region, suggesting parenchymal invasion. The mass was isointense on T1 and T2, with low ADC values and intense gadolinium enhancement, indicating CNS MS. Diagnosis was confirmed by surgical biopsy and 39% myeloblasts in the cerebrospinal fluid, positive for the FLT3-ITD mutation. There was no medullary relapse, and further scans showed no secondary deposits, confirming isolated CNS AML relapse.

Discussion: CNS involvement by MS is more common in the spinal cord (54%), usually in the epidural space. Brain involvement (40%) is more frequent in the parenchyma than the dura mater. Imaging is not highly specific, with typical lesions showing T2 hyperintensity, iso/hypointensity on T1, and enhancement post-gadolinium.

Conclusion: Although rare, in patients with solid tumor lesions with history of myeloid leukemia, myeloid sarcoma must be ruled out. Differential diagnoses should also consider lymphoproliferative diseases (like post-transplant lymphoproliferative disease) and other nonhematopoietic solid tumors

P36
PEDIATRIC CEREBELLITIS FROM SYMPTOMS TO SCANS - A CLINICAL CASE

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Introduction: Encephalitis is an inflammatory process of the brain parenchyma with high morbidity and mortality, particularly in the pediatric population. Given the wide range of potential etiologies and clinical manifestations, its diagnosis represents a complex challenge, which can delay its treatment and increase the risk of neurological sequelae. Magnetic resonance imaging (MRI) plays a crucial role in this context, making it essential to recognize its different findings.

Methods: We report a case from our center of a child with encephalopathy and cerebellitis, possibly due to an enterovirus infection.

Results/Discussion: A 5-year-old child was admitted to the emergency department with fever, headache, abdominal pain, and vomiting, later developing alternating periods of lethargy and marked irritability, dysarthria, and involuntary movements. Blood tests showed elevated inflammatory markers, cerebrospinal fluid analysis was normal, and enterovirus was detected in stool samples. After the onset of mutism, ataxia, and right hemiparesis, an MRI was performed, revealing a subtle right cerebellar cortical T2-weighted hyperintensity, suggestive of cerebellitis, with an area of diffusion restriction in the splenium of the corpus callosum, likely a cytotoxic lesion of the corpus callosum (CLOCC). Due to the persistence of symptoms, a follow-up MRI was performed, showing a new lesion in the cerebellar white matter with T2 hyperintensity and diffusion restriction, associated with CLOCC. During hospitalization, the patient eventually experienced gradual clinical improvement, and the MRI before discharge showed near-complete resolution of the previous abnormalities.

Conclusion: Despite the high prevalence of viral gastroenteritis in the pediatric population, its neurological complications are often under-recognized, making it important to be aware of its possible clinical and imaging features. We report a case of encephalopathy with a reversible splenial lesion associated with cerebellitis with late reduced diffusion, a radiological pattern that has been found in numerous viral infections, including enterovirus, although rarely described in the literature.

P37
NEUROIMAGING OF TRIPLET REPEAT DISEASES - WHEN GENES JUST CAN'T STOP REPEATING

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Introduction: Triplet repeat diseases (TRD) are a group of genetic disorders caused by the expansion of specific nucleotide sequences within certain genes, leading to abnormal protein function with consequently neurodegenerative and neuromuscular symptoms. Based on their pathophysiology, TRDs are classified into four groups: polyglutamine disorders (e.g., Huntington's disease, Machado-Joseph disease), loss-of-function repeat disorders (e.g., Fragile X syndrome, Friedreich's ataxia), RNA gain-of-function disorders (e.g., fragile X-associated tremor/ataxia syndrome), and polyalanine disorders. Diagnosing TRDs can be challenging without genetic testing, though some patients present with pathognomonic imaging features and/or clinical symptoms. Neuroimaging has a crucial role in the study and diagnosis of these diseases; magnetic resonance imaging (MRI) is particularly valuable for detecting brain atrophy, white matter abnormalities, and changes in specific brain regions. Advanced imaging techniques, such as DTI, enable the visualization of microstructural changes in neural pathways, offering a deeper understanding of the disease's progression.

