MALAYSIAN CONGRESS OF RADIOLOGY

MCOR 2022

Malaysian Congress of Radiology 2022

Theme:

Precision Imaging: Beyond Pixels And Positrons

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ABSTRACT BOOK

Organised by:

COLLEGE OF RADIOLOGY
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The design of the cover page was inspired by the Penang Bridge to signify the venue chosen for the Malaysian Congress of Radiology 2022.

Foreword

The Malaysian Congress of Radiology (MCOR) was held physically on 7-9 December 2022 at the Ascott Gurney, Penang. Due to the COVID-19 pandemic, the last physical MCOR was in 2019, held in Kuala Lumpur. The theme for this year's meeting was 'Precision Imaging: Beyond Pixels And Positrons'. The programme consisted of plenary lecture, keynote lectures, special interest group focused lectures and special focus sessions conducted by expert international and local speakers, sharing the latest updates developments in the radiology and molecular imaging fields. There were several intensive radiology exam preparation sessions as well for the trainee radiologist.

This conference also provided an opportunity for trainee radiologists and academic radiologists alike to present their research and interesting clinical cases on a national scale. The top abstracts of those submitted were selected for publication in JUMMEC and the top 3 of the oral and poster presentations received prizes during the conference. This special edition is a culmination of the research work of many radiologists and radiology trainees, and much gratitude goes to JUMMEC for making this edition possible.

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Scientific Chair

MCOR 2022

Prof Dr Kartini Rahmat

Organising Chair

MCOR 2022

JOURNAL OF HEALTH AND TRANSLATION MEDICINE
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JUMMEC

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ORAL01

A COMPARATIVE ANALYSIS TO DIFFERENTIATE MEDULLOBLASTOMA FROM EPENDYMOMA: CLASSICAL AND QUANTUM ARTIFICIAL INTELLIGENCE

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Abstract

Background

In children under 15 years of age, brain tumors are the second leading cause of death after acute lymphoblastic leukemia. The majority of pediatric brain tumors originate in the posterior fossa (PF). The most common ones are Medulloblastoma (MB) and Ependymoma (EP). Although the treatment and prognosis of MB and EP are different, visual characteristics of these tumors are often overlapping, sometimes making the diagnostic process difficult. The differentiation between these two types of tumors is important for pediatric radiology field. Therefore, the aim of this study, to conduct a comparative analysis with classical support vector machine (SVM) algorithm and quantum-enhanced support vector machine (QSVM) using multiparametric (mp) features derived from quantitative basic MRI to differentiate MB from EP.

Methodology

The screening MR examinations of 49 children were included in the analysis. We used mpMRI imaging features which give information about the cellularity, diffusivity, vascularity properties of the tissue. In the QSVM part, we utilized precomputed kernel (Gram matrix). In addition, to project the features in the quantum Hilbert space, we utilized ZZfeatureMap method. Then, we compared the classification performance of classical SVM and QSVM to differentiate MB from EP.

Results

Classical SVM compared to QSVM, gave the equal performance with 90% for sigmoid, polynomial, radial basis function. On the other hand, classical SVM showed lower performance compared the QSVM with 70% for linear kernel.

Conclusion

Our findings show that, in addition to classical SVM, the QSVM method could perform better in PF brain tumor classification problems.

ORAL02

HISTOPATHOLOGICAL CLASSIFICATION OF PEDIATRIC MEDULLOBLASTOMA USING MULTIPARAMETRIC MRI FEATURES: MULTI-LAYER LONG SHORT-TERM MEMORY NETWORK

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Abstract

Background

The majority of pediatric brain tumors originate in the posterior fossa (PF). Medulloblastoma (MB) is a highly malignant and the most common PF neoplasm, representing 15% to 20% of all pediatric brain tumors and 30% to 40% of PF neoplasms. The histological forms of MB are categorized into four subtypes: classic, desmoplastic, anaplastic, and MB with significant nodularity. Although the treatment and prognosis processes differ for each subgroup of MB, the similarities among histological MB variants make differentiation challenging. Therefore, the aim of this study is to propose a multi-layer Long Short-Term Memory (LSTM) Network for distinguishing pediatric MB subgroups.

Methodology

The screening MR examinations of 42 pediatric patient were included in the analysis. We used multiparametric (mp) MRI features. Each multi-layer LSTM layer consisting of 128 neurons. All layers followed by 0.2 Dropout. Furthermore, model was compiled with Adam optimizer and Binary Cross-Entropy loss function as parameters and trained in a batch size of 16 and for 200 epochs. The model's efficiency is evaluated using standard performance metrics such as the area under the receiver operating characteristic curve (AUROC), accuracy, precision, recall, and F1-score.

Results

The accuracy and AUROC values of the proposed multi-layer LSTM model to distinguish the subgroups of MB are 88% and 98%, respectively. For all four subgroup tumors, precision, recall and F1-score values ranged from 0.64 to 1.0, 0.60 to 0.95, 0.74 to 0.97, respectively.

Conclusion

This preliminary study indicates that proposed multi-layer LSTM should be considered in distinguishing subgroups of MB.

ORAL03

THE OLD AND ENIGMATIC

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Abstract
Neuroblastoma is the most common solid extracranial tumour in infants and children. They typically present with a mass related to the site of primary tumour, however the presenting complaint may also be related to the presence of metastases or any associated paraneoplastic syndromes. We report 4 children with atypical presentations of Neuroblastoma. Case 1 is a 4-year-old girl with right leg pain and antalgic gait. Septic work-up and connective tissue disease screening returned negative. She was suspected to have osteomyelitis and thus underwent an MRI, which incidentally showed a large lobulated paraspinal mass, confirmed to be Neuroblastoma. The second case was an 8-month-old girl noted to have periorbital ecchymosis upon admission to hospital for acute bronchiolitis. She was also noted to have severe anaemia and an abdominal mass, later confirmed as liver metastases from a primary right suprarenal Neuroblastoma. The periorbital ecchymosis was due to skull metastases. Case 3 is a 2-year-old boy with 1-year history of recurrent hospital admissions for diarrhea and failure to thrive. He was initially investigated for milk intolerance and inflammatory bowel disease, yet his bowel habit did not improve despite multiple change of milk formula. USG abdomen performed to look for evidence of inflammatory bowel disease incidentally found a right suprarenal mass. The tumour was excised and was histopathologically consistent with a Ganglioneuroma. Awareness of the unusual clinical presentations of Neuroblastoma is prudent, as prompt diagnosis and treatment may help to increase survival rates and minimize complications.

ORAL04

THE EFFECTS OF ITERATIVE RECONSTRUCTION ALGORITHM ON IN-PLANE AND CROSS-PLANE RESOLUTION IN COMPUTED TOMOGRAPHY (CT) IMAGING

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Abstract

Background

Iterative reconstruction (IR) algorithm can enhance image quality. This study aimed to evaluate the in-plane resolution (X- and -Y) axis and cross-plane resolution (Z-axis) in association with different IR and filtered back projection (FBP) on three different CT scanners, General Electric (GE), Philips, and Siemens.

Methodology

The phantoms were imaged and reconstructed using 5-mm and 2-mm slice thicknesses with different IR specifically for different CT scanners. the images were reconstructed using the iterative beam hardening correction (iBHC), sinogram affirmed iterative reconstruction (SAFIRE), iDose^4, FBP, and nonlinear transformation (NLT), and adaptive statistical iterative reconstruction (ASiR-V). All images were analyzed using IndoQCT software. Modulation Transfer Function (MTF) was used to describe in-plane resolution, while the full width half maximum (FWHM) in slice sensitivity profile (SSP) was used to describe cross-plan resolution.

Results

From the findings for Siemens CT scanner, MTF_{10} was improve by iHBC technique (with the highest value of 0.52), but SAFIRE did not improve FBP results. For Philips CT scanner, the iDose^4 technique improves the MTF_{10} significantly with the highest value of 0.63. For GE CT scanner, ASiR-V technique did not enhance the MTF_{10}, the highest MTF_{10} is 0.64. The results of FWHM obtained were in range 4.39% – 49% for Siemens, 1.23% –37% for Philips, and 10% –110% for GE CT scanner, respectively. The values of Nyquist frequency for Siemens were 0.99, Philips was 0.66, and GE CT scanner was 0.8.

Conclusion

Image resolution is affected by slice thickness, CT dose, and the use of IR algorithms. These associated parameters may enhance the resolution or worsen it.

ORAL05

COMPUTED TOMOGRAPHY PULMONARY ANGIOGRAM (CTPA) TO PREDICT SHORT-TERM MORTALITY AND MORBIDITY IN PATIENTS WITH ACUTE PULMONARY EMBOLISM IN A MALAYSIAN TERTIARY REFERRAL CENTRE

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Abstract

Background

To evaluate the ability of computed pulmonary angiography (CTPA) parameters to predict short-term mortality and morbidity in patients with acute pulmonary embolism (PE).

Methodology

Seventy-four patients with CTPA proven acute pulmonary embolism were included in this study. The CTPA were reviewed for clot burden using Qanadli score (QS) and right ventricular dysfunction (RVD) parameters. The right ventricular dysfunction (RVD) parameters were assessed on CT by evaluating right ventricular/left ventricular (RV/LV) diameter ratios, pulmonary artery (PA) diameter, pulmonary artery/aorta (PA/Ao) diameter ratios, presence of septal bowing and grading of IVC reflux. Patients' charts were reviewed for short-term mortality and morbidity outcomes. Morbidity outcomes were reviewed for cardiac arrest, intubation, vasopressor and admission to ICU.

Results

Seventy-four patients were included in the study. 53 (71.6%) of them survived and 21 (28.4%) of patients died within 30 days of diagnosis. There was a statistically significant relationship between IVC reflux grading and mortality (P value < 0.05). The Qanadli score (QS), RV/LV ratio, PA diameter, PA/Ao diameter ratio and presence of septal bowing showed no statistically significant difference between survivors and non survivors. No CT predictor was significantly associated with morbidity outcomes.

Conclusion

CTPA finding that may predict short term mortality in patients with acute PE is IVC reflux grading. No CT variables were able to predict in-hospital morbidity in patients with acute PE.

ORAL06

A CROSS SECTIONAL AUDIT AS SELF QUALITY IMPROVEMENT PROJECT ON ACTUAL RADIOGRAPHS RETAKE RATE

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Abstract

Background

Hospital Sultanah Aminah Johor Bahru has yearly radiograph workload of more than 160,000 with the retake rate of 1.08% in 2021, in accordance with the ≤2.5% national quality assurance program (QAP). It was however found that a proportion of the accepted radiographs were suboptimal. This audit is a self-improvement project to determine the actual retake rate and identify the causes of the rejection.

Methodology

A cross sectional descriptive study was performed for the entire month of April 2022. All the x-rays were sampled and extracted. The images were audited by 12 senior radiographers in accordance with QAP standard. Data was tabulated and analysed with Microsoft Excel to evaluate the retake rate, location of radiograph taken, causes of retake film and radiographers experience.

Results

A total of 12896 images were included. More than 16% were categorised as required retake. The main reason of retake is due to no primary marker (n=1689, 69.5%). Portable X rays contributed to the highest retake rate of 28.83% (n=517). Most of the rejected images (n=1917, 89.83%) were performed by radiographers with more than 2 years of working experience.

Conclusion

Underreporting of radiograph retake/reject rate is well documented. This audit provides important information on the actual real life retake rate in clinical practice. The findings will allow intervention to improve the retake rate and allow enforcement of the local standard of practice accordingly. Furthermore, it should be a precursor of nationwide concerted effort to revisit the current radiographic retake rate.

ORAL07

COVID-19 PNEUMONIA: PULMONARY VASCULAR MANIFESTATIONS AND LUNG PARENCHYMAL INVOLVEMENT ON CT PULMONARY ANGIOGRAM

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Abstract

Background

COVID-19 disease mortality is primarily attributed to respiratory compromise. However, pulmonary microangiopathy has been deemed the culprit for silent clinical deterioration. The aim of this study is to identify factors associated with pulmonary embolism (PE), features of pulmonary vascular angiopathy and extent of lung parenchymal involvement in COVID-19.

Methodology

A cross sectional cohort study of 200 hospitalized COVID-19 positive patients from January to June 2021 with a CT pulmonary angiography. The CTPAs were analysed for pulmonary parenchyma involvement using CT severity score and the pulmonary vasculature by the presence of PE, pulmonary vascular enlargement, perivascular ground glass opacity and evidence of microangiopathy (ie, vascular tree-in-bud sign, target sign, dandelion sign). Clinical, demographic and laboratory parameters at time of imaging were collected.

Results

The prevalence of pulmonary embolism was 20% of which 77.5% (31/40) were at segmental pulmonary artery level and 82.5% (33/40) at lower lobe. There was no significant correlation between presence of pulmonary embolism and patient comorbidities or laboratory parameters. However, a statistically significant correlation was found with CTSS and presence of PE, pulmonary vascular enlargement, perivascular ground glass opacity and features of microangiopathy (p=0.020, 0.032, 0.000, 0.000 respectively). CTSS was also found to be correlated with CRP, ALC, ferritin and D-dimer values.

Conclusion

In our study population pulmonary embolism predominantly affected segmental arteries at lower lobes. Suspicion of PE is raised in those with higher CTSS and features of microangiopathy were also more likely in worsened pulmonary parenchyma. Therefore, it is a potential indirect indicator of vascular angiopathy in COVID-19 patients.

ORAL08

UTILITY OF 18F–FLUOROCHOLINE COMPUTED-TOMOGRAPHY (18-FCHPETCT) TO DETERMINE BREAST CANCER AGGRESSIVENESS AND ASSOCIATION WITH QUALITY OF LIFE (QOL)

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Abstract

Background

To determine potential of 18-FCHPETCT as predictor breast cancer aggressiveness and association with QOL.

Methodology

Retrospective study. 21 patients with primary/recurrent breast carcinoma underwent 18-FCHPETCT followed with 18-FDGPETCT prior biopsy. All patients had Birads 4/5 breast lesions. Biopsy results obtained and dichotomized into malignant and benign groups and HER-ve and HER+ve. Maximum standardized uptake value (SUVmax (g/dl) was used to predict two groups of variables for cellular breast cancer aggressiveness. QOL assessed SF-36®, SF36v2®, SF-1,2® and SF-12v2® Questionnaires used under Medical Outcome Trust and QOL domains: Global Health Status (GHS), Physical function (PF), Role Function (RF) and Social function (SF).

Results

21 patients-mean age of 52.82±10.71 years. 18 patients-malignant (18/21;85.8%) on histology with 11(52.4%) are HER–ve. There is significant different between 18F-FCHSUVmax(g/dl) of HER-ve and HER+ve (1.99g/dlvs0.2g/dl;$p<0.05$). The malignant group has higher SUVmax (g/dl) value compared to benign group (1.36±0.13; $p<0.05$). High SUVmax (g/dl)-FCH predicted malignant breast lesion and the HER-ve at cut-off value of 0.75($p<0.05$). 15 patients being followed up prediction of categorised FCH (High/Low) with QOL domains:GHS, PF, RF and SF at 6 and 24 months. The prediction value FCH>0.75 was used for QOL prediction. The value of FCH >0.75 indicate aggressive breast cancer could dichotomise group of patients with physical and social function satisfaction at 6 months with significant correlation of 8.067 and 5.4;($p<0.05$) however, not significant at 24 months.

