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CASE REPORT: POSTTRAUMATIC BILATERAL CAROTID ARTERY DISSECTION IN A 24-YEAR-OLD WOMAN

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Objectives

Carotid artery dissection is an uncommon but important cause of ischemic stroke in young adults, most often associated with blunt trauma. Bilateral carotid artery dissection is exceedingly rare and presents significant diagnostic and therapeutic challenges. We describe a case of post-traumatic bilateral carotid artery dissection in a young woman, underscoring the importance of early recognition and multidisciplinary management.

Materials and Methods

A 24-year-old woman presented with fluctuating headache, neck muscle soreness, intermittent visual changes, and occasional nausea following a skiing accident. Neurological examination revealed binocular horizontal nystagmus with a fast component to the left, but no focal neurological deficits were noted. Computed tomography angiography (CTA) demonstrated bilateral internal carotid artery dissections at the C2 level. The patient was initially managed conservatively with dual anticoagulation therapy. Because of the high risk of thromboembolism, percutaneous transluminal angioplasty (PTA) and stenting of the left carotid artery was delayed. After successful PTA of the left carotid artery, conservative management was continued. However, progressive worsening of the right carotid artery prompted reconsideration of endovascular therapy. Following multidisciplinary discussion and shared decision-making with the patient, PTA and stenting of the right carotid artery was successfully performed.

Results

Both procedures were technically successful. The patient remained clinically stable throughout treatment. Although she experienced fluctuating neurological symptoms in between the procedures, no persistent neurological deficits were observed after the interventions. Multidisciplinary collaboration and active patient involvement in decision-making were central to the therapeutic strategy.

Conclusions

Bilateral carotid artery dissection after blunt trauma is rare but potentially devastating if not promptly identified. Clinical manifestations may be subtle, with minimal neurological signs. This case highlights the need for a high index of suspicion and early vascular imaging in trauma patients with even mild or nonspecific symptoms. Timely diagnosis and individualized management often requiring a multidisciplinary approach are essential to optimize outcomes in these complex cases.

CERVICAL ARTERY DISSECTION AS CAUSE OF ACUTE STROKE IN PAULS STRADINS UNIVERSITY HOSPITAL IN 2024

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Objectives

Cervical dissections are one of the underdiagnosed/underrecognized causes of acute stroke especially in the younger population. Early recognition and proper management are key factors to improve outcomes.

Materials and Methods

In 2024, ~800 patients were diagnosed under the acute ischemic stroke ICD-10 I63.0–I63.9 codes at Pauls Stradiņš Clinical University Hospital. Among these 800 patients 13 (1,6%) of them had strokes due to cervical artery dissection. As a retrospective study we collected data such as age, sex, provoking factors, NIHSS and mRS at admission and on discharge. We also take into account if they received treatment in hospital or not. On admission all patients had CT and CT angiography of the brain and cerebral arteries.

Results

The cohort compared these 13 patients, from which 8 were females and 5 males, median age was 45, ranging from 30 years-old (youngest) to 88 years-old (oldest). Provoking factors were seen in 9 patients, which included cervical trauma, neck massages, combat sports and car accidents, rest 4 patients had spontaneous dissection or it was not specified. Highest NIHSS score was 24 and lowest was 0, mean NIHSS was 6.1 on admission which improved to mean NIHSS 2.7 on discharge. Mean mRS improved from 2.5 to 1.9. (highest being 5 and lowest 0 on admission). 3 patients received reperfusion therapy - thrombectomy or stenting in combination with thrombolysis. 9 patients received conservative treatment with antiplatelet medication. On discharge all 13 patients were given recommendation to continue dual antiplatelet therapy ASA + Clopidogrel for 3-6 months and after that continue with ASA for life

Conclusions
Only 1,6% of all acute ischemic stroke cases were accounted for as cervical artery dissection in 2024 at Pauls Stradins University Hospital. We can see it primarily affects younger adults and is one of the rare causes of the acute ischemic stroke. Most patients showed neurological improvement after receiving treatment. Key diagnosis method is early vascular imaging, as all patients went through CTA. It is important to screen for provoking factors in early anamnesis. Cervical dissection as cause of acute ischemic stroke should be kept in mind as differential diagnosis in mind when facing young patients with new onset of neurological deficit.