Objectives: To review the clinical and neuroimaging findings associated with TRD.

Methods: We conducted a pictorial review of the most common TRD, illustrating imaging findings with magnetic resonance images from patients at the Neuroimaging department of a tertiary university hospital in Lisbon, Portugal.

Results: We present the MRI findings observed in the most common TRD.

Conclusion: There are more than 20 TRDs with frequent abnormal neuroimaging findings. Imaging aids in the early diagnosis and monitoring of TRD and may contribute to developing therapeutic strategies by assessing treatment efficacy. Integration of multimodal imaging with genetic and clinical data holds promise for enhancing the understanding of these complex disorders, ultimately improving patient outcomes.

P38
THE HISTORY OF PORTUGUESE PHARMACOPOEIAS (1704-2024)

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Introduction: Presently, Pharmacopoeias are official books, with legal value, that follow the scientific and technological evolution of knowledge relating to medicines, ensuring the update of their Quality and therefore safeguarding Public Health. The aim of this communication is to perform a historical review of the main Portuguese Pharmacopoeias published from 1704 to the present time, highlighting the authors, frontispieces and particularities of the works.

Methods: As far as methodology is concerned, a documentary analysis of the literature was carried out, privileging the official editions of each pharmacopoeia, scientific articles, and technical books.

Results: The non-official Portuguese Pharmacopoeias were primarily published during the 18th century; are Pharmacopoeia-Dispensatory; and they intended to assist medical prescription, the preparation of medicines by pharmacists, and Pharmacy teaching. Concerning the official Portuguese Pharmacopoeias, nine were published, namely: Pharmacopeia Geral (1794), Codigo Pharmaceutico Lusitano (1835), Pharmacopea Portugueza (1876), Farmacopeia Portuguesa IV (1935), Farmacopeia Portuguesa V (1986), Farmacopeia Portuguesa VI (1997), Farmacopeia Portuguesa VII (2002), Farmacopeia Portuguesa 8 (2005), and Farmacopeia Portuguesa 9 (2008).

Discussion and Conclusion: In Portugal, non-official (1704-1834) and official (1794-2008) pharmacopoeias were published over time. Currently, the publication of the Portuguese Pharmacopoeia is the responsibility of the Portuguese Pharmacopoeia Commission (INFARMED) and is prepared in conjugation with the European Pharmacopoeia.

P39
THE HISTORY OF EUROPEAN PHARMACOPOEIA (1964-2024)

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Introduction: The aim of this communication is to perform a historical synopsis of the European Pharmacopoeia and to articulate the subject with the main international entities involved in legislation and regulatory affairs of medicines.

Methods: In relation to the methodology, a literature review was carried out, prioritizing the official editions of pharmacopoeias and scientific articles.

Results: From 1964 to 2024, eleven official pharmacopoeias have been published. Regarding the frequency of updating and revision, presently, the pharmacopoeia has a new edition every three years with eight additional supplements.

Discussion and Conclusion: The European Pharmacopoeia is a regional pharmacopoeia published by the European Directorate for the Quality of Medicines & HealthCare (EDQM) of the Council of Europe based in Strasbourg. This entity includes the European Pharmacopoeia Commission and coordinates the European Network of Official Medicines Control Laboratories (OMCLs).

P40
HISTORICAL APPROACH OF PHARMACOVIGILANCE

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Introduction: Since ancient times, medicines have been known to pose potential health risks. Currently, Pharmacovigilance is the science and set of activities related to the detection, evaluation, understanding and prevention of undesirable effects (or adverse reactions) or any other safety problem related to medicines.

The purpose of this poster is to perform a historical and regulatory approach of Pharmacovigilance, highlighting its main milestones.