Conclusion

The SUVmax(g/dl)18-FCHPET-CT of >0.75 was good predictor to signal aggressive breast carcinoma, predict QOL (Physical & Social Function satisfaction) at 6 months.

ORAL09

CORRELATION OF ADVANCED NON-SMALL CELL LUNG CANCER GENETIC MUTATION STATUS AND PD-L1 EXPRESSION WITH 18F-FDG UPTAKE ON PET-CT SCAN

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Abstract

Background

Targeted therapy for EGFR, ALK mutation and immune checkpoint inhibitor therapy according to tumour PD-L1 expression has shown promising response, survival outcomes and quality of life in patients with advanced stage non-small cell lung cancer (NSCLC). This study assesses the correlation of genetic mutation status and PD-L1 expression of NSCLC with 18F-FDG uptake on PET-CT scan.

Methodology

The SUVmax was compared with EGFR and ALK mutation and PD-L1expression status in NSCLC patients.

Results

52 patients with treatment naive advanced NSCLC were selected and PET-CT performed22 patients had tumours which harboured EGFR mutation and 2 patients had ALK rearranged tumours. Of 30 patients without EGFR or ALK mutated tumours, 4 had tumours with PD-L1 <1%, 12 had tumours with PD-L1 1-49%, 5 had tumours with PD-L1≥50% and 9 were negative. Using SUVmax as the metabolic parameter (overall SUVmax normality Sig. 0.001), the primary tumor SUVmax distribution of EGFR positivity (median 6.8) is metabolically lower in comparison with EGFR negativity (median 11.1) and primary tumor SUVmax of ALK positivity (median 11.6) is metabolically higher in comparison with ALK negativity (median 9.6). Metabolic activities of PD-L1 >50% are comparatively higher than PD-L1 negativity with median value of SUVmax 12.0 and 11.1 respectively.

Conclusion

Positive EGFR expression has lower metabolic activity in comparison with negative EGFR expression while positive ALK expression has higher metabolic activity in comparison with negative ALK expression. Increased metabolic activity also seen PD-L1 >50% and negative PD-L1 gene expression. SUVmax has additional value in guiding targeted therapy for NSCLC.

ORAL10

PICTORIAL REVIEW OF INTRACRANIAL TUBERCULOSIS AND ITS ASSOCIATION WITH PULMONARY TUBERCULOSIS

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Abstract

Background

A pictorial review of CT and MRI findings in intracranial tuberculosis and to evaluate its relationship with baseline chest radiographic findings for pulmonary tuberculosis.

Methodology

A retrospective study of confirmed intracranial tuberculosis patients treated in University Malaya Medical Center in between 2010 to 2020. All cases were confirmed by positive CSF culture or AFB smear. Baseline CT or MRI of the brain were evaluated for typical findings of intracranial tuberculosis and presence of pulmonary tuberculosis on baseline chest radiographs. Cases without adequate imaging were excluded.

Results

Forty-four patients (26 men and 18 women) mean age of 43 (range 18 to 67) were included. The majority of patients were Malay (46%), followed by Chinese (25%), Indian (11%) and others (18%). Of the forty-four patients, three (6.8%) demonstrated no significant intracranial abnormalities on CT/MRI. Thirty-three (75%) had leptomeningeal enhancement, six (13.6%) showed pachymeningeal disease. Fifteen (34.1%) had tuberculomas with no lobar dominance. Seven (15.9%) presented with parenchymal abscesses with no lobar predilection. Six presented with focal cerebritis (13.6%). Hydrocephalus was present in fourteen patients (31.8%), and ten patients presented with infarction (25%). Twenty-five patients showed evidence of previous/ active pulmonary TB changes (56.8%).

Conclusion

Intracranial tuberculosis is the most devastating form of extrapulmonary tuberculosis, with significant morbidity and mortality. It is hard to diagnose and requires high clinical suspicion in combination with laboratory and neuroimaging findings. The most common manifestation of CNS TB is leptomeningeal enhancement. Slightly more than of CNS TB have positive CXR findings.

ORAL11

POST MORTEM SHEAR WAVE ELASTOGRAPHY CHANGES IN THE ABDOMINAL ORGANS AND SOFT TISSUE OF CANINES

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Abstract

Background

Shear wave elastography can quantify the postmortem evolution in stiffness of the abdominal organs and soft tissues, and has the potential to contribute in determining the postmortem interval (PMI). This study aims to investigate the use of shear wave elastography (SWE) to evaluate the progression of tissue stiffness in postmortem subjects and its reliability in reproducing measurements as the organs and soft tissues deteriorate.

Methodology

A prospective study utilizing shear wave elastography on 6 canine subjects performed by 2 separate operators with guidance from the veterinary team. The target organs were liver, spleen, kidney and thigh muscles. Antemortem 2D greyscale ultrasound with elastography were performed over the target organs to acquire baseline results. Postmortem scans were repeated and data collected over a 48-hour postmortem period at specific intervals (immediate postmortem, 1 hour-postmortem [HPM], 3HPM, 6HPM, 12HPM, 18HPM, 24HPM, 36HPM and 48HPM).

Results

Reproducible patterns of SWE changes were demonstrated in all the target organs. In the liver, spleen and kidney, the SWE progression showed an initial increase immediately postmortem followed by a more gradual increment and subsequently decline in the stiffness after the 3 HPM to 6 HPM mark. In the thigh muscle, an initial increase in SWE was observed followed by gradual ascend at a more varied rate between each subject.

Conclusion

Postmortem SWE progression over time in the liver, spleen, kidney and thigh muscles demonstrated a reliably reproducible pattern up to 48 HPM. Shear wave elastography can be a reliable modality for postmortem imaging with possible application in postmortem interval estimation.

ORAL12

THE ROLE OF SHEAR WAVE ELASTOGRAPHY IN THE DIFFERENTIATION OF BENIGN AND MALIGNANT THYROID NODULES

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Abstract

Background

The aim of this study is to compare the diagnostic performance of the thyroid imaging reporting and data system (TI-RADS) and SWE for the assessment of thyroid nodules.

Methodology

This prospective study included 167 lesions from 130 patients who underwent ultrasound and SWE assessment prior to US-guided fine needle aspiration cytology (FNAC). Diagnostic performance and the best cut-off value of the TI-RADS score and SWE for predicting malignant lesions were obtained via ROC curve analysis.

Results

Diagnostic performance of TI-RADS score revealed optimum cut off score >3 resulting in 77.8% sensitivity, 51.7% specificity (PPV (16.3%), NPV (95.1%), AUC = 0.714). SWE parameters showed generally lower AUC values ranging from 0.520-0.543. For SWE, optimal cut off value was >33kPa for Emax (AUC of 0.548, sensitivity 50.5%, specificity 67.8%, PPV 15.8% and NPV 91.8%) and Eratio >1.7 (AUC = 0.650, sensitivity 61.1%, specificity 65.1%, PPV 17.5% and NPV 93.3%) respectively. Diagnostic performance of TI-RADS+Emax and TI-RADS+Eratio demonstrated higher specificity (61.7% and 63.1% respectively) and PPV (19.7 and 20.3 respectively) in predicting malignant nodules.

Conclusion

ACR TI-RADS classification shows good diagnostic performance in discriminating benign and malignant thyroid nodules. SWE elasticity indices exhibit suboptimal diagnostic performance with no significant difference in tissue elasticity between malignant and benign nodules.

ORAL13

EFFECT OF HIGH-DOSE VITAMIN B MULTIVITAMIN SUPPLEMENT ON NEURAL CONNECTIVITY AND OXIDATIVE METABOLISM ASSESSED BY MR SPECTROSCOPY AND NEURITE ORIENTATION DISPERSION DENSITY IMAGING (NODDI)

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Abstract

Background

To study the effect of high-dose vitamin B multivitamin supplement on brain microstructural in healthy adults using neurite orientation dispersion and density imaging (NODDI) and neural metabolites for oxidative metabolism using proton spectroscopy.

Methodology

A randomized, double-blind, placebo-controlled clinical trial study. 90 healthy volunteers were randomly assigned into three different groups that would receive a daily dose of supplement/placebo for a 6-month period. Group A received a high-dose Vitamin B multivitamin with passiflora herbal extract, Group B received a high-dose Vitamin B multivitamin without the herbal extract, and Group C received a placebo. All volunteers attended two MRI visits, one during baseline (before consumption), another one during Week 18 after consumption of the supplement/placebo. All volunteers were scanned using brain proton spectroscopy and NODDI protocols under a 3T MRI scanner. Wilcoxon signed-rank test was used to compare the NODDI parameters and neural metabolites between the visits.

Results

Statistically significant differences were found on intracellular volume fraction (ICVF) in NODDI ($p=0.011$), N-acetylaspartate (NAA) ($p=0.009$) and creatinine ($p=0.011$) metabolites in proton spectroscopy at dorsolateral prefrontal cortex between the baseline and the 18^{th} week scans for Group A. However, the rest of the components, i.e. orientation dispersion (OD), isotropic volume fraction (ISOVF) in NODDI and choline metabolite in proton spectroscopy did not show statistically significant difference ($p > 0.05$).

Conclusion

High-dose vitamin B multivitamin produced statistically significant difference on brain microstructure in term of ICVF, and increased neural metabolites (NAA and creatinine) at dorsolateral prefrontal cortex of the healthy adults.

ORAL14

CORRELATION OF BREAST CANCER HISTOLOGY AND HORMONE RECEPTOR STATUS WITH 18F-FDG UPTAKE ON PET-CT SCAN

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Abstract

Background

Breast cancer hormone receptor status [estrogen/progesterone receptor (ER/PR) and human epidermal growth factor receptor 2 (HER2)] plays a crucial role in guiding treatment, affecting patient prognosis and outcomes (Chand et al., 2018). This study aims to study the relationship between breast cancer hormone receptor status with 18F-FDG uptake on PET-CT scan.

Methodology

In this single-centred retrospective cross-sectional study, 94 breast cancer patients (58.7 ±12.6 years old) were evaluated following a pre-treatment PET-CT at University Malaya Medical Centre. Contrast-enhanced PET-CT was performed using Phillips Ingenuity TF. There were 89 invasive ductal carcinomas (IDC), and 5 were invasive lobular carcinoma. The differences between 4 breast cancer subtypes: luminal A (ER/PR+, HER2-), luminal B (ER/PR+, HER2+), HER2 positive (ER/PR-, HER2+) and triple negative (ER/PR/HER2-) subtypes, and the 18F-FDG uptake in PET-CT, expressed as maximum standardised uptake value (SUVmax), were analysed.

Results

There were 45(48%) luminal A, 14(15%) luminal B, 17(18%) HER2 positive and 18(19%) triple-negative subtypes. There are no significant differences between SUVmax (p-value>0.05) for the different breast cancer subtypes. Their median SUVmax values were 5.8, 9.4, 7.9 and 8.0, respectively. Luminal B has the highest median SUVmax. Invasive lobular carcinoma showed significantly lower SUV level than invasive ductal carcinoma (p-value < 0.05) with median SUV of 2.2 (range 1.4-4.2) and 7.3 (range 1.5-26.8) respectively.

Conclusion

Enhanced glycolysis findings in PET-CT are related to higher expression of proliferation markers and higher histologic grade in the Luminal B subtype (Goldhirsch et al., 2011). Invasive lobular carcinoma has lower metabolic activity than invasive ductal carcinoma.

ORAL15

DIAGNOSTIC EFFICIENCY OF ULTRAFAST BREAST MRI IN THE DIFFERENTIATION OF BREAST LESIONS

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Abstract

Background

This study aims to evaluate the effectiveness of ultrafast MRI sequence in the differentiating benign and malignant breast lesion.

Methodology

Fifty-four patients with newly diagnosed BI-RADS 4 or 5 lesions were recruited between July 2020 to May 2021. A standard breast MRI protocol was performed with an addition of ultrafast (UF) TWIST sequence between pre-contrast and the first post-contrast. Interpretation of images was performed by three radiologists in consensus. UF kinetic parameters were automatically generated using Syngo Numaris/4 software which included maximum slope (MS), time to enhance (TTE) and arteriovenous index (AVI), There parameters were compared using receiver operating characteristics (ROC), with p values <0.05 considered significant.

Results

A total of 83 histopathologically proven lesions (mean age 53.87, SD 1.67, range 26 - 78) were analysed. All malignant and 13 (38.2%) benign lesions were visualized in the UF protocol. Of the malignant lesions, 77.6% (n=53) were invasive ductal carcinoma. 18.4% (n=9) were ductal carcinoma in situ (DCIS), with high grade being the most common (n=8.). There was significant difference in MS between benign and malignant lesion. The MS for malignant lesion (13.27%/sec) was significantly larger than for benign lesions (5.45%/sec) (p-value of <0.0001). TTE also showed significant predictive power for malignant breast masses, with high sensitivity (92.9%). No significant statistical difference seen in AVI between benign and malignant breast lesions.

Conclusion

Ultrafast parameters, mainly maximum slope (MS) and time to enhancement (TTE) may be strong predictors in differentiating benign and malignant breast lesions, with advantages of reduced scanning time and cost-effectiveness.

ORAL16

PRIMARY BURKITT'S LYMPHOMA OF THE NASAL CAVITY MANIFESTING AS A VASCULAR MASS ON NASOENDOSCOPE

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Abstract
Primary Burkitt's lymphoma of the nasal cavity is relatively uncommon as it usually manifests as nodal disease. The incidence of this pathology is not very clear as most literatures concerning it are limited to case reports. We report a case of a 9-year-old boy who presented with an unprovoked epistaxis for 3 days continuously. Nasoendoscope showed a highly vascular mass at the left inferior turbinate occupying the entire left nasal cavity. He was initially suspected of having a vascular tumour; one of the differentials includes Juvenile Angiofibroma. Contrast Enhanced Computed Tomography and Computed Tomography Angiography of the Paranasal sinuses was performed and revealed a mildly enhancing highly aggressive tumour. He was subsequently referred to a tertiary hospital for tumour excision which was proven to be Primary Burkitt's lymphoma. Contrast Enhanced Computed Tomography of the neck, thorax, abdomen and pelvis was performed and revealed no evidence of metastasis. Primary Burkitt's lymphoma of the nasal cavity is not commonly encountered however a high index of suspicion is needed as it is a highly aggressive tumour and has the potential to grow larger in a short span. Contrast Enhanced Computed Tomography can help rule out other vascular tumour and determine the extent of tumour involvement, but tissue diagnosis is required in suspected tumour lesions.