POST-TRAUMATIC HORNER SYNDROME FOLLOWING PENETRATING NECK INJURY: A DIAGNOSTIC CHALLENGE

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Objectives
Horner syndrome results from disruption of the oculosympathetic pathway, manifesting as ptosis, miosis, and facial anhidrosis. Trauma accounts for 4–13% of Horner syndrome cases, but post-traumatic Horner syndrome specifically from penetrating neck injuries is exceedingly rare. Its presentation may mimic life-threatening conditions such as stroke or hypoxic brain injury, posing a diagnostic challenge in acute care.

Materials and Methods
Initial differential diagnoses included hypoxic brain injury, acute ischemic stroke, and carotid artery dissection. Brain MRI revealed no acute ischemic or hemorrhagic lesions. MR angiography excluded large-vessel occlusion or aneurysmal pathology. Carotid and vertebral duplex ultrasonography demonstrated normal flow without dissection or stenosis. Echocardiography and laboratory tests were unremarkable.
With central and vascular causes excluded, the clinical picture was consistent with post-traumatic Horner syndrome. Penetrating trauma can disrupt the cervical sympathetic chain, carrying preganglionic fibers from the spinal cord to the superior cervical ganglion. Injury near the carotid sheath likely damaged these fibers, causing ptosis, miosis, and anhidrosis, while local tissue trauma contributed to dysphagia and dysarthria. The differential diagnosis included carotid or vertebral artery dissection, cervical spinal cord injury, brachial plexus injury, neoplastic lesions (e.g., neuroblastoma or metastasis), and rarely congenital Horner syndrome. Systematic imaging and clinical assessment allowed exclusion of these life-threatening or alternative causes, confirming a post-traumatic etiology.

Results
Supportive care and monitoring were provided to the patient. Dysphagia and dysarthria resolved completely during hospitalization. No invasive interventions were required. Outpatient follow-up was recommended to monitor oculosympathetic deficits, which remained stable. Patient counseling emphasized the benign nature and favorable prognosis of post-traumatic Horner syndrome.

Conclusions
This case highlights the importance of bedside neurological examination in trauma patients with acute deficits. Timely exclusion of critical vascular and central causes enabled accurate diagnosis of post-traumatic Horner syndrome, preventing unnecessary interventions and guiding prognosis. Despite its rarity, recognition of trauma-induced Horner syndrome is clinically meaningful and adds valuable evidence to the limited literature on oculosympathetic injury in young adults.

POSTERIOR CIRCULATION STROKE OUTCOMES BY OCCLUSION SITE AND TREATMENT STRATEGY

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Objectives
Data on the outcomes of reperfusion therapy (RT) in posterior circulation stroke (PCS) is controversial, possibly due to the marked heterogeneity within PCS itself. PCS clinical presentation varies depending on the vessel affected. Therefore, we aimed to compare the RT outcomes in anterior and PCS by analysing the subgroups according to specific vascular territory.

Materials and Methods
This retrospective study included 797 subjects who received RT for ischemic stroke due to confirmed symptomatic occlusion or significant stenosis. 633 (79.42 %) were diagnosed with anterior circulation stroke (ACS): tandem (ACS-T) – 121 (19.12 %), non-tandem (ACS-NT) – 512 (80.88 %), and 164 (20.58 %) were diagnosed with PCS: basilar artery (BA) – 72 (43.90 %), vertebral artery (VA) – 39 (23.78 %), posterior cerebral artery (PCA) – 53 (32.32 %). Initial comparisons were

performed using ANOVA or Kruskal–Wallis tests, followed by pairwise post-hoc tests. Subgroup analysis was performed based on RT modality: intravenous thrombolysis (IVT), endovascular treatment (EVT), and bridging therapy (BT). The primary outcome was early in-patient mortality. Secondary: NIHSS score at 24 hours (24_NIHSS), change in NIHSS (Δ_NIHSS), and modified Rankin scale (mRS) upon discharge. Complications analysed were symptomatic intracerebral haemorrhage (sICH), recurrent ischemic stroke (rIS), infection, and delirium.

Results

Early in-hospital mortality did not differ within the groups according to the vessel affected. However, in the EVT subgroup, lethal outcome rates were 3 times higher in the BA group compared to ACS-NT (24% vs. 8%). Regarding the secondary outcomes, BA subjects had the highest discharge mRS compared to other subgroups (5 vs 3 in ACS-NT and ACS-T, and vs 2 in both VA and PCA). 24_NIHSS was significantly higher in BA, ACS-NT, and ACS-T groups compared to VA (medians 7, 6, and 6 vs. 3, respectively). Delirium was significantly more frequent in the PCA group compared to ACS-NT and ACS-T groups (24.5% vs. 7.2% and 4.9%, respectively). This difference was reproducible after performing subgroup analysis. In the EVT subgroup, delirium was more common in PCA subjects compared to ACS-NT, ACS-T, and BA groups (46% vs. 6–10%).