Methods: Regarding the methodology, a documentary analysis of the literature was carried out, privileging scientific articles and technical documents published by competent Entities (e.g., World Health Organization - WHO, European Medicines Agency, and National Authority of Medicines and Health Products, I.P. - INFARMED).

Results: It can be stated that therapeutic disasters (e.g., sulphanilamide elixir in 1938 and thalidomide in 1957-1962) allowed the development of the Pharmacovigilance and safety assessment of new medicines. In Portugal, the National Pharmacovigilance System was established in 1992 and currently comprises nine Regional Pharmacovigilance Units.

Discussion and Conclusion: It was concluded that medicines are not exempt from risks; Pharmacovigilance is essential for continued monitoring of drug safety after obtaining the Marketing Authorization; and Medicines Regulatory Authorities, marketing authorization holders, WHO and the International Council for Harmonisation (ICH) play an important role in Pharmacovigilance activities.

P41
THE THERAPEUTIC ARSENAL IN THE SECOND WORLD WAR (1939-1945)

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Introduction: Medicines have played an important role throughout the history of humanity. The Second World War (1939-1945) isn't the exception. Back then, military advancements were accompanied by a significant development on the therapeutic arsenal and pharmaceutical industry.

This poster aims to analyse the main advances in pharmacological therapy and relate the topic, whenever possible, to important military and social events in the final outcome of the Second World War.

Methods: Regarding methodology, a literature review was carried out, giving priority to scientific articles, in subjects such as antibiotics (e.g., sulphonamides, penicillin, and streptomycin), opioids (e.g., morphine and heroin), and central nervous system stimulants (e.g., amphetamines and cocaine).

Results: The penicillin, discovered by Alexander Fleming in 1928, and the other further discovered antibiotics, enabled the recovery of soldiers in the battlefield. Afterwards, several regulatory changes were performed to evaluate medicines and excipients before its commercialization; and several personalities, from workers to distinguished politicians, became dependent on substances such as morphine, heroin and methamphetamines to hold the difficulties every day (e.g., opioids made it possible to reduce the pain). Therefore, industrially workers, the maximum figures of the Nazi state and the military, made use of it for anaesthetic and analgesic purposes in specific situations. The amphetamines and cocaine stimulated the soldiers to combat and sustain through rough conditions and gave rise to the infamous Nazi euphoric speech.

Discussion and Conclusion: It was concluded that pharmacological advances and the discovery of new drugs during the Second World War were due to the enormous investment in research, on the part of governments and private investors, militarily favouring the bloc they supported, with the aim of increasing the state of alertness, energy, ability to concentrate and a sense of well-being, providing pain relief and treating soldiers' bacterial infections so that they could fight effectively until victory.

P42
A CASE OF HEAVY EYES SYNDROME - IMPORTANCE OF MRI FOR DIAGNOSIS

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Introduction: The elongation of the anteroposterior axis of the eyeball in severe myopia, can lead to its posterior prolapse between the lateral rectus (LR) and superior rectus (SR) muscles. This abnormality leads to the inferior displacement of the LR and nasal displacement of the SR, a condition known as heavy eye syndrome (HES). It is important to identify this condition as a rare potential cause of binocular diplopia, a frequent complaint in neurology clinics.

Clinical Case: We report an illustrative case of a man, 52 Years old with a history of a severe myopia since age 6. He developed Progressive horizontal binocular diplopia, initially transient, with progression to permanent diplopia; The Neurological examination showed limited abduction and supraduction of the right eye.

MRI findings in heavy eyes syndrome

The MRI findings, which were highly characteristic of this condition included:

- Elongated anteroposterior axis of the eye globe (34mm, versus 22 - 24mm)
- Inferior displacement of lateral rectus muscle
- Nasal displacement of superior rectus muscle
- Superotemporal eye globe prolapse
- No evidence of cranial nerve or brainstem pathology and no evidence of orbital lesions.
- The angle of dislocation of the globe was 130 ° (versus normal 102.9° ± 6.8°), which was also supportive, as described by Yamaguchi in his work.

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