ORAL17

RELATIONSHIP BETWEEN PARASPINAL MUSCLE MORPHOLOGY AND LUMBAR SPINAL STENOSIS

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Abstract

Background

To investigate the association between the lumbar paraspinal muscle fatty infiltration and muscle size with the severity of LSS. To examine the diagnostic accuracy of qualitative visual grading in evaluating paraspinal muscle fatty infiltration.

Methodology

Seventy symptomatic patients who underwent lumbosacral magnetic resonance imaging (MRI) were enrolled. The severity of lumbar central canal stenosis (LCCS) were graded as Grade 1-3 (mild, moderate, severe). Visual grading of fatty infiltration, fatty infiltration percentage (FI%) and functional muscle cross-sectional area (FCSA) of erector spinae (ES) and multifidus (MF) muscles were assessed. The paraspinal muscle fatty infiltration was visually graded as mild, moderate and severe.

Results

There were statistically significant low positive correlations observed between the visually graded paraspinal muscle fatty infiltration and severity of LCCS in ES and MF muscles. Significant association was also found between the severity of LCCS and FI% in ES in L4/L5 and MF at L4/L5 and L5/S1 levels, with significant differences observed in patients with Grade 2 LCCS compared to Grade 1 LCCS. In addition, FCSA of MF is smaller in patients with Grade 3 LCCS compared to Grade 1 and Grade 2 LCCS at L4/L5 and L5/S1. Qualitative visual grading of fatty infiltration was found to be accurate on all paraspinal muscles at all three levels when compared with quantitative measurement.

Conclusion

There were significant associations between the severity of LSS and paraspinal muscle fatty infiltration. Visual grading system was also found to be a reliable method in evaluating paraspinal muscle fatty infiltration.

ORAL18

DIAGNOSTIC ACCURACY USING DIGITAL CHEST RADIOGRAPHY BY HUMAN READER USING THE TIMIKA X-RAY SCORE VERSUS COMPUTER-AIDED DETECTION FOR TUBERCULOSIS (CAD4TB) IN PRESUMPTIVE PULMONARY TUBERCULOSIS PATIENTS

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Abstract

Background

Pulmonary tuberculosis (PTB) is a lung infection disease caused by the Mycobacterium tuberculosis (M.tb). Pulmonary tuberculosis is a global health problem with 1.3 million deaths in 2020. Indonesia is the 2nd highest contributor to the number of global PTB cases. Chest x-ray (CXR) has a role as a screening and triage test and risk stratification in PTB cases. This study compare the diagnotic of PTB on CXR by human reader using the Timika x-ray score and Computer-Aided Detection for Tuberculosis (CAD4TB) in presumptive PTB patients.

Methodology

We conducted an analytic observational study with a cross-sectional model. The all 459 patients enrolled CXR and bacteriological examinations. Bacteriological examination was used as the reference standard.

Results

The Cohen Kappa value of CXR by human reader was 0.78 with a substantial agreement of readings and achieved in 90,20% of patients. The AUROC value among the three chest radiography readings by a radiologist I (0, 8285), radiologists II (0.8474), and CAD4TB (0.7863) showed that the chest radiograph readings between the two radiologists were similar and superior to those of CAD4TB. Comparison of sensitivity, specificity, and accuracy of CXR reading among the radiologist I (92%, 62%, 76%), radiologist II (94%, 53%, 71%), and CAD4TB (81%, 67%, 73%).

Conclusion

The reliability of CXR readings in the assessment of PTB using the Timika x-ray score by human reader eliminates inter-reader reliability inconsistencies resulting in good reliability performance and provides superior results compared to the readings of the CAD4TB.

ORAL19

MAGNETIC RESONANCE IMAGING STRUCTURAL ANALYSIS IN ALZHEIMER'S DISEASE

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Abstract

Background

We used magnetic resonance imaging (MRI) to evaluate features of Alzheimer's disease (AD) and to find features that can differentiate AD from mild cognitive impairment (MCI) and cognitively normal individuals (CTL).

Methodology

Several anatomical MRI markers for AD have been identified previously. These features are previously reported separately. The combination of these features could potentially improve AD diagnosis. This cross-sectional study was conducted at a teaching hospital. AD/MCI were diagnosed with MMSE/VCAT. Brain morphology of the surface area, volume, cortical thickness, and curvature were obtained using Freesurfer® version 5.3.0. The mean difference of each anatomical of interest was evaluated.

Results

Out of a total of 88 patients recruited, 42 were diagnosed with AD, 30 were diagnosed with MCI and 16 CTL. AD group showed significant volume loss in the amygdala and hippocampal compared to MCI and CTL. Significant superficial temporal and parahippocampal surface area reduction was observed in AD. Entorhinal, lingual, superior temporal, and parahippocampal thickness were reduced in AD patients. Entorhinal, lingual, and superior temporal curvature show a significant increase and parahippocampal curvature significantly reduces in ADs.

Conclusion

Several anatomical MRI markers can be used to aid AD diagnosis more accurately. This finding will help early detection and subsequently reduce the disease burden.

POS01

THE HIGH POSSIBILITY OF RADON INHALATION IN MEDICAL IMAGING DEPARTMENT: ESTIMATION OF ITS ANNUAL RADIATION DOSE

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Abstract

Background

Indoor Radon inhalation was proven to be one of the high-risk factors that affect the human respiratory system and usually it takes many years to develop lung cancer. Radon detection is essential in maintaining the quality of human life which should be done regularly.

Methodology

Airthings detector that is recently used in many studies as a Radon detector was used for monitoring. Radon indoor concentration levels were measured passively and continuously for seven days inside a room that was designed for mammography procedures. Any high reading of Radon concentration was recorded to estimate the annual effective dose caused by Radon inhalation.

Results

The amount of Radon average concentration and its accumulation graph inside the tested room showed a high level of more than a healthy level of 100 Bq/m^3. The highest average concentration was 107 Bq/m^3 for one complete week when the room's door was closed for a few days and then open. Its highest reading was 127 Bq/m^3 and fluctuate around this value in the following few days. The estimated annual effective dose for this reading of weekly Radon average concentration was 2.7 mSv/y which is more than the annual effective dose for the public (1 mSv/y) and less than for radiation workers (20 mSv/y).

Conclusion

Any radiographic room in the medical imaging department with a potential of high Radon accumulation may require implementing some remedial and rectification solutions to avoid unnecessary inhalation and therefore minimize its annual effective dose.

POS02

THE EFFECT OF DIAGNOSTIC X-RAY ON HUMAN RED BLOOD CELLS IN VITRO INVESTIGATION

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Abstract

Background

The x-ray machine plays a significant role in assisting radiologists to diagnose a patient body. Some experimental and clinical results explain the significant reaction in human tissue caused by x-rays in diagnostic radiology which require investigating its effect.

Methodology

The blood samples are collected from healthy young adults and then kept in two different test tubes labeled as controlled and exposed. A radiographic technique and setting for a chest x-ray are applied for exposure. The blood smear and staining are then prepared to visualize microscopy of the blood cell structure and number before and after x-ray exposure.

Results

The size of blood cells and their outline was visualized to be in normal dimension for unexposed samples whereas there are many overlapping blood cells in an exposed sample that form a polymer-like structure and make a difficulty to differentiate between different blood cells. No defined shape of white and red blood cells after exposure compared to the unexposed blood sample. It seems the number of white blood cells is more in counting compared to unexposed samples with probably less number of red blood cells. The darker blue color of red blood cells in exposed samples may explain the lack of oxygen contents that are attached to hemoglobin in this type of blood cell.

Conclusion

This preliminary result of radiation effect on human blood may require further investigation to ensure these finding abnormalities in blood structure and volume after x-ray exposure is reliable.

POS03

THE PRINCIPLES OF ETHICS AND RADIATION PROTECTION: ANOTHER DIMENSION OF UNDERSTANDING FOR PROFESSIONAL PRACTICE IN MEDICAL IMAGING

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Abstract

Background

Medical imaging involves the use of many diagnostic machines that sometimes require the consideration both of ethical and radiation protection principles. Having a good knowledge and interpretation of these principles may assist healthcare providers to proceed with any clinical procedure.

Methodology

The ethical principles of respect for autonomy, nonmaleficence, beneficence, and justice play a significant role in many procedures of healthcare including medical imaging. Sometimes one of them may represent the most required ethical principle for decision making especially when there is a need to protect a patient from unnecessary radiation through the implementation of radiation protection principles of time, distance, and shielding.

Results

There is a possibility to relate the ethical principle of respect for autonomy to the radiation protection principle of shielding by explaining its purpose of use to the patient. The nonmaleficence principle of ethics which refers to no harm can also be realized through applying shielding which represents one of the principles of radiation protection. The ethical principle of beneficence may require the distance principle of radiation protection which plays a significant role in producing good radiographic images. For the ethical principle of justice, it is most advisable to keep the radiation exposure time at an ideal value as recommended by the time principle of radiation protection.

Conclusion

It is most advisable to emphasize again both principles of ethics and radiation protection by many medical imaging associations to protect patients from unnecessary medical radiation doses.

POS04

PHYSICS PRINCIPLES IN RADIOLOGICAL SCIENCES: ECHO PATTERN AND HUMAN TISSUE ELASTICITY IN ULTRASOUND IMAGE

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Abstract

Background

The physics course has many topics relevant to medical programs including radiological sciences. Correlating physics principles to clinical findings may result in a high level of understanding regarding any diagnostic and treatment procedures. There is a possibility to enhance the knowledge and skill of medical students through laboratory activities.

Methodology

Problem-based learning (PBL) is one of the most recommended forms of teaching for medical schools that integrate basic science with clinical findings. It was found that using PBL may obtain a higher degree of satisfaction compared with traditional teaching among students. This indicates that the PBL learning model has a positive effect on students' understanding ability. Providing experimental results in laboratory activities that involve graph analysis is one form of PBL.

Results

Providing clinical knowledge and skill for each topic in the physics course may enhance the understanding of its principles. For instance, the elasticity in physics may apply to the human body to explain tissue stiffness. It can be through applying the A-mode on a sonogram of the ultrasound system to explain tissue stiffness based on the resulting echo graph. It also can be through any existing image processing software that produces a clear graph for the number of echoes at different structures in sonograms such as bladder and prostate that represent their elasticity.

Conclusion

Graph analysis is a knowledge base approach that can be applied to a sonogram to provide clinical knowledge and therefore enhance medical students' understanding of physics principles such as elasticity.

POS05

FAT PERCENTAGE AND ECG GRAPH: IS THERE ANY POSSIBLE REQUIRED CLINICAL PROCEDURE BEFORE ADMINISTRATION OF CONTRAST MEDIA IN MEDICAL IMAGING?

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Abstract

Background

Electrocardiography (ECG) is one of the diagnostic procedures to monitor heart activities. Its graph records the electrical activities of the heart in mV over time. This study discusses any possible change in the mV reading of the QRS wave of ECG against the fat percentage of the human body.

Methodology

A basic device of an ECG system was applied to record the electrical activities of the heart using two electrodes that were attached to the wrist of tested subjects. Their age ranged between 20-25 years old and have different measured body fat percentages. The electrical activities of the heart's ventricles or the QRS wave in the ECG graph were monitored.

Results

Each graph of ECG has different values of electrical activities for the heart. All waves of P, QRS, and T for one complete heartbeat in the ECG graph were clearly noticed. The scattered data in the linear regression graph showed there is a possibility of a linear relationship between ventricle contraction and body fat percentage with a coefficient of determination R^2 value of more than 0.6. The more the body fat percentage of a person the higher of QRS wave which may require to consider in the case of contrast media administration as it is known to cause a little elevation in blood pressure.

Conclusion

A person's body fat percentage may consider a significant factor in medical imaging procedures that require the electrical activities of the heart to be monitored before the administration of contrast media.

POS06

'HEART SIGN': A RARE ACUTE MEDIAL MEDULLARY INFARCTS

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Abstract

Medial medullary infarctions (MMI) is a rare type of brainstem infarction. The objectives of our case reports are to discuss the clinical-MRI correlation of bilateral MMI, to correlate the aetiology-MRI pattern correlation, and to determine the prognosis of bilateral MMI. As per methodology, the clinical information was collected from 2 patients from our follow-up. Case notes and MRI imaging were reviewed retrospectively and subsequently, a literature review was done using PubMed/Medline search engine. Motor dysfunction is still the commonest clinical presentation of the bilateral MMI. Large artery atherosclerosis disease is the main aetiology of bilateral MMI and is associated with poor outcomes. In conclusion, a high index of clinical suspicion with functional–anatomical correlation will help to justify the early imaging time and focus assessment at medullary region. Early imaging is important to obtain the diagnosis that would be helpful to prognosticate the outcome of the patient. A 50-year-old man, with underlying diabetes mellitus and hypertension. He was presented with sudden onset of right-sided body weakness and slurred speech. Upon clinical examination, his GCS was E4V5M6, with ipsilateral facial asymmetry. The initial CT and MRI brain revealed multifocal old lacunar infarctions. After 5 days of onset, he was progressively becoming tetraplegic with left-sided facial asymmetry, and horizontal nystagmus. His was then developed respiratory distress and was subsequently intubated. Repeated MRI brain revealed new acute bilateral medial medullary infarcts. He, unfortunately, succumbed on day 40 of admission due to hospital-acquired pneumonia. A high index of clinical suspicion with functional–anatomical correlation will help to justify the early imaging time and focus assessment at the medullary region. Early imaging is important to obtain the diagnosis that would be helpful to prognosticate the outcome of the patient. Bilateral medial medullary infarcts is common cause of physical disabilities and high mortality rate.

POS07

A HUGE OVARIAN CYSTIC MASS MIMICKING AN INTRABADOMINAL LYMPHATIC MALFORMATION

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Abstract

Intra-abdominal multiloculated cystic mass in children is a common disease. It has an extensive differentials diagnosis such as cystic ovarian tumour, lymphatic malformation and enteric duplication cyst. It is a quite challenging to diagnose, especially if the mass is huge. Imaging plays a vital role in the characterization of the lesion, thus able to narrow down the differential diagnosis. 12-years-old girl with progressive abdominal distension. Ultrasound & CECT abdomen showed a huge multiseptated intrabdominal mass likely to represent lymphatic malformation. Ultrasound-guided aspiration revealed thick clear fluid followed by injection of intralesional bleomycin. No sign of improvement post-treatment. Second intralesional bleomycin injection was done resulting in progressive abdominal discomfort. MRI abdomen to reestablish the diagnosis shows a huge multiseptated intrabdominal mass with non-visualization of the right ovary, raised the suspicion of primary cystic ovarian neoplasm. Urgent laparotomy and HPE confirmed the diagnosis. We highlight few important imaging features need to be determined to narrow down differential diagnosis. Identify the origin and distinguish the key imaging features between the main differential diagnoses of the intraabdominal cystic mass is crucial. Surgical exploration will be the mainstay of treatment for a non-conclusive imaging features.