Conclusions

Although vessel groups showed similar rates of mortality and major complications, significant differences in early neurological outcomes were observed, underscoring the need for tailored management based on occlusion site and individual risk factors.

SARCOPENIA MEASUREMENTS FOR PREDICTING FAVORABLE CLINICAL OUTCOME AFTER SUCCESSFUL ACUTE ISCHEMIC STROKE THROMBECTOMY

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Objectives

Sarcopenia is increasingly recognized as an independent predictor of adverse outcomes in acute conditions, including ischemic stroke. In older patients, neurological deficits often preclude standard assessments such as handgrip strength or gait speed. Radiological muscle evaluation on routine CT imaging may serve as a practical alternative. This study aimed to determine whether CT-derived masseter muscle morphometry is associated with functional outcome and stroke severity in acute ischemic stroke patients.

Materials and Methods

This retrospective study included 184 patients with acute ischemic stroke who underwent multimodal CT examination at admission. The cohort included 82 males (44.6%) and 102 females (55.4%), with mean ages of 68.9 and 75.6 years, respectively. Stroke severity at admission was similar between sexes (mean NIHSS: males 16.2 (IQR 13.0-19.0), females 15.6 (IQR 12.0-19.0). Bilateral masseter muscle volume (cm^3) and density (Hounsfield Units, HU) were measured using Sectra IDS7 software. Patients were categorized into three outcome groups based on the 90-day modified Rankin Scale (mRS): favorable (0–3), poor (4–5), and deceased (6). All patients had TICI score 2b-3.

Results

Patients with lower masseter muscle volume at admission tended to have worse 90-day functional outcomes following mechanical thrombectomy. For the right masseter, median volumes were 14.5 cm^3 (IQR 12.3–17.7) in the mRS 0–3 group, 14.1 cm^3 (IQR 12.0–15.9) in mRS 4–5, and 13.7 cm^3 (IQR 11.7–14.8) in mRS 6. Corresponding left-sided volumes were 15.5 cm^3 (IQR 11.9–17.4), 14.4 cm^3 (IQR 11.6–16.2), and 13.6 cm^3 (IQR 11.2–15.2), respectively. Pairwise Mann–Whitney U tests showed significantly lower volumes in mRS 6 vs 0–3 ($p=0.030$ right, $p=0.036$ left). Muscle density varied less consistently across outcome groups: median right-sided density was 53.4 HU (IQR 49.0–58.4) in mRS 0–3, 54.6 HU in mRS 4–5, and 52.6 HU in mRS 6, with similar values on the left. Masseter muscle volume was strongly symmetrical between sides ($\rho = 0.93$, $p < 0.001$) and showed a modest but significant inverse correlation with age ($\rho = -0.24$ to -0.28, $p \leq 0.001$), indicating age-related muscle atrophy. A weak but significant positive correlation was found between volume and density bilaterally ($\rho=0.20$, $p=0.007$ right; $\rho=0.24$, $p=0.001$ left), indicating that larger muscles were generally denser. In addition, muscle density showed a modest inverse correlation with stroke severity at admission (NIHSS, $\rho=-0.17$, $p=0.026$ right; $\rho=-0.21$, $p=0.006$ left), suggesting reduced muscle quality in patients with more severe deficits. ROC analysis demonstrated modest discriminative ability for predicting favorable 90-day outcomes, with optimal masseter volume cut-offs of 14.9 cm^3 (right, AUC = 0.62, sensitivity 67%, specificity 58%) and 15.2 cm^3 (left, AUC = 0.63, sensitivity 69%, specificity 57%).

Conclusions

Morphometric assessment of the masseter muscle on routine cranial CT and CTA demonstrates a significant association with 90-day functional outcomes and stroke severity in patients with acute ischemic stroke. Decreased muscle volume and density are indicative of poorer prognosis. ROC analysis yielded modest discriminative power (AUC ~0.60), with optimal

volume thresholds around 15 cm^3, suggesting potential utility as a radiological biomarker of sarcopenia.

