

antibodies via Western blot were evaluated. We have included 20 sero-negative CIDP patients. All patients met definite or probable EFNS criteria. clinical, electrophysiological data and response to treatment were obtained. Results: Forty-five patients tested positive for the antibodies. Sixteen were positive for NF155, 11 for NF140, 5 for CNTN1, 11 were double positive for NF155 and NF140, and 3 were triple positive for NF155, NF140 and CNTN. Age of onset was similar in both seronegative (53.9 ± 3.1 yrs.) versus seropositive (52.3 ± 2.4 yrs.). Chronic presentation manifested in 85% of seronegative, 80% of seropositive patients. Interestingly, all triple-positive patients presented with a more acute presentation (i.e., <8 wks.) 7/20 seronegative (35%), 1/16 NF155, 6/11 NF140, 1/5 contactin, 2/11 of double positive, 3/3 of triple-positive (28%, 13/46) responded to IVIg. Conclusions: No major clinical or electrophysiological differences between groups. triple-positive patients showed 100% response to IVIg. These results cast doubt on the specificity of the Western blot as a clinico-electrophysiologic discriminator. Future testing with cell-based assays will likely provide a robust measure that will guide treatment decision.

NEUROVASCULAR AND NEUROINTERVENTIONAL

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Time metrics and clinical outcomes of thrombectomy in acute stroke patients before and after implementation of COVID-19 infection protocols in six Canadian stroke centres

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Background: The coronavirus disease 2019 (COVID-19) pandemic has led the implementation of institutional infection control protocols. This study will determine the effects of these protocols on outcomes of acute ischemic stroke (AIS) patients treated with endovascular therapy (EVT). Methods: Uninterrupted time series analysis of the impact of COVID-19 safety protocols on AIS patients undergoing EVT. We analyze data from prospectively collected quality improvement databases at 6 centers from March 11, 2019 to March 10, 2021. The primary outcome is 90-day modified Rankin Score (mRS). The secondary outcomes are angiographic time metrics. Results: Preliminary analysis of one stroke center included 214 EVT patients (n=150 pre-pandemic). Baseline characteristics were comparable between the two periods. Time metrics “last seen normal to puncture” (305.7 vs 407.2 min; $p=0.05$) and “hospital arrival to puncture” (80.4 vs 121.2 min; $p=0.04$) were significantly longer during pandemic compared to pre-pandemic. We found no significant difference in 90-day mRS (2.0 vs 2.2; $p=0.506$) or successful EVT rate (89.6% vs 90%; $p=0.93$). Conclusions: Our results indicate an increase in key time metrics of EVT in AIS during pandemic, likely related to infection control measures.

Despite the delays, we found no difference in clinical outcomes between the two periods.

NEURORADIOLOGY (CSNR) NEURO-ONCOLOGY

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Diagnostic performance of machine learning based MR algorithm vs conventional MR images for predicting the likelihood of brain tumors

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Background: MRI forms an imperative part of the diagnostic and treatment protocol for primary brain tumors and metastasis. Though conventional T1W MRI forms the basis for diagnosis at present, it faces several limitations. Machine learning (ML) algorithms require less expertise and provide better diagnostic accuracy. Methods: A systematic review of PubMed, Google Scholar, and Cochrane databases along with registries through 1980-2021 was done. Original articles in English evaluating Conventional MRI or ML algorithms. Data was extracted by 2 reviewers and meta-analysis was performed using bivariate regression model. Results: The study protocol was registered under PROSPERO. Twelve studies with 1247 participants were included for systematic analysis and three studies for meta-analysis. ML algorithms had better aggregate sensitivity and specificity (80%, 83.14%) than Conventional MRI (81.84%, 74.78%). The pooled sensitivity, specificity, DOR for the studies were 0.926 (95% CI, 0.840-0.926), 0.991 (95% CI, 0.955-0.998) and 1446.946 (312.634-6692.646) with AUC=0.904 under HSROC. On subgroup analysis, MRS and Random Forest Model had highest sensitivity and specificity (100%, 100%; 100%, 100%), DSC MRI and Deep Neural Network had highest AUC (0.98, 0.986). Conclusions: ML algorithm has superior diagnostic performance and faster diagnostic capability once trained than conventional imaging for brain tumors. It has immense potential to be the standard of care in the future.