POS08

DIAGNOSTIC PERFORMANCE OF ACR TI-RADS 2017 AND ATA 2015 CLASSIFICATION SYSTEMS AND THE EVALUATION OF COMPUTER-AIDED DIAGNOSIS (CAD) IN ULTRASOUND RISK STRATIFICATION OF THYROID NODULES

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Abstract

Background

To compare ACR TI-RADS 2017 and ATA 2015 and to evaluate the performance of computer-aided diagnosis (CAD).

Methodology

Ultrasonography of 109 thyroid nodules from 89 patients who underwent ultrasound-guided fine needle aspiration cytology (FNAC) at University Malaya Medical Centre were evaluated by a senior radiologist, trainee radiologist and CAD (AmCAD-UT, AmCad BioMed).

Results

ACR TI-RADS 2017 had higher specificity (79.3% vs 62.0%), positive predictive value (38.7% vs 30.0%) and accuracy (78.0% vs 66.1%). ATA 2015 had higher sensitivity (88.2% vs 70.6%). Both guidelines had high negative predictive value (93.6% vs 96.6%) with no statistical difference in overall performance (AUROC 0.750 vs 0.751). The interobserver agreement between senior and trainee radiologist was substantial for ACR TI-RADS 2017 (Cohen k=0.65) and moderate for ATA 2015 (k=0.55). ACR TI-RADS 2017 was able to reduce more unnecessary FNAC (46.8% vs 14.7%).

The overall performance of CAD showed no statistical difference when compared to senior and trainee radiologist on ACR TI-RADS 2017 (AUROC 0.656 vs 0.750 and 0.715) and ATA 2015 (AUROC 0.638 vs 0.720 and 0.735). The interobserver agreement between senior radiologist and CAD was moderate for both guidelines (k=0.42 and k=0.21). In combination, CAD improved the evaluation of the trainee radiologist in ATA 2015 (difference between AUROC = 0.060, p=.036). No significant improvement when CAD was used by the senior radiologist.

Conclusion

Both guidelines showed similar overall performance with good reproducibility while ACR TI-RADS 2017 is superior in reducing unnecessary FNAC. CAD has the potential to improve thyroid nodules evaluation.

POS09

CARDIAC MASS IN A PREGNANT LADY WITH AN AGGRESSIVE LEFT FOOT SOFT TISSUE DIFFUSE LARGE B-CELL LYMPHOMA: AN UNUSUAL PRESENTATION AND CHALLENGES IN IMAGING

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Abstract

Cardiac mass is a rare presentation of diffuse large B-Cell lymphoma (DLBCL). They can pose diagnostic challenges particularly in pregnant women. We report a case of aggressive left foot soft tissue DLBCL with a large cardiac mass in a young healthy pregnant patient. The etiology of the cardiac mass could not be established because the patient was pregnant and imaging techniques were hazardous to fetal development. The histopathologic report of the left foot mass was received 5 days after the imaging, confirmed the diagnosis of DLBCL. This had led to our provisional diagnoses of primary cardiac lymphoma and metastatic cardiac lymphoma. The patient went through premature delivery at 26 weeks of gestation and was planned for chemotherapy instantly. Unfortunately, the patient succumbed to her disease shortly after delivery. This report highlights the imaging techniques in pregnant patient, imaging features of malignant cardiac masses and presence of coronary vessel floating sign as a characteristic sign for lymphoma. MRI is a modality of choice in pregnancy. Gadolinium based contrast media is contraindicated in pregnancy unless the benefits outweigh the risks. Because the tumour is clinically aggressive and fatal, it is of great significant to diagnose this disease and treat it promptly.

POS10

A RARE CASE OF ANEURYSMAL DILATATION OF THE COLON

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Abstract
Aneurysmal dilatation of the colon is a rare feature of colon adenocarcinoma, more typically seen in lymphoma and small bowel gastrointestinal stromal tumors (GISTs). According to Zablon Kipkemoi Bet, their two reported cases that was published in 2020 are the first cases of aneurysmal dilatation of colon secondary to adenocarcinoma after extensive literature being searched.This is a case of 49 years old gentlemen presented with two months history of abdominal distension, abdominal pain and significant loss of weight. Abdominal examination revealed a tender mass at the left hypochondriac region. Urgent ultrasound abdomen shows a huge intraabdominal heterogeneous mass at left lumbar region. CECT was performed revealed heterogenously enhancing mass at the left hypochondriac extending to the left lumbar, is seen in continuity with the transverse colon with presence of air fluid level within suggestive of the lumen, consistent with aneurysmal dilatation of the colon. Colonoscopy detected a long segment cincumferential wall thickening at the transverse colon. Laparotomy and subtotal colectomy with small bowel resection was performed. Histopathologically (HPE) confiimed adenocarcinoma. Aneurysmal dilatation of the colon due to adenocarcinoma is a rare and unusual radiological finding. Imaging plays an important role in identification and management of the disease. Awareness of this atypical and unusual feature of colon adenocarcinoma presenting with aneurysmal dilatation, of which is usually seen in lymphoma and small bowel GISTs, is imperatively needed to be recognized by radiologist. Together with the clinical presentation and tumor markers, this often helps in making a correct diagnosis.

POS11

MODERATOR BAND AND IDIOPATHIC PREMATURE VENTRICULAR CONTRACTIONS IN PREGNANCY - A CASE REPORT

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Abstract

The moderator band (MB) is a muscular structure extending from interventricular septum to the right ventricular (RV) free wall. In diagnostic imaging, it is the consistent morphological structure of RV. Clinically, it is part of the cardiac electrical conduction pathway, thus a potential source for Purkinje-mediated arrhythmias. Moderator band premature ventricular contractions (MB-PVC) is rare, with estimated prevalence up to 2.5%. We present a case of MB-PVC presenting in pregnancy, which to our knowledge is the first such report in the literature. A 29-year-old lady at 16 weeks of gestation and history of palpitations presented with first episode of generalised tonic-clonic seizure which lasted 5 minutes and aborted spontaneously. Neurologic and obstetric assessments were normal. Electrocardiogram noted sinus rhythm and PVC with RV outflow tract origin at superior axis. No Epsilon wave or RV hypertrophy. Holter noted sinus tachycardia and 1.5% PVC. Echocardiography, non-contrast-enhanced brain Computed Tomography (CT) and CT Pulmonary Angiography were normal. Non-contrast-enhanced Cardiac Magnetic Resonance Imaging (cMRI) detected small apicolateral bulges at RV free wall adjacent to MB insertion. No structural cardiac anomaly. Correlating the significant clinical presentation supported by cMRI findings, MB ventricular tachycardia was diagnosed. Zero-Fluoro 3D-mapping and radiofrequency ablation of MB-PVC was successfully performed. Post intervention ECG showed occasional PVC, however patient's symptoms had markedly improved with no new seizures. MB-PVC diagnosis may be difficult, especially in the pregnant population. A multidisciplinary approach and appropriate imaging studies aids early and accurate diagnosis, prompt treatment via catheter ablation, and reduces pregnancy-related complications.

POS12

CASE REPORT SERIES: INCIDENTAL FINDINGS OF SMALL BOWEL LIPOMA ON COMPUTED TOMOGRAPHY (CT)

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Abstract

Small bowel lipoma is an uncommon gastrointestinal neoplasm representing a benign submucosal lesion composed of mature adipocytes. Its characteristic of negative attenuation value in CT is diagnostic and can occur along any part of the gastrointenstinal tract. Small bowel lipoma is second most common occurring along small intestine (25%) after the colon. Usually, the finding is incidental and patients are asymptomatic. However, complications such as intussusception, gastrointestinal hemorrhage and obstructive bowel symptoms may occur. We present incidental findings of small bowel lipoma case series associated with and without complications. Case 1**:** A 71-years-old gentleman with underlying prostatic carcinoma due for restaging CT imaging in view of raised prostate-specific antigen. Incidental finding of a focal small bowel lipoma noted at proximal ileum with formation of ileo-ileal intussusception without proximal bowel obstruction. Patient asymptomatic of gastrointestinal symptoms. Case 2**:** A 52-years-old gentleman with metastatic renal cell carcinoma for imaging CT surveillance. Incidental finding of numerous submucosal small bowel lipoma extending from duodenum to jejunum. No bowel obstruction. Patient asymptomatic of gastrointestinal symptoms. Gastrointestinal lipoma is a rare incident that occurs at any part along gastrointestinal tract, either in solitary or multifocal. As it rarely causes symptoms, we may tend to overlook bowel in detail and a focal lipoma can easily be missed. Although benign small bowel neoplasm occasionally not well differentiated from malignant lesions, lipomas can be diagnosed with recognition of negative fat attenuation value. Complications should be expected when it is present.

POS13

COMPUTED TOMOGRAPHY (CT) FEATURES OF HYPOXIC ISCHAEMIC ENCEPHALOPATHY IN ADULTS: A PICTORIAL ESSAY

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Abstract

Hypoxic ischaemic encephalopathy (HIE) occurs secondary to hypoxemia or hypoperfusion to the brain and often has devastating neurological sequalae. Imaging plays an important role in the diagnosis and treatment of HIE and ultimately for prognostication. This pictorial essay explores the computed tomography (CT) features in adult patients with HIE. A pictorial essay of CT imaging manifestations of HIE in adult patients admitted in Hospital Duchess of Kent, Sandakan within the year of 2018 to 2020. The imaging features depicted here are reversal sign, white cerebellar sign, psudosubarachnoid hemorrhage sign and decreases basal ganglia attenuation. HIE can pose a difficult diagnostic problem from a neuroimaging standpoint. The injury patterns on imaging are highly variable and depends on the patient's brain maturity, severity and duration of insult and timing of the modality used. Magnetic Resonance Imaging (MRI) is most sensitive in the early hours following injury. However, in the center where MRI availability is scarce, CT is of value. By focusing on the specific regions that are most likely to be injured due to selective vulnerability, false-negatives can be avoided.

POS14

PERCUTANEOUS COIL EMBOLISATION OF HEPATIC ARTERY MYCOTIC ANEURYSM

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Abstract

Mycotic hepatic artery aneurysm is a rare but recognized complication of bacterial endocarditis. Therapeutic options include open surgery, endovascular embolization/ stent placement, medical therapy, or a combination of these. Although transarterial endovascular embolization has been described in the literature as the mainstay of treatment, percutaneous embolization can be an effective alternative. We hereby report a unique case of a patient with Methicillin-susceptible Staphylococcal Aureus (MSSA) bacterial endocarditis acutely presented with mycotic hepatic aneurysm and biliary obstruction. A 43-year-old immunocompromised gentleman with recurrent infective MSSA bacterial endocarditis presented with jaundice, tachypnoea and lower limb oedema. Blood profile was deranged with low haemoglobin, normal white cell count, hyperbilirubinemia and elevated liver enzymes. Multiphasic CT liver revealed right hepatic artery pseudoaneurysm, measuring 1.5x1.7x1.8cm (AP x W x CC) causing intrahepatic duct obstruction. Multiple failed attempts to cannulate coeliac trunk during transarterial hepatic artery embolization. Subsequently, patient underwent percutaneous transhepatic biliary drainage to create a window for percutaneous transhepatic coiling embolization. A total of 14 fibered coils were deployed into the aneurysm via a 21-gauge Chiba needle under direct ultrasound guidance, confirmed with transarterial angiogram. The procedure was well tolerated with no immediate complications or recurrence of pseudoaneurysm during follow up. Early diagnosis and aggressive treatment is the key to determine successful outcome. Treatment needs to be individualized and can be technically difficult owing to preexisting patient comorbidities, associated complications and compliance issues. In this case, we demonstrated an alternative and effective method in treating mycotic hepatic pseudoaneurysms.

POS15

CLOSED LOOP INTESTINAL OBSTRUCTION MIMICKING ABRUPTIO PLACENTA IN A THIRD TRIMESTER PREGNANCY

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Abstract

Acute abdominal pain in pregnant ladies poses great diagnostic and therapeutic challenges, owing to multiple confounding factors related to pregnancy. We report a case of closed loop intestinal obstruction secondary to adhesion in a pregnant lady with a history of open appendicectomy. A 25-year-old primigravida at 32 weeks period of gestation (POG) presented to Emergency Department with acute abdominal pain and was suspected to have abruptio placenta. Emergency lower segment caesarean section was performed, which turned out to be negative of abruptio placenta. Post-operatively, she had persistent severe abdominal pain requiring high dose analgesics. Initial ultrasound abdomen was normal. Computed Tomography (CT) abdomen was performed two days post operation revealed closed loop obstruction at terminal ileum with perforated ischaemic segment. She subsequently underwent emergency laparotomy and limited right hemicolectomy with double barreled stoma creation. Intraoperative findings showed severe adhesion between small bowel loops at terminal ileum with ischaemic perforation. She was discharged well on day twelve post operation. Closed loop intestinal obstruction is an uncommon cause of an acute abdomen but should be a consideration in patients with history of previous surgery. Magnetic Resonance Imaging (MRI) or CT scan provide excellent anatomical information and signs such as small bowel dilatation with C-shape bowel configuration and whirlpool signs can help establish the diagnosis.

POS16

ILEOILEOCOLIC INTUSSUSCEPTION WITH A LEAD POINT IN A TWO-YEAR-OLD MALE

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Abstract

Intussusception (IS) occurs when one segment of bowel is telescoped into itself or a neighboring loop of bowel by peristalsis and remains an important cause of acute abdomen in children. Lead points in IS are seen commonly in older children that presents with recurrence of IS. Timely sonographic evaluation and reduction is crucial to prevent irreversible bowel complications. We report a case of a two-year-old boy, with no known medical illness presenting with history of sudden onset of colicky abdominal pain for three days. A diagnosis of intussusception was made and planned for barium reduction under fluoroscopic guidance. Upon further questioning, child has had three episodes of similar symptoms in the past and occurring almost every monthly with reduction done at every presentation. Barium enema was performed successfully in a single attempt, however, there was a filling defect within the small bowel in the left hypochondrium. A repeat ultrasound the next day revealed recurrence, thus, planned for surgical reduction. Intraoperatively, a polypoidal like growth with central umbilication noted within the small bowel lumen with HPE findings of a heterotopic pancreatic tissue being the lead point lesion. IS is one of the common causes of small bowel obstruction in children and can be diagnosed by ultrasound being noninvasive and radiation-free. In cases of recurrence, it is vital to exclude presence of lead points as in this case and urgent surgical intervention should proceed immediately.