SERUM LOW-DENSITY LIPOPROTEIN CHOLESTEROL LEVELS AMONG LATVIAN STROKE PATIENTS: A RETROSPECTIVE ANALYSIS FROM 2022 TO 2024.

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Objectives
To assess the distribution and temporal trends of serum low-density lipoprotein cholesterol (LDL-C) levels among Latvian ischemic stroke (IS) patients from 2022 to 2024.

Materials and Methods
This study employs a retrospective research design to analyze LDL-C levels among Latvian IS patients over a three-year period, from 2022 to 2024. Patient data were collected from all nine Latvian stroke units for at least one month each year. The platform used for data collection was an international stroke registry (RES-Q) https://stroke.qualityregistry.org/. The study population includes IS patients aged 18 years and older who had at least one lipid profile test performed during the study period. Here we report LDL-C measured at the time of hospitalization and proportions of six distinct LDL-C concentration ranges were analyzed: less than 1.40, 1.40–1.79, 1.80–2.59, 2.60–2.99, 3.00–4.99 and ≥5.00 mmol/L.

Results
The total number of individuals evaluated increased each year, with 1661 assessed in 2022 (mean [SD] LDL-C 2.95+1.13 mmol/L), 1968 in 2023 (2.91+1.15 mmol/L), and 2403 in 2024 (2.97+1.19 mmol/l). Across all three years the mean LDL-C was (2.97+1.16 mmol/L). Over the three-year period, a gradual decrease in the proportion of individuals with LDL-C levels (3.00–4.99 mmol/L) was observed: from 45,1% (n=749) in 2022 to 38,6% (n=928) in 2024 (p=0.031) It was the largest group with 2464 participants, which represents approximately 40.87 % of the total 6032 participants. The high LDL-C group (≥5.00 mmol/L) remained relatively stable but showed a slight increase in 2024 (5,7%; (n=137) (p=0.602). In the group of LDL-C <1.40 mmol/L, a proportional increase from 5.4% (n=90) in 2022 to 7.4% (n=178) in 2024 was observed (p=0.065). In the 1.80–2.99 mmol/L LDL-C group, there was an observable increase over the years; however, this change was not statistically significant (p=(0.361).

Conclusions
The analysis revealed that a significant proportion of IS patients exhibit elevated LDL-C levels, which is a critical risk factor for further cardiovascular events. The very high prevalence of patients with LDL-C levels above 3.00 mmol/L highlights the ongoing need for effective lipid management in this population. The small reduction in prevalence of LDL-C levels between 3.00–4.99 mmol/L suggests some progress in lipid control. The proportion of IS patients with lower LDL-C levels slightly increased, but still very few patients reached optimal lipid levels despite advances in treatment protocols and less than 10% of patients had their LDL-C levels <1.4 mmol/L as recommended by guidelines. Comprehensive strategies focusing on better cholesterol management are essential to reduce future stroke burden and enhance patient outcomes in this very high-risk group.

THE FUTURE IS MRI: ENHANCING ACUTE STROKE DIAGNOSTICS WITH ADVANCED IMAGING

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Objectives
To highlight recent advancements in the use of MRI for acute ischemic stroke diagnostics, focusing on shortened examination protocols, improved handling of traditional contraindications, increased accessibility and affordability, and the growing potential of non-contrast imaging approaches.

Materials and Methods
We reviewed and analyzed current MRI applications in acute ischemic stroke, focusing on their use within the therapeutic time window. Emphasis was placed on the clinical utility of key MRI sequences. We explored the development of rapid, stroke-adapted protocols for emergency use and recent advances that improve MRI practicality—such as shortened scan times, reduced need for contrast agents and increased availability of MRI, enhanced collaboration with cardiologists, newly developed clinical guidelines, improved compatibility with implanted devices.

Results
MRI offers high sensitivity and specificity in detecting acute ischemic strokes, excelling in visualizing ischemic cores and posterior fossa infarcts—without ionizing radiation. Technological advances have significantly improved MRI's role in acute stroke care. Portable head MRI systems now allow on-site imaging within stroke units, and the development of shortened