NEUROIMAGING

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Not everything is what it seems, look closer, think deeper: granulomatosis with polyangiitis

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Background: Granulomatosis with polyangiitis (GPA) is a rare disease of unknown cause. The multitude of manifestations

presents significant diagnostic challenges. This is a unique case of GPA with sinonasal, airway, skull base, petrous bones, vascular, and brain parenchyma involvement. **Methods:** We present a case of a 45-year-old female with a several day history of headache and left hearing loss. MRI brain demonstrated a large erosive enhancing soft process in the sinonasal cavity and nasopharynx. **Results:** She developed new ipsilateral rightward tongue deviation. A second MRI demonstrated disease progression. It showed posterior pharyngeal wall ulceration, involvement of the skull base foramina, petrous bones, and central bony skull erosion. It demonstrated right hemiglossal edema secondary to right hypoglossal nerve compression at the skull base. There was enhancing soft tissue partially encasing the left petrous internal carotid artery and more extensively encasing and narrowing bilateral intradural vertebral arteries with associated brainstem edema secondary to direct mass effect and new left occipital thromboembolic infarct. She underwent a nasopharyngeal biopsy which demonstrated acute inflammation on a background of GPA. **Conclusions:** There are no pathognomonic imaging characteristics for GPA. By recognizing the common and less-common imaging features, radiologists play a crucial role in both diagnosing and monitoring the disease activity.

NEUROTRAUMA

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Initial imaging predicts mortality in severe traumatic brain injuries in pediatric population - a systematic review and meta-analysis

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Background: The purpose of this systematic review was to synthesize evidence based on existing studies on the ability of initial imaging to predict mortality in severe traumatic brain injuries (TBIs) in pediatric patients. **Methods:** An experienced librarian searched for all existing studies based on the inclusion and exclusion criteria. The studies were screened by two blinded reviewers. The data was extracted to calculate the sensitivity (SN), specificity (SP), positive predictive value (PPV), negative predicted value (NPV), area under the curve (AUC), and receiver operating characteristic (ROC) for extradural hematoma (EDH), subdural hematoma (SDH), traumatic subarachnoid hemorrhage (tSAH), skull fractures, and edema. **Results:** Of the 3277 studies included in the search, data could only be extracted from 22 studies. There were a total of 2219 patients, 747 females, and 1461 males. 564 patients died and 1651 survived. 293 patients had SDH, 76 had EDH, 347 had tSAH, 244 had skull fractures, and 416 had edema. Seven of the studies had sufficient data to calculate the AUC, ROC, and generate a forest plot for the

imaging findings. **Conclusions:** Out of the different CT scan findings, brain edema had the highest SN, PPV, NPV, and AUC. EDH had the highest SP to predict in hospital mortality.

NEUROVASCULAR AND NEUROINTERVENTIONAL

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Radial to femoral “through and through” access for high grade ostial subclavian and innominate artery stenoses: a novel technique

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Background: Endovascular approaches are typically preferred to open surgical techniques for symptomatic subclavian/innominate artery stenosis. Due to individual patient anatomy, endovascular treatment from a conventional femoral arterial approach can be technically challenging. Our alternative technique using a combined radial to femoral artery approach can facilitate an otherwise challenging revascularization procedure. **Methods:** Retrospective analysis between November 2017 to March 2021 yielded five procedures (in four patients) using a combined radial to femoral “through and through” access and stenting technique. **Results:** All patients presented with hypoperfusion symptoms, either to their extremities, brain, or both. Technical success was achieved in 100% of the five vessels treated in four patients with symptomatic subclavian/innominate artery stenosis using this approach. One of the patients developed a recurrent stenosis after 40 months, requiring a repeat procedure. Three patients received treatment to the left subclavian artery and one to the innominate artery. All of the patients experienced marked symptomatic improvement without significant complications. **Conclusions:** A combined radial to femoral “through and through” access technique is a simple and safe method to achieve successful recanalization of high grade symptomatic ostial stenoses of the subclavian and innominate arteries.

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Clinical outcome and recurrence rate of chronic subdural hematoma after surgical drainage: a retrospective study

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Background: Chronic subdural hematoma (CSDH) is of the most encountered neurosurgical cases, predominantly in older individuals. Surgical drainage remains the mainstay, yet is