POS17

HEPATIC MESENCHYMAL HAMARTOMA- A RARE BENIGN DEVELOPMENTAL TUMOUR

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Abstract

Hepatic mesenchymal hamartoma (HMH) is a rare benign pediatric hepatic tumor that derives from mesenchymal tissue. It is of uncertain etiology with majority of cases in less than 2 years of age. The diagnosis is a challenge with its non-specific clinical symptoms and lack of definitive laboratory studies; hence, radiological imaging is crucial for diagnosis. We report a case study of a 2-year-old boy presented with abdominal distension for 2 months, gradually increasing in size. A right sided intra-abdominal mass was palpable with sonographic correlation of a large multicystic lesion in the right hypochondrium. Hematological and biochemical investigations were within normal limits. Alpha-fetoprotein and B-HCG values were unremarkable. Contrast enhanced CT showed a large multiseptated cystic mass measuring 12.3cm x 12.7cm x 15.6cm in right liver lobe. Patient was planned for laparotomy and extended right hepatectomy with intra-operative findings of a large cystic mass occupying the right liver lobe weighing 1240 grams. A histological diagnosis of HMH was made based on distinctive morphological features. The patient recovered well post-operatively and was discharged home. HMH is a benign childhood tumour with mean age of presentation of 20 months. Mesenchymal hamartomas originate from a congenital localized abnormality in ductal plate development. The diagnosis of these tumors are often delayed with diagnostic precision relying on radiological characterization and histological evaluation of the tissue. Radical surgical excision is the gold standard treatment option to prevent cases of local recurrence and possible malignant transformation.

POS18

THE ROLE OF HYBRID MODEL THAT CONTAINS MACHINE LEARNING ALGORITHMS AND MULTI-LAYER NEURAL NETWORK IN PREDICTING THE TREATMENT OUTCOME OF HIGH-INTENSITY FOCUSED ULTRASOUND ABLATION OF UTERINE FIBROIDS

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Abstract

Background

MRI-guided high-intensity focused ultrasound (HIFU) performs an important clinical role in the treatment of uterine fibroids (UF). One of the biggest challenges in this treatment is the selection of patients suitable for HIFU treatment. Therefore, firstly, we aimed to comparatively evaluate the role of ML classifiers to determine the most informative anatomical features and tissue characteristics of UF. Then, obtained most informative features were used as an input for the proposed multi-layer neural network (NN) model and its classifier performance was measured.

Methodology

The screening MR examinations of 73 women were included in the analysis. For finding the best informative features, feature ranking property of five ML classifiers—Logistic regression, Support vector machine, Random Forest, Adaptive boosting, and Gradient boosting classifier were used. Then, proposed multi-layer NN model (Number of neurons in input, hidden and output layers is: 12,64, 64 ,2 respectively) was used to predict the treatment outcome of HIFU therapy. The efficiency of the model is evaluated using standard performance metrics, including the area under the receiver operating characteristic curve (AUROC) and accuracy score.

Results

The obtained most relevant features from highest to lowest ranking, starting with The Ktrans ratio of the fibroid to the myometrium and finished with T2-SI of fibroid. The accuracy score and AUROC values of the proposed NN model are 76% and 92%, respectively.

Conclusion

This preliminary study indicates that ML algorithms and NN model should be considered in assisting physicians to fully evaluate the outcome of the HIFU therapy.

POS19

SQANN: THE COMBINATION OF SEMI QUANTITATIVE PERFUSION PARAMETERS AND ARTIFICIAL NEURAL NETWORK MODEL TO PREDICT THE TREATMENT OUTCOME OF HIFU ABLATION OF ADENOMYOSIS

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Abstract

Background

Adenomyosis is a common gynecological disease that affect many women life in reproductive age. Magnetic resonance imaging-guided high-intensity focused ultrasound uses ultrasound to thermally ablate adenomyotic lesions. One of the biggest challenges in this treatment is the selection of patients suitable for HIFU treatment. The main aim of this study is to propose a model called SQANN that contains multi-layer Artificial Neural Network (ANN) and semi quantitative (SQ) perfusion features to predict the treatment outcome.

Methodology

The screening MR examinations of 66 women were included in the analysis. We used SQ MRI features, which provide information regarding the vascularity of the lesion. Multi-layer ANN architecture in proposed SQANN model, (Number of neurons in input layer, hidden layers and output layer is: 30,64, 128, 128, 128, 2 respectively) was used to differentiate these tumors. In the last layer, we used 0.2 Dropout unit. In addition, proposed model was compiled with Adam optimizer and Binary Cross-Entropy loss function as parameters and was trained in a batch size of 8 and for 100 epochs. The area under the receiver operating characteristic curve (AUROC), accuracy, sensitivity, specificity, and F1-score are the performance metrics used for analyzing the algorithm.

Results

In SQANN model, precision, recall and F1-score values ranged from 0.83 to 0.97, 0.0.84 to 0.97, 0.87, respectively. This model had AUROC value of 0.93 and accuracy value of 0.87.

Conclusion

This preliminary study indicates that proposed SQANN model play significant role in predicting the treatment outcome of adenomyosis.

POS20

THE ROLE OF VARIATIONAL QUANTUM CLASSIFIER WITH MULTIPARAMETRIC MR PARAMETERS FOR DIFFERENTIATING PEDIATRIC POSTERIOR FOSSA TUMORS: MEDULLOBLASTOMA, EPENDYMOMA AND PILOCYTIC ASTROCYTOMA

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Abstract

Background

Pediatric brain tumors are the leading cause of death from solid tumors in childhood. The majority of pediatric brain tumors, about 60-70%, originate in the posterior fossa and the most common posterior fossa tumors are given as follow: Medulloblastoma (MB), Ependymoma (EP) and Pilocytic Astrocytoma (PA). Although the treatment and prognosis of MB, EP, and PA are different, visual characteristics of these tumors are often overlapping, sometimes making the diagnostic process difficult. Thus, the differentiation between these three tumors is essential in the field of pediatric radiology. Therefore, the aim of this study is to evaluate variational quantum classifier (VQC) model for distinguishing these tumors from each other's using multiparametric MRI features.

Methodology

VQC method is a hybrid approach where the parameters are optimized and updated in a classical computer, making the optimization process without increasing the coherence times needed. The screening MR examinations of 78 pediatric patient were included in the analysis. We first performed preprocessed the data by label encoding and one-hot encoding. Then, principal component analysis (PCA) feature extraction method applied for dimension reduction. In the VQC part, data gets mapped to high dimensional Hilbert space with PauliFeatureMap. We used Constrained Optimization By Linear Approximation (COBYLA) optimizer and cross_entropy loss function.

Results

VQC gave 0.71 classification performance score in the discrimination of these three tumors.

Conclusion

Our study confirms that the VQC method could be used for posterior fossa brain tumor classification problems with higher performance.

POS21

BILATERAL METASTATIC BREAST DISEASE OF ALVEOLAR RHABDOMYOSARCOMA IN A YOUNG GIRL

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Abstract

Breast malignancy in children is rare, however metastases may develop from hematological malignancies such as lymphoma and leukaemia or from extra-mammary malignancies such as sarcomas. Rhabdomyosarcoma (RMS) involving the breast is uncommon, metastatic being more common than primary breast RMS. Breast RMS is almost exclusive in adolescent and young adult females. We report a rare case of metastatic breast Rhabdomyosarcoma in an outstandingly young 8-year-old girl. She initially presented with an 8-month history of enlarging left breast mass as well as soft tissue lesions at left arm and right foot. Ultrasonography showed heterogeneous appearance of these intramuscular lesions with increased intralesional vascularity. She was planned for tissue biopsy to ascertain the diagnosis, however the parents refused and defaulted follow-up. The patient subsequently presented 2 months later with sudden onset of bilateral lower limbs weakness and pain as well as acute urinary retention. An urgent MRI showed extensive paraspinal masses with intraspinal extension and compression onto conus medullaris. She underwent urgent spinal decompression and tumour debulking surgery. Histopathologic examination confirmed alveolar Rhabdomyosarcoma and the patient underwent chemotherapy. Unfortunately she succumbed 1 year later. Breast lesions in paediatric patients are predominantly benign in aetiology, however malignancy is possible and could carry an abysmal outcome if not promptly treated. Awareness of certain imaging features which raises the suspicion of malignant nature of breast masses in paediatric population is crucial and can help timely diagnosis and management.

POS22

LARYNGOCELE WITH SUPERIMPOSED COVID 19 LUNG INFECTION AND REACTIVATION OF PULMONARY TUBERCULOSIS CAUSING EXTENSIVE SUBCUTANEOUS AND INTRAMUSCULAR EMPHYSEMA

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Abstract

Laryngocele is an abnormal cystic dilatation of the laryngeal saccule and a rare benign lesion of the larynx. Actions that increase the intralaryngeal pressure including blowing glass or wind instruments and chronic respiratory disease may contribute to the development of laryngocele. Here, we present a rare case of laryngocele causing subcutaneous emphysema with superimposed COVID 19 lung infection and reactivation of pulmonary tuberculosis. A 66-years old Chinese gentleman with underlying Hepatitis C, type II diabetes mellitus, hypertension, dyslipidemia, history of tuberculosis which completed treatment in 2016 and history of intravenous drug usage. Patient complained of fever, cough, lethargy and loss of appetite for one week. Patient then tested positive for Covid-19 and was admitted to the hospital due to respiratory signs. Patient revealed complications of Hepatitis C and hepatic encephalopathy during the admission. Incidental findings on CT scan revealed a right laryngeal ventricle defect with extensive subcutaneous and intramuscular emphysema of the neck and chest wall, pneumomediastinum, pneumothorax with evidence of reactivation of tuberculosis. Clinically, patient has no hoarseness or stridor and no palpable swelling in the cervical region. A bedside flexible nasopharyngolaryngoscope revealed no abnormality. Patient was treated conservatively for the laryngocele and treatment for pulmonary tuberculosis and COVID 19 lung infection was initiated. Laryngocele may present as a benign laryngeal disease which is often asymptomatic. However, it can cause respiratory catastrophe that may threaten the patient's life Therefore, correlation of clinical presentation and endoscopic evaluation of the larynx and imaging is mandatory to establish accurate diagnosis and begin appropriate treatment to avoid undesirable evolution.

POS23

(NON) ENHANCING THROMBOSED DURAL VENOUS SINUSES. A CASE REPORT ON THROMBUS ENHANCEMENT, ITS SECONDARY FEATURES AND COMPLICATIONS

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Abstract
A thrombosed dural venous sinus can be tricky, closely resembling a tumour mimic, when it shows thrombi enhancement and local involvement. Extensive workup can potentially delay diagnosis and treatment. We hereby report a case of thrombosed right jugular sigmoid sinus thrombosis complicated with arteriovenous fistula formation and secondary venous hypertension. A 55 years old lady with history of prior stroke presented with chronic progressive blurring of vision, intermittent headaches and new onset Bell's palsy. Initial CT and MRI revealed a lesion at the right jugular fossa with local extension and bony remodeling. There was CT-MRI enhancement mismatch. Furthermore, there were other secondary features of arteriovenous venous fistula formation and venous hypertension which did not fit into the tumour picture. DSA confirmed thrombosed right jugular sigmoid sinus thrombosis complicated with right tranverse sinus dural arteriovenous fistula. Patient was put on long term anticoagulation therapy and remained stable throughout her clinical course. A diagnosis of enhancing thrombosed dural venous sinuses can be misleading, challenging and at times dangerous to the reporting radiologist if biopsy is considered. The presence of CT-MRI enhancement mismatch and other secondary complicating features should be the tell-tale sign of an underlying vascular pathology. Final diagnosis can be easily made via angiographic studies when this suspicion is raised.

POS24

COMMON FACIAL VEIN ANEURYSM: A RARE CLINICAL SCENARIO

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Abstract

Facial vein aneurysm presenting as neck swelling is a very rare clinical scenario. Its prevalence is still yet to be determined as few cases were reported in the past and has not been reported in Malaysia. Congenital and acquired conditions like trauma, operation, infection or tumors could be the causes. Radiological imagings such as Doppler Ultrasound study, computed tomography (CT) with angiography and magnetic resonance imaging (MRI) are useful in diagnosing venous aneurysm. Surgical excision and endovascular treatment are the mode of treatment. However to date, there is no specific guidelines for the management of the venous aneurysm exist. A 30-year-old Chinese female medical practitioner with no underlying comorbid presented with right lateral neck swelling for about one year duration. Blood was aspirated on Fine Needle Aspiration Cytology (FNAC). MRI neck revealed thrombosed right common facial vein aneurysm. Sclerotherapy was not feasible as the common facial vein drains to the right internal jugular vein. Surgical option was offered to patient. However patient is still undecided and keen for conservative management as for now. Facial vein aneurysm is a very rare clinical entity and can be due to congenital and acquired causes such as trauma, operation, infection or tumors. Ultrasound Doppler study, CT angiography and MRI can be useful in diagnosing venous aneurysm. It can be managed with surgical excision or endovascular treatment.

POS25

INFRATEMPORAL FOSSA SYNOVIAL SARCOMA: A RARE SOFT TISSUE SARCOMA IN HEAD AND NECK

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Abstract

Synovial sarcoma (SS) is a type of rare malignant soft tissue tumour, only accounts for 5 - 10% of all soft tissue sarcomas. It can occur anywhere in the body, but most often in the lower extremities, and is very rare in the head and neck region, with an incidence of about 2–4%, hence very limited information regarding the spectrum of imaging features for this disease. We encountered a case of a 45-years old lady presented with 2 weeks history of diffused painless swelling over the left facial region. The initial CT shows a soft tissue tumour in left masticator space and infratemporal fossa with imaging features suggesting a long standing lesion, hence conclusion of benign lesion was made. Patient underwent tumour excision, histopathology examination revealed synovial sarcoma with resection margins are focally involved. MRI was done post surgery to further delineate the tumour, however it does not exhibit the typical malignant soft tissue tumour features. SS of the infratemporal fossa is an extremely rare malignancy. In order to achieve the best results in tissue-specific diagnosis, a combination of different parameters: clinical information, prevalence, age at presentation, location, morphology, and signal intensities on different MR sequences are of the utmost importance to radiologist. Tissue biopsy is diagnostic.

POS26

A UNIQUE CASE OF MULTISYSTEM ERDHEIM-CHESTER DISEASE (ECD) IN CHILDHOOD

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Abstract

Erdheim-Chester disease (ECD) is a rare multisystem form of non-Langerhans cell histiocytosis. The typical age of presentation is in adulthood and presentation in the paediatric age group is extremely rare. We present a case of ECD in a 4 year old boy with skeletal, lung and cutaneous involvement. A 2-years 8-months old boy presented with right cheek swelling, initially treated as lymphadenitis. A year later he presented again with multiple hyperpigmented papules on face, chest wall, abdomen and both lower limbs sparing both palms and soles. Clinical examination revealed bilateral cervical lymphadenopathy. Skeletal survey showed multiple lytic lesions at the skull, pelvic bone and right tibia with compression fractures of T12 vertebra. He was worked up for Langerhans Cell Histiocytosis, however skin biopsy does not show increase in Langerhans cells. Bone biopsy was performed which confirmed the diagnosis. CT Thorax Abdomen and Pelvis revealed multiple bilateral lung nodules and cysts, hepatomegaly with multiple bone lesions in the skull, spine and pelvic bones. Contrasted MRI brain revealed right frontal and right frontosphenoidal skull lesions with no brain parenchymal involvement. ECD typically occurs in adults with few reported cases in children. It is a multisystemic disorder with possible involvement of the brain, lungs, skin, retroperitoneum and bones. Due to its rarity and overlapping clinical manifestations, it poses a diagnostic challenge for clinicians and radiologists. It is important to recognize its variable presentations and requires a multidisciplinary team approach in its management.

POS27

ACUTE HAEMORHAGIC NECROTIZING ENCEPHALITIS AS A PRESENTATION OF COVID-19 IN A CHILD PRESENTED WITH STROKE-LIKE SYMPTOM

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Abstract

Acute haemorrhagic necrotizing encephalitis is rare; seen in patients with severe infection associated with devastating neurological outcomes. It results in rapidly worsening encephalopathy and coma within the first two weeks of severe illness. We report a case of 10 years old girl presented with stroke-like symptom diagnosed to have acute hemorrhagic necrotizing encephalitis as a presentation of COVID-19. A 10-year-old girl with no known medical illness, not vaccinated for COVID-19 presented with fever, altered behavior and incoherent speech. RTK and PCR COVID-19 was confirmed. On day three of illness, she had inability to walk, completely loss of speech and drooling of saliva. No respiratory symptom or fitting episodes. Clinically, she is afebrile. Power 4/5 bilateral upper and lower limbs. Positive cerebellar sign. Chest radiography shows clear lung field. CECT brain shows bilateral thalamic hypodensities with MRI brain shows features suggestive of acute encephalitis involving the thalami, pons and cerebellar hemispheres with hemorrhagic component in both thalami. Parents refused lumbar puncture. She was given intravenous methylprednisolone, acyclovir and ceftriaxone. Upon discharged, clinically she was improved, able to walk normally and speak in full sentences. Acute haemorrhagic necrotizing encephalopathy usually results in severe infection and outcome. The prognosis is variable; however, it is still a potentially devastating disease leading to death and severe neurological sequelae. As the number of patients with COVID-19 still increasing worldwide, clinicians and radiologists must have high-index of suspicion for COVID-19 in patient presenting with stroke-like symptom, even though it is rare in pediatric population.

POS28

CHALLENGES OF MEDIASTINAL MASS IN PAEDIATRICS

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Abstract

Paediatric mediastinal masses are the most challenging masses to handle owing to difficulty in getting the sample when small to the inability for heavy sedation or anaesthesia when large for a biopsy. Due to a wide range of disorders and risk of airway compromisation, histopathology confirmation is vital to guide best management. Not only, the procedure is challenging, tissue analysis is subjected to Pathologist skills and exceptional experience in the area. We present a 10-year-old boy with bilateral eye puffiness, facial swelling and dyspnoea. CT demonstrated an anterosuperior mediastinal mass complicated by superior vena cava obstruction (SVCO). Peripheral blood film (PBF) and immunophenotyping confirmed blast cells suggestive of either leukemia or lymphoma. He was started on chemotherapy followed by an initial good response. He then once again presented with mediastinal mass. At this juncture, CT suggested relapse of disease, but a biopsy was required for confirmation. In view of anticipated sedation issue, we invited an Intervention radiologist for an USG guided biopsy. The biopsy result was in favour of thymoma over lymphoma. In view of HPE and radiological discrepancy, the case has been brought to discussion in an international outreach conference. A second analysis of the sample by an overseas expert was then concluded as lymphoma - T cell disease of unclassifiable type. Our case exhibits the multitude challenges in diagnosing and managing an anterior mediastinal mass in children. We outline CT features, risk calculation and possible pathway in reaching accurate diagnosis in the periphery.

POS29

TUBERCULOSIS MASQUERADING MALIGNANT PULMONARY MASS IN A TODDLER

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Abstract

The endemicity of tuberculosis (TB) in Malaysia continues to pose significant risk of morbidity and mortality. Diagnosing TB in children is challenging due to its various clinical and imaging presentations. We highlighted a case of a toddler with tuberculosis whose chest imaging features masquerade malignant pulmonary mass which resulted in delay in treatment commencement. A 3 years 7 months old toddler was presented with acute history of cough and rapid breathing. Child was afebrile but tachypneic with generalized ronchi and reduced right breath sound. Multiple hard cervical lymph nodes were palpable. The inflammatory markers were raised but other hematological indices were normal. Initial chest radiograph showed mass-like dense opacification of the right hemithorax, raising the suspicion of a pulmonary mass. Subsequent thoracic computed tomography (CT) revealed heterogenous mass-like right pulmonary consolidations with right hilar and lower cervical lymphadenopathies. Tumour markers such as lactate dehydrogenase (LDH), alpha fetoprotein (AFP) and beta- human chorionic gonadotropin (HCG) were not raised. Gastric lavage for Mycobacterium tuberculosis (MTB) were inconclusive. Real time polymerase chain reaction assay of the biopsied cervical lymph nodes were positive for low rifampicin resistant MTB. Child was immediately started on anti-tuberculosis treatment. Histopathology examination of the cervical lymph node later showed necrotising granulomatous lymphadenitis. Child responded well to treatment with improvement of the right hemithorax opacification on follow up radiograph. Pulmonary tuberculosis presenting as malignant pulmonary mass, albeit rare in toddler age-group, should always be in the list of differential diagnosis, especially in tuberculosis endemic areas, for timely treatment initiation.

POS30

RETROSPECTIVE COMPARISON OF INOPERABLE GYNAECOLOGY CONDITION WITH PRE-OPERATIVE IMAGING – OUR EXPERIENCE

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Abstract

Background

Optimal surgery with minimal complications is the key to reducing morbidity, thus pre-operative imaging is an important guide to determine if there is involvement of vascular, gastrointestinal, or surgeons expertise is necessary to achieve this. The objective of this study is to compare the intra-operative findings of inoperable cases with pre-operative computed tomography scan (CT scan) and magnetic resonance images (MRI) in patients undergoing operative surgery for various gynaecology condition.

Methodology

We conducted a retrospective review of patients undergoing major gyanaecological surgery, either via laparoscopy or laparotomy, for pelvic organ pathology originate from the ovary or uterus. All the patients had pre-operative imaging, specifically CT scan or MRI prior to the surgery. The intra-operative findings and pre-operative imaging reports were retrieved from the patient database. This review involved cases done in a single tertiary centre between January 2017 and June 2022.

Results

Descriptive data presented include demographic information, indication of surgery, type of surgical intervention and surgical complications. Intra-operative findings of inoperable cases were compared with the pre-operative imaging features, further explored and discussed.

Conclusion

Accurate preoperative mapping can aid the surgeon in patient counselling, selection of the most appropriate surgical method that minimizes the operative and post-operative complications. Consequently, ability to recognize which imaging features that suggest optimal or suboptimal resection is very much valuable for the gynecologists in planning for the operation.

POS31

HYPERACUTE PRESENTATION OF SPONTANEOUS SPINAL CORD INFARCTION IN A YOUNG MAN.

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Abstract

Spinal cord infarction accounts for 1% of all strokes, commonly affecting older individuals with cardiovascular risk factors. Hence, it is not uncommon for younger patients to be misdiagnosed as transverse myelitis, resulting in treatment delay and unfavourable outcome. A previously well 24-year-old gentleman presented with rapid descending numbness and weakness of bilateral upper and lower limbs after waking up from sleep. No preceding fever or illness noted. He became quadriplegic within 5 hours of onset with flaccid tone and absent reflexes. However, anal tone remained intact and the Glasgow Coma Scale was full. Upon reaching the hospital, he was intubated due to impending respiratory collapse from Type 2 respiratory failure. The initial CT brain and cervical was unremarkable so an urgent whole spine MRI was performed. There was a non-enhancing, long segment intramedullary T2 hyperintensity affecting the anterior cord from C2 to T1 spinal levels which demonstrated the “owl eye sign” in axial slices. No arterial dissection seen. Serum and cerebrospinal fluid parameters were negative for infection. Antiplatelet and anticoagulation therapy were commenced following a working diagnosis of ischaemic myelopathy. He was extubated after 3 days and was referred for rehabilitation therapy. The patient regained full lower limb power (5/5) and partial upper limb strength (2/5) but had persistent flaccid tone and reduced reflexes upon discharge 2 weeks later. The characteristic MRI features along with hyperacute neurological deterioration in this case was crucial in clinching the diagnosis early while waiting for further confirmatory investigations.

POS32

AN UNFORTUNATE CASE OF A VERY AGGRESSIVE PRIMARY NEUROENDOCRINE CARCINOMA OF THE BREAST

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Abstract

Primary neuroendocrine neoplasms of the breast are very rare. They can present with typical clinical manifestations and initial imaging findings but have invasive behaviour, a poor prognosis, and are difficult to treat. A 41-year-old woman presented with an enlarged left breast lump for 4 months. An irregular, firm, and non-tender lump was palpated in the left breast inner quadrant. It was associated with blisters, ulcers, and erythema. Mammography revealed a large lobulated high-density mass with internal calcification, architectural distortion, skin thickening, and nipple retraction. Complimentary ultrasonography showed a large non-circumscribed heterogeneous hypoechoic mass with retro areolar and pectoralis muscle extensions and axillary lymphadenopathies. The tru-cut needle biopsy was suggestive of neuroendocrine carcinoma. The computed tomography (CT) of the chest, abdomen, and pelvis showed a large breast mass with invasive intrathoracic infiltrations and metastases to nodes, bones, liver, lungs, and pleura. There was no other extra mammary mass. Chemotherapy was intended; however, she passed away unexpectedly two weeks following the CT due to a severe deterioration. This case report highlights the mammographic, sonographic, and CT findings of this unfortunate case of a very aggressive primary neuroendocrine carcinoma of the breast with advanced infiltrations and systemic metastases. Although it is a rare malignancy, we should know that it can present with typical clinical manifestations and initial imaging findings yet have shocking aggressive infiltrations, systemic metastases, and rapid decline. This is necessary to ensure timely diagnosis, prognosis prediction, and management.

POS33

UNUSUAL PRESENTATION OF UNICENTRIC SIGMOID MESENTERIC CASTLEMAN DISEASE IN CHILDREN

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Abstract

Castleman disease is a rare benign lymphoproliferative condition. There are two morphologic subtypes based on the extent of local lymph node involvement which are unicentric and multicentric Castleman disease. Multicentric Castleman disease may present with systemic inflammation or haematological abnormalities. However, unicentric Castleman disease is found incidentally during other routine examination. Majority of the Castleman's disease are found in the mediastinum. However, the lesion found in the sigmoid mesenteric are extremely rare. 9 years 9 months old boy presented with symptomatic anaemia, had 3 episodes of pre-syncopal attacks during toddler. Blood investigation showed chronic microcystic microchromic anaemia. Patient defaulted clinic follow up due to Covid-19 pandemic. He was subsequently referred to surgery for inflammatory bowel disease in view of chronic anemia. Physical examination was unremarkable and chest X-ray was normal. Hence referred to paediatric hematological clinic. ultrasound abdomen was done and showed a rounded homogenously hypoechoic lesion at left lower abdomen. Presence of intralesional vascularity. CT Abdomen showed well-defined homogenously oval shaped enhancing mass at left iliac fossa. No calcification or fat component within. A satellite nodule seen at left paraaortic region. Laparoscopic excision of the mass was done. Intraoperatively, the pedunculated sigmoid mesenteric mass. It had a fleshy consistency suggestive of lymphomatous lymph node. Histological examination demonstrated hyaline vascular type of Castleman's disease. Unicentric Castleman disease usually affects the mediastinum and usually found incidentally and patient is asymptomatic. However, my patient was symptomatic and unusually presented with chronic microcystic microchromic anaemia and was found in sigmoid mesenteric.

POS34

MORNING GLORY SYNDROME WITH OPTIC NERVE COLOBOMA AND MIDLINE STRUCTURAL ABNORMALITY

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Abstract

Morning-glory-syndrome (MGS) is a very rare condition, characterized by enlarged and funnel-shaped optic-disc excavated and is frequently associated with midline abnormalities of the brain and skull. The goal of this discussion is to explicate the imaging features of orbital findings in fundosopically diagnosed as MGS by using magnetic resonance (MR) imaging to aid in establishing the diagnosis of MGS. We report a case of 1-year-old-boy with hypothyroidism and cleft palate with Pierre-Robin-syndrome, who presented to HTAA with bilateral decreased vision and left-eye exotropia. Ophthalmologic examination showed bilateral reduced visual acuity and bilateral eye funnel-excavated-disc with a thin rim. The MRI revealed a funnel-shaped morphologic-pattern of the bilateral optic-disc with a slight elevation of the adjacent retinal surface. It is associated with focal posterior defect at the left optic-disc level, forming a retrobulbar fluid cyst with vitreous herniation within, representing ocular-coloboma. It also demonstrates a midline structural abnormality, where a cystic lesion is noted along the skull base connecting to the sphenoid/infrasellar region, may represent persistent craniopharyngeal canal with ectopic pituitary gland. In correlation with clinical examination and MR imaging features, the diagnosis of the bilateral MGS is confirmed with left optic nerve head coloboma and midline structural abnormality. The patient is now under regular follow up for further management. MGS is a rare condition, where most of the cases present in early childhood with decreased vision and strabismus. MR imaging is crucial for accurate diagnosis of MGS and have the potential to guide for appropriate management of this condition.

POS35

MAY-THURNER SYNDROME CONUNDRUM: MASSIVE SUBCAPSULAR LIVER HEMATOMA FOLLOWING INTRAVENOUS THROMBOLYSIS FOR DEEP VEIN THROMBOSIS

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Abstract

May-Thurner Syndrome (MTS) is caused by compression of the left common iliac vein by overlying right common iliac artery against the spine resulting in varicosities, deep venous thrombosis (DVT), chronic venous stasis ulcers or pulmonary embolism. MTS is rare, accounts for only 2% to 5% of all patients presenting with DVT. In our case, the patient had unprovoked long segment left iliofemoral DVT. She developed huge subcapsular liver hematoma, upon receiving thrombolytic drugs which is a rare complication of anticoagulant therapy (incidence of 1%). A 46-year-old female presented with left lower limb swelling and pain for two weeks. Ultrasound Doppler demonstrated long segment left lower limb DVT from left popliteal into left external iliac veins. Anticoagulant was initiated and Computed Tomography (CT) scan abdomen was done which confirmed the diagnosis of MTS. Catheter directed left femoral and iliac vein thrombolysis, thrombectomy, stenting and venoplasty was performed. Post procedure, she developed shortness of breath and drop in haemoglobin. CT scan showed huge subcapsular liver hematoma thus ultrasound guided drainage of liver hematoma was done for symptomatic relief. MTS can lead to serious consequences in healthy adult; in our case long segment DVT. MTS is not only uncommon to diagnose, but also challenging in treatment. In this case, the anticoagulant therapy caused spontaneous huge subcapsular liver hematoma in turn, requiring further intervention.

POS36

A RARE CASE OF POST MVA CERVICAL LIGAMENTOUS TEAR COMPLICATED WITH VERTEBRAL ARTERIOVENOUS FISTULA (VAVF) WITH SUCCESSFUL ENDOVASCULAR TREATMENT.

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Abstract

Vertebral arteriovenous fistula (vAVF) post Motor Vehicle Accident (MVA) is a rare condition caused by abnormal communication between the vertebral artery with the adjacent veins. In post MVA setting, it is commonly associated with vertebral body fracture particularly, the foramen transversarium. We report a case of a 19-year-old girl who presented with complete C2/C3 anterior and posterior ligament tear post MVA. CT angiogram (CTA) gave a suspicion of pseudo aneurysm at right posterior C3 vertebral body causing mass effect to spinal cord. MRI showed traumatic AVF at C2/C3 level involving the V2/V3 right vertebral artery to the vertebral venous plexus. Digital Subtraction Angiography (DSA) revealed a transected right vertebral artery at C2/C3 level with arteriovenous fistula and enlarged vertebral venous plexus. The fistulous communication was successfully occluded from cranial and caudal approach to the transected segment right vertebral artery with a total of 8 coils. In conclusion, post MVA vertebral arteriovenous fistula (vAVF) is a rare sequelae of ligamentous and vertebral bony at the cervical region. Endovascular treatment with ipsilateral vertebral artery closure is a feasible treatment of vAVF.

POS37

KETAMINE ASSOCIATED CYSTITIS, SPONTANEOUS PNEUMOMEDIASTINUM & PNEUMORRHACHIS IN A KETAMINE ABUSER – A CASE REPORT

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Abstract

Recreational abuse of ketamine continues to plague many countries causing negative socioeconomical impact. Due to the negative connotations surrounding drug abuse, patient may choose to withhold information regarding drug abuse. One common side effect of ketamine abuse is ulcerative cystitis where patient presents with lower urinary tract symptoms. Methods of drug ingestion also causes specific complications. Nasal insufflation or "snorting" of drugs have shown to cause pneumomediastinum, attributed to repetitive barotrauma during the act of insufflation. We present a case of previously well young male patient, presented with complaints of dysuria and hematuria. Initial CT of abdomen and pelvis showed features of chronic cystitis with bilateral obstructive uropathy. In the visualized lower thoracic region was incidentally noted large pneumomediastinum. CT thorax done revealed large pneumomediastinum with pneumorrhacis and subcutaneous emphysema. The patient had no complaints of respiratory difficulty or chest pain. It was only after the CT scan that the patient revealed history of daily ketamine insufflation for the past 2 years. He was treated with antibiotics and continuous bladder irrigation in the ward and was discharged well with no further symptoms. Follow up ultrasound done showed improvement of the obstructive uropathy upon cessation of ketamine abuse. Recreational drug related complications can present with bizarre radiological findings especially when the drug history is withheld by the patient. It is important to recognize these findings and correlate with accurate history taking to clinch the diagnosis.

POS38

METASTATIC MALIGNANT MELANOMA WITH OCCULT PRIMARY PRESENTING AS BILATERAL BREAST LUMPS: A RARE CLINICAL ASSOCIATION

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Abstract
Metastatic malignant melanoma is an aggressive cutaneous tumour which demonstrates variety of atypical metastases with multiorgan manifestation. Metastases to the breast from extra-mammary carcinoma, particularly breast metastases from malignant melanoma, are rare in occurrence and commonly related to poor prognosis. We discussed radiographic features of metastatic extra-mammary malignancies of the breast by reviewing our cases. A 32 years old young lady presented with extensive bilateral breast metastases as the first presenting symptom of disease and where the presumed primary lesion later was found in the right thigh cutaneous melanoma. Sonography examination shows bilateral breast nodules with features suspicious of malignancy (BIRADS 4) and bilateral axillary lymphadenopathy. Diagnosis was confirmed with core biopsy of breast lesion which demonstrated metastatic disease of melanoma invasion. Staging contrast enhanced computed tomography (CT) of the thorax, abdomen and pelvis demonstrated ubiquitous widespread scattered metastatic deposits involving the breasts, nodal, lung and skeletal. Widespread disseminated disease of malignant melanoma will be less favourable and shows a poor prognosis. Clinical correlation and incorporation of diagnostic radiological evaluation for metastatic disease are beneficial in the plan of management and predicting outcome.

POS39

STAGNANT SIGN IN BLACK-BLOOD MRI/VESSEL WALL IMAGING - AN UNFAMOUS BUT VALUABLE FINDING IN STROKE IMAGING

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Abstract

Stagnant sign in Black Blood Magnetic Resonance Imaging (BBMRI) or MR Vessel Wall Imaging (MRVWI) is not a widely discussed entity. It is the intraluminal hyperintense signal seen in diseased vessels in post-contrasted brain MRI. The BBMRI/MRVWI technique in stroke imaging itself is an unfamous practice, particularly in Malaysia, despite many documented advantages. In this case report, we present an example of the stagnant sign seen in our centre. A 52-year-old man with underlying dyslipidemia presented to us with a 4-hour onset of left sided body weakness with associated facial asymmetry. The National Institute of Health Stroke Scale (NIHSS) score upon presentation was 9/42. MRI brain perfusion study revealed non-opacification of the right middle cerebral artery (MCA) in MR Angiography - Time Of Flight (MRA-TOF) and intraluminal signal hypertensity within the right MCA in post-contrasted black-blood sequence. This is consistent with M1 segment occlusion of the right MCA. A subsequent cerebral angiogram confirmed the diagnosis. The patient underwent endovascular thrombectomy, started on single antiplatelet therapy and subsequently discharged 4 days after admission. Due to the superior contrast and high spatial resolution, BBMRI/MRVWI allows reliable differentiation of in situ pathologies such as intracranial atherosclerosis, dissection, vasculitis, or steno-occlusive vasculopathy, unlike other imaging modalities[1]. It also yields high diagnostic accuracy and reliability in evaluating intracranial large-vessel arterial occlusions with near-equivalency to Digitally Subtracted Angiography (DSA) and Computed Tomography Angiography (CTA)[2], and is superior to conventional three dimensional - Time Of Flight - MR angiography (3D-TOF-MRA)[3]. Stagnant sign in BBMRI/MRVWI is a valuable finding and imaging technique in stroke, and its application should be encouraged in centres with available facilities.

POS40

PREVALENCE AND EXTENT OF PELVIC TRAUMA ON WHOLE BODY COMPUTED TOMOGRAPHY IN CASES WITH BLUNT ABDOMINAL TRAUMA

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Abstract

Background

Computed tomography has become a standard practice for the patients with blunt abdominal trauma and has major role in decision making regarding the management of these injuries. As with trend of conservative management of the blunt abdominal trauma, it has put major responsibility on diagnostic radiology regarding the diagnosis and extent of injuries. To assess the prevalence and extent of pelvic trauma on whole body computed tomography in cases with blunt abdominal trauma.

Methodology

A retrospective review of blunt trauma patients undergoing CT scan was performed with a random sample of 74 from January,2021 to August,2022 at the Department of Radiology, Rehman Medical Institute, Peshawar. Patients were divided into four age groups, group I (1-20years), group II (21-40years), group III (41-60years) and group IV (61-80years).

Results

Out of the 74 cases, 11 were females and 63 were males with pelvic injuries in 13 cases (17.56%) and extension of that pelvic injury into visceral organs was found in only 4 cases (5.4%). Out of the 13 cases with pelvic injuries only 2 were females with no extension of that injury into visceral organs.

Conclusion

We concluded from our results that most of the patient with blunt trauma do not have any significant pelvic injuries and those with pelvic injuries, only few had extension of these injuries to the visceral organs and these extensions of injuries were not life threatening. So, patients should not be exposed to such a huge amount of radiation.

POS41

DIAGNOSTIC DILEMMA IN DETERMINING METASTATIC LIVER LESIONS USING MRI LIVER SPECIFIC CONTRAST AGENT GADOLINIUM-ETHOXYBENZYL-DIETHYLENETRIAMINPENTAACETIC ACID (GD-EOB-DTPA) WITH CONTRASTING HISTOPATHOLOGICAL FINDINGS

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Abstract

MRI liver specific Gd-EOB-DTPA is usually the ultimatum imaging modality for liver lesions characterization in differentiating benignity or malignancy. Especially, having hepatobiliary (HPB) sequence as an assuring tool in diagnosing. We are presenting two serial cases of diagnostic dilemma which, MRI images demonstrated metastatic liver lesion patterns in two patients of different underlying primary malignancies. However, the histopathology revealed benign entities. Case 1: A 45-year-old lady diagnosed with right breast infiltrating ductal carcinoma stage IIB in 2013 post wide local excision and axillary clearance. Completed chemoradiotherapy and was on oral Tamoxifen for 7 years. In remission until recently, ultrasound showed multiple hypoechoeic liver lesions in the background of diffuse fatty liver suggestive of metastasis. Spectral CT was normal. MRI liver Gd-EOB-DTPA demonstrated multiple liver lesions with dynamic enhancement and wash-out. Devoid contrast uptake in HPB sequence suggestive of metastasis. Histopathology revealed steatotic tissue. Case 2: A 70-year-old man diagnosed with distal esophageal malignant melanoma. CT staging showed multiple hypodense liver lesions suspected liver metastasis but some lesions showing traversing vessel within, which may suggest benignity. MRI liver Gd-EOB-DTPA demonstrated multiple liver lesions of non-specific patterns. Devoid contrast uptake in HPB sequence. Histopathology revealed benign hepatic tissue with fibrous expansion and lymphocytic infiltration. MRI liver specific Gd-EOB-DTPA contrast agent often readily define liver lesions characterization. Determining liver metastasis in patient with underlying primary malignancy is crucial for treatment decisions. Occasionally, indirect cases such as metastatic mimickers may be encountered. Hence histopathology is needed for confirmation.

POS42

SPONTANEOUS MIGRATION OF THE FRACTURE CHEMOPORT CATHETER INTO THE CORONARY SINUS AND LOCATED WITHIN SMALL CARDIAC AND GREAT CARDIAC VEINS: A RARE LOCATION OF DISLODGED CATHETER FRAGMENT

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Abstract

Chemoport device is greatly used as a venous access for administration of chemotherapeutic drugs in oncology patients. Spontaneous chemoport catheter fracture and migration are examples of major mechanical complications occurring in about 0.9 to 2.0%. The catheter fragment may migrate following the venous flow and finally located itself in various region from the primary inserting vein until pulmonary arteries. We are presenting an unusual case of fracture chemoport fragment migrated within small cardiac and great cardiac veins. A 56-year-old man diagnosed with advanced rectal adenocarcinoma received chemotherapy via chemoport access. Chemoport was inserted via left subclavian vein and had been successfully used. During his visit for 3rd cycle chemotherapy, failure to withdraw venous blood during chemoport patency-check by the nurses. Subsequent referral to interventional radiologist (IR) was made for evaluation of chemoport patency. Routine pre-procedural chest radiograph performed and demonstrated chemoport fracture and the migrated fragment projected over the inferior border of the heart. Trials to retrieve the migrated fragment by IR was unsuccessful. Further assessment using contrast enhanced CT thorax and the location of migrated fragment is suspected splaying within small cardiac and great cardiac veins. Urgent referral to cardiothoracic team was made. Location of the migrated catheter fragment confirmed and retrieval was successful. Catheter fracture and migration are rare, yet need to be expected as it potentially cause serious complications. Thus, familiarity in identification of fracture chemoport catheter is vital. Periodic chest radiograph examination is advised for early detection and management.

POS43

COMPARISON OF THE VALIDITY AND RELIABILITY of HUMAN vs VOLPARA SOFTWARE ASSESSMENT IN PGMI EVALUATION

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Abstract

Introduction

The Perfect, Good, Moderate, Inadequate (PGMI) method enables your facility to maintain a high standard of mammographic image quality in breast screening, provide an objective training program to improve technologist positioning performance and more easily pass external quality audits such as the FDA's EQUIP initiative.

Methodology

Images taken from cases performed over 12 months. 250 cases with 4 standard views in i.e. Right MLO, Left MLO, Right CC and Left CC. PGMI criteria used are based on the Australian Standard (RANZR). 250 set of mammograms were rated using a PGMI classification by 5 radiographers. These same 250 set of mammograms will be scored using Volpara Positioning software automates (vPGMI). The results will be compared and differences analysed

Results

Positioning quality (% P & G images) is above the global average at 53.1%. Target compression (images between 7-15 kPa) is below the global average at 52.1%. Radiographers' quality score at the global average of 2.1.

Conclusion

From this study, no studies were graded as Perfect by more than one reader (including Volpara). Volpara graded 4 studies Perfect. Radiographers graded Moderate or Good. No studies graded 'Good' by all readers

- Radiographer E had 12 Perfect studies (one not available in Volpara)
- Radiographer D graded 3 Perfect studies
- No Inadequate studies by Volpara
- Radiographer A and Radiologist - 1 X 'I' study
- Radiographer C x 'I' studies
- Radiographer E - 4 x 'I' studies

POS44

RADIOLOGICAL PICTORIAL REVIEW: DIFFERENT PRESENTATIONS AND NEUROIMAGING FEATURES OF TUBERCULOUS MYELITIS IN 3 PATIENTS

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Abstract
In Malaysia, tuberculosis (TB) remains as a disease of public health importance despite strengthened disease control and treatment programs. While estimated 10% of the TB-related disease is extra-pulmonary, TB-CNS comprises only 1% of all TB infections and majority (estimated 95%) manifested in the form of meningitis. Tuberculosis affecting the intramedullary cord is much rarer. We want to share our experiences on different forms of tuberculous manifestations affecting the cord. First case, 40-year-old with smear-positive pulmonary TB presented with sudden-onset left lower limb weakness and urinary incontinence. Examinations showed reduced power over left lower limb. C-reactive protein (CRP) is raised. MRI spine revealed C6-T9 cord expansion with T2W hyperintensities suggestive of longitudinally extensive transverse myelitis (LETM), with T3/T4 and T5 cord tuberculomas. Second case, 63-year-old, underlying TB spondylodiscitis, completed anti-TB with persistent bilateral lower limb weakness. On examination, bilateral lower limb powers were reduced. CRP in reducing trend but not normalized. Initial MRI spine showed T7-T9 spondylodiscitis. Repeated MRI revealed improving discitis, but new findings of T7-T9 focal cord expansion with T2W hyperintensities. Last case, 51-year-old presented with generalized body weakness, vomiting and less responsiveness. Examination showed altered consciousness, bilateral upper and lower limb weakness. CT brain showed hydrocephalus and extensive meningoencephalitis. Cerebrospinal fluid (CSF) revealed raised protein with lymphocyte pleiocytosis, but negative for TB. Empirical anti-TB started due to no improvement with IV antibiotics, significant clinical response was noted. Subsequent MRI showed extensive leptomeningitis with T2-T10 LETM. Our cases exhibit different presentations and manifestations of tuberculous myelitis.

POS45

HASHIMOTO ENCEPHALOPATHY: A DIAGNOSTIC DILEMMA

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Abstract
Hashimoto encephalopathy is a rare disorder. It has remained a diagnostic challenge for clinician as patient may be presented with hyperthyroidism, hypothyroidism, or even euthyroid. We report a case of 70 years of age, female, with good premorbid status. Her clinical presentation was gradual body weakness with subsequent involvement of bulbar palsy. First MRI demonstrated extensive confluent symmetrical periventricular and deep white matter T2W and FLAIR hyperintensities with patchy foci of restricted diffusion in right parietal, bilateral middle cerebellar peduncles, pons and bilateral cerebellum. A follow up MRI 1 month later demonstrated new and worsening fairly symmetrical areas of restricted diffusion involving the brain stem and cerebellum with unchanged bilateral periventricular and deep white matter changes. The MRI showed predominant changes in brain stem and cerebellum suggestive of rhomboencephalitis with deep white matter ischemia. Rhomboencephalitis has variable etiologies; namely autoimmune, infective, or paraneoplastic. This patient demonstrated increased serum T4 and anti-thyroglobulin peroxidase antibody with unremarkable tumour markers. The CSF demonstrate pleocytosis. Hashimoto encephalopathy has few imaging patterns of subcortical white matter changes, rhomboencephalitis, and limbic encephalitis; which overlap with other diseases. A treatment with a course of steroid with clinical and/or radiological resolution and positive biochemical markers would point towards Hashimoto encephalopathy. A multidisciplinary team of clinician and radiologist is required for a diagnosis to be made so earlier treatment would be commenced.

POS46

PANCAKE-LIKE GADOLINIUM ENHANCEMENT IN SPONDYLOTIC COMPRESSIVE MYELOPATHY

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Abstract
Cervical spondylosis is a common degenerative disease involving the intervertebral discs typically affecting people above the age of 60. It often results in myelopathy characterised by neurological deficit due to spinal cord compression. A 42-year-old gentleman with underlying pulmonary tuberculosis presented with bilateral upper limb numbness for 7 months, lower back pain and progressive bilateral upper and lower limb weakness for 2 months. Neurological examination revealed reduced sensation from C5 to T1 dermatomes, mild reduction in power and normal reflexes. Magnetic Resonance Imaging (MRI) revealed marked disc bulge at C5/C6 level with adjacent intramedullary hyperintense signal and focal short segment intramedullary enhancement. Cervical spondylotic myelopathy is typically characterised on MRI by intramedullary signal abnormalities that includes hyperintense signal on T2WI with mild-to-moderate spinal cord enlargement. Administration of contrast may reveal a pancake-like gadolinium enhancement most commonly at C5/C6 (48%), due to focal disruption of the blood-brain barrier just below the point of maximal stenosis. It appears as a flat, transverse enhancement on sagittal images and circumferential enhancement on axial images. Infective and neoplastic myelopathy would usually demonstrate long rostrocaudal enhancement with or without adjacent contiguous anatomical involvement. Cervical spondylotic myelopathy may be underestimated in its severity due to its insidious nature. Identifying pancake-like gadolinium enhancement could allow accurate assessment of its severity, prompt treatment and prevent unnecessary interventions.

POS47

VASCULAR RISK FACTORS CORRELATED WITH CEREBRAL ATROPHY AMONG ALZHEIMER'S DISEASE PATIENTS IN KLANG VALLEY, MALAYSIA: A PILOT STUDY

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Abstract

Background

Alzheimer's disease (AD) is a chronic progressive, neurodegenerative brain disorder that has no effective cure (Sharma & Mandal, 2022). Nevertheless, with the identification of risk factors the progression of the disease can be slowed down. Implicated vascular risk factors (VRF) that can accelerate the progression of disease include uncontrolled hypertension (HPT), evidenced by elevated diastolic blood pressure (DBP) and hyperlipidemia. We aimed to correlate VRF with cerebral atrophy based on gray matter volume (GMV) and to compare resting-state functional Magnetic Resonance Imaging (rs-fMRI) networks in AD versus healthy control (HC).

Methodology

A case-control study was conducted by recruiting AD and HC subjects in Klang Valley, Malaysia and performing structural MRI (sMRI) and rs-fMRI. Subjects underwent neuropsychological testing such as Mini-Mental State Examination (MMSE), the Montreal Cognitive Assessment (MoCA), and the ClinicalDementia Rating (CDR). Data was analyzed using MATLAB and Independent Component Analysis (ICA) tools using rs-fMRI data, and voxel-based morphometry (VBM) were used to analyzed sMRI data. Statistical correlation was done using SPSS 22.

Results

Preliminary analyses (15 AD and 15 HC) showed aged-matched, and the variables were normally distributed, as assessed by Shapiro-Wilk's test ($p > 0.05$). Significant GMV atrophy was noted in the hippocampi of AD compared to HC having good correlation with increased DBP. In addition, reduced functional connectivity in region of default mode network (DMN) was found in AD compared to HC.

Conclusion

There is significant correlation between VRF and GMV at hippocampi, thus managing good bloodpressure control may delay the development of severe AD.

POS48

CORRELATION BETWEEN NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) AND CORONARY ARTERY DISEASE (CAD) IN SYMPTOMATIC PATIENTS USING CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY (CCTA)

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Abstract

Background

To determine correlation between NAFLD and CAD; and the impact of risk factors on the presence of CAD using CCTA.

Methodology

A cross-sectional study of suspected CAD patients who underwent CCTA from January to December 2020. The mean liver attenuation (MLA) and hepatic attenuation index (HAI) were calculated. NAFLD was defined as MLA <48 HU or HAI <0.8. Socio-demographics and clinical data were recorded. The severity of CAD was graded as CAD-RADS 0 - 5.

Results

A total of 162 patients fulfilled the study criteria. The mean age was 50.4 ± 11.55 years old. The majority were females (52.5%) and Malays ethnicity (58.0%). The prevalence of NAFLD and CAD were 28.4% and 55.6% respectively. There was significant association between NAFLD and CAD, CAD and age, Indian ethnicity, diabetes mellitus, dyslipidaemia and coronary calcium score of 1 – 100 when not adjusted to other cofounders. A significant association is seen between CAD and coronary calcium score of 1 – 100 when adjusted for diabetes mellitus. There is also significant association between NAFLD and severity of CAD.

Conclusion

The prevalence of CAD is significantly higher in patients with NAFLD with positive correlation between both diseases, conferred additional independent risk factor for CAD. The age, Indian ethnicity, diabetes mellitus, dyslipidaemia and coronary calcium score have significant association with CAD and its degree of severity. We recommend NAFLD to be included as one of the risk assessment for CAD to improve detection rate, preventive measures and early intervention of the disease.

POS49

A COMPARISON OF INFECTIOUS AND AUTOIMMUNE MENINGOENCEPHALITIS: CLINICAL PRESENTATION, BIOCHEMICAL MARKERS AND MRI FINDINGS

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Abstract

Background

This study investigates usefulness of MRI Brain by looking for a distinguishing pattern in lesion distribution, relevant clinical presentation and biochemical markers in differentiating infective encephalitis (IE) and autoimmune encephalitis (AE).

Methodology

Retrospective study of adult patients with confirmed diagnosis of IE and AE admitted to Neurology unit from January 2012 to December 2020, who performed MRI Brain in Universiti Malaya Medical Centre (UMMC). Cohort studied are those with confirmed IE (CSF pleocytosis and detection of organism in CSF/blood) and antibody positive AE (detection of Neuronal auto-antibody from blood or CSF), coupled by clinical presentation. Particular MRI brain abnormalities that may indicate a specific pathogen, lesion distribution, lobar involvement, enhancement, hemorrhage, vasculopathy and atrophy were analyzed.

Results

Total of 50 patients (28 AE and 22 IE respectively). Older age group (52.50 +/- 21.00) presented higher in IE and the middle age group (24.50 +/- 13.75) in AE. Higher presentation of pachymeningeal and leptomeningeal enhancement in IE($p<0.05$). Vomiting was significant in IE($p<0.001$), whereas seizure, psychosis, movement disorder, and tumour (ovarian teratoma) in AE. Cerebrospinal fluid (CSF) leucocytes ($p= 0.002$) were elevated in IE (41.00 +/- 416.50 x 10^9 /mcL). Bacterial encephalitis (BE) showed elevated leucocytes with polymorph predominance, low glucose, and high protein. Viral encephalitis (VE) showed lymphocytosis, normal glucose, and high protein. Low leucocytes, normal glucose & protein levels were seen in AE.

Conclusion

Infectious encephalitis presented at older age with MRI Brain findings of pachymeningeal and leptomeningeal enhancement, vomiting, elevated CSF leucocytes. Autoimmune encephalitis presented at middle age with seizure, psychosis, movement disorder, and tumour (ovarian teratoma).

POS50

A RADIOLOGICAL REVIEW TO DISTINGUISH IMAGING FINDINGS OF LYMPHOCYTIC HYPOPHYSITIS FROM NON-SECRETING PITUITARY MACROADENOMA

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Abstract

Lymphocytic hypophysitis (LH) or autoimmune hypophysitis an uncommon sellar lesion characterized as adenohypophysis infiltration by lymphocytes, with commonest cause is attributed to autoimmune causes. Presenting symptoms attributed to hormonal dysfunction or secondary mass effects. A great mimicker would be the more prevalent pituitary macroadenoma. A 47-year-old female, underlying rheumatoid arthritis, presented with worsening intermittent throbbing headache radiating to peri-orbital areas for 9 months associated with excessive thirst and increased frequency of micturition. Ophthalmology examination showed bi-temporal hemianopia with deranged thyroid function test, serum growth hormone and testosterone levels. Serum IgG4 and auto-immune screening were normal. MRI pituitary showed a well-circumscribed, dumbbell-shaped, markedly enhancing sellar/suprasellar mass, causing compression and superior displacement of the optic chiasm. This mass was also abutting both cavernous sinuses. The normal pituitary stalk was not visualized. Proceeded with trans-sphenoidal surgery, intra-operative showed firm and fibrotic vascular tumor. Histopathological analysis demonstrated pituitary chronic hypophysitis. The glandular epithelial cells showed heterogeneous positive staining for GH, ACTH, and prolactin. Around 40% of patients with autoimmune hypophysitis are misdiagnosed to have non-secreting pituitary adenoma. MRI is the commonly utilized diagnostic tool that is non-invasive, with typical MRI findings, off diffuse symmetrical gland expansion, and/or a thickened pituitary stalk, however diagnosis can only be made certainly by histology. This entity should also be considered in a patient with unexplained hypopituitarism.

POS51

AN UNEXPECTED COMBINATION: COEXISTENCE OF PATENT OMPHALOMESENTERIC DUCT WITH PATENT URACHUS

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Abstract
Umbilical anomalies are an uncommon encounter in the pediatric population. Possible etiology includes the urachal anomalies and omphalomesenteric duct malformation. A combination of these two anomalies is a rare encounter with less than 10 cases reported in literature worldwide. A 6-month-old boy presented to our hospital with persistent yellowish serous discharge and a non-healing umbilical granuloma. Two separate ultrasonographic studies was performed demonstrating separate tracts from the umbilicus to the bladder dome and to a loop of small bowel. An exploratory laparotomy was performed for the patient, confirming the presence of patent urachus and patent omphalomesenteric duct. Resection and excision of the urachus and patent omphalomesenteric duct was performed. Patient recovered well post operatively. We are presenting this case to highlight ultrasonographic features of this rare combination of patent omphalomesenteric duct associated with a patent urachus in the same patient.

POS52

FIRST REPORTED CASE OF INTRAPERICARDIAL EXTRALOBAR PULMONARY SEQUESTRATION IN MALAYSIA

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Abstract

Pulmonary sequestration refers to non-functioning lung tissue with an abnormal vascular supply and no direct communication with the tracheobronchial tree. The two types of pulmonary sequestrations are intralobar and extralobar, with intralobar sequestrations being 75% more common than extralobar. Extralobar sequestration is usually detected in early infancy and its location within the pericardium is extremely rare. To the best of our knowledge, this is the first case of intrapericardial extralobar sequestration reported in Malaysia. A chest X-ray of a 37-week-old neonate who presented with acute respiratory distress shortly after delivery revealed a right anterior mediastinal mass. The subsequent contrast-enhanced CT thorax demonstrated a well-defined hypodense lesion in the right middle lobe with no obvious border to the heart. A more significant hypodense lesion was seen within, with a traversing vasculature originating from the right side of pulmonary trunk, likely the right pulmonary artery. The initial impression was right middle lobe congenital pulmonary adenomatoid malformation (CPAM), and the other central hypodense lesion may have been a pericardial cyst. Median sternotomy and resection of the mass were performed on day 22 of life. Following microscopic analysis, the mass was revealed to be compatible with intrapericardial extralobar pulmonary sequestration. In situations of intrathoracic or intracardiac masses, intrapericardial extralobar pulmonary sequestration should be one of the differential diagnosis, notwithstanding its rarity. In order to guide early resection and improve overall outcome, a fetal echocardiogram during pregnancy may aid in early diagnosis.

POS53

AN UNUSUAL PRESENTATION OF GROSS HYDROCEPHALUS WITH CHRONIC SUBARACHNOID HAEMORRHAGE IN A RARE CASE OF INFANTILE PICA ANEURYSM

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Abstract

Intracranial aneurysms in the paediatric population are distinct from their adult counterparts in many ways. Diagnosis may be challenging due to their rarity and non-specific clinical manifestations. We report a rare case of infantile PICA aneurysm with an uncommon imaging presentation of gross hydrocephalus secondary to chronic subarachnoid haemorrhage (SAH). A 3-month-old girl presented with a gradual increase in head circumference over two weeks. She had a normal consciousness level, and no seizure episodes were observed. No focal neurological deficit was elicited on clinical examination. MRI revealed gross communicating hydrocephalus with subtle blooming artefacts lining the ventricular walls and basal cisterns, as well as septations within the basal cisterns. Post-contrast MR angiography showed an avidly-enhancing rounded extra-axial lesion between the left cerebellum and medulla oblongata. Subsequently, cerebral angiography confirmed the diagnosis of a left posterior inferior cerebellar artery (PICA) saccular aneurysm. Unfortunately, the parents were not keen on treatment owing to financial constraints and possible surgical complications. We would like to highlight the imaging clues, which are subtle in this case, as compared to commoner presentations of acute SAH or giant aneurysms causing obstructive hydrocephalus in the paediatric population. Superficial siderosis and septations within the basal cisterns and ventricles on MRI are valuable clues to suggest previous SAH, which is the most common cause of acquired hydrocephalus. There should be a high index of suspicion for intracranial aneurysm in the presence of SAH, despite its rarity in children, as it is potentially treatable with good outcomes.