protocols has made MRI more compatible with acute stroke workflows. Standard clinical protocols last 10-11 minutes, while 3T MRI with artificial intelligence (AI) enables ultrafast stroke protocols of about 7–8 minutes.
Modern MRI protocols incorporate sequences such as DWI, FLAIR, GRE/SWI, 3D-TOF angiography, DSC perfusion, and ASL. ASL, in particular, enables perfusion imaging without the use of contrast agents, which is especially useful in patients with renal insufficiency or gadolinium contraindications.
The FLAIR/DWI mismatch is a widely used protocol in neurology to estimate stroke age and tissue viability in cases with unclear onset. DWI/perfusion and DWI/ASL are also used to assess the ischemic core and penumbra, enabling more individualized treatment decisions—especially in extended time windows. DWI and ADC maps are central to early ischemic detection. Studies have proposed ADC thresholds ($<520 \times 10^{-6}$ mm^2/s) to define non-viable tissue, with extremely low ADC values linked with higher hemorrhagic transformation risk. A DWI-ASPECTS score of ≤4 or a diffusion lesion volume (VolDWI) ≥71 mL has been associated with a substantially higher risk of hemorrhagic imbibition post-reperfusion. These markers play a crucial role in patient selection for reperfusion therapies.
While CTA better assesses large vessels and collaterals, MRI is gaining clinical relevance with improved speed, advanced imaging capabilities, and early tissue characterization for acute stroke care.

Conclusions
MRI provides diagnostic accuracy comparable to CT in acute ischemic stroke caused by large vessel occlusion while offering superior sensitivity for detecting infarcts in the posterior fossa and more precise visualization of the ischemic core. Recent advances have reduced traditional MRI contraindications. The integration of multiple MRI sequences enhances patient selection for reperfusion therapies and improves risk stratification for hemorrhagic transformation. Furthermore, the development of shortened MRI protocols, portable MRI technologies, and AI tools promises broader MRI accessibility and rapid, potentially transforming acute stroke management workflows in the near future.

Epilepsy

ADHERENCE TO ANTIEPILEPTIC MEDICAL TREATMENT IN ADULT EPILEPSY PATIENTS

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Objectives
The aim of this study was to assess the adherence to epilepsy treatment and to evaluate the associations between demographic and clinical factors, as well as psychological distress, and the level of adherence in adult epilepsy patients.

Materials and Methods
This cross-sectional study was conducted at the Neurology Clinic of the Lithuanian University of Health Sciences Hospital, Kaunas Clinics in 2024. Adult patients with epilepsy who were receiving antiepileptic drugs (AEDs) were interviewed after they consented. Socio-demographic and clinical data were analysed. Treatment adherence was assessed using eight yes/no questions related to medication use. The ten-item Kessler Psychological Distress Scale (K10) was applied to evaluate symptoms of depression and anxiety. Statistical analyses were performed using Microsoft Excel 2016 and IBM SPSS Statistics version 29.0. Study was approved by Bioethics Committee of Lithuanian University of Health Sciences (2024 - BEC2 – 204).

Results
Sixty patients (31 women and 29 men), aged 18–80 years, participated in the study. Most (65.0%; n = 39) were diagnosed with epilepsy before the age of 18 years, and 60.0% (n = 36) had been using antiepileptic drugs (AEDs) for more than 10 years. Half of the participants used AED monotherapy (n = 30; 50.0%). The most common AED regimen was twice-daily dosing (n = 54; 90.0%). Seizure remission during the past six months was reported by 51.7% (n = 31). Psychological distress symptoms were experienced by 56.7% (n = 34) of patients, and 23.3% (n = 14) experienced high-level psychological distress.
High adherence to AED regimen was observed in 45.0% (n = 27), moderate in 18.3% (n = 11), and low in 36.7% (n = 22) of participants. Forgetfulness was the most frequently reported reason for non-adherence (50.0%; n = 30). Participants most commonly missed the morning dose (38.3%, n = 23). Only a few participants reported other reasons for non-adherence, including poor tolerance to medication (6.7%, n = 4), improved well-being (5%, n = 3), reluctance to take medication (5%, n = 3), and an inconvenient medication schedule (5%, n = 3). Most participants (70.0%; n = 42) did not use any reminder strategies. Higher adherence was more common among men and participants aged >50 years, but these differences were not statistically significant ($p > 0.05$). Low adherence was more frequent in patients diagnosed before age 18 years, treated with AEDs for more than 10 years, with EEG abnormalities, or experiencing AED-related adverse effects; however, no statistically significant associations were found between adherence level and clinical characteristics of epilepsy or psychological distress ($p > 0.05$).

Conclusions
Fewer than half of adult patients with epilepsy reported high adherence to medical treatment, while one-third reported low adherence. Adherence levels were not associated with demographic factors (age, gender, education, employment, area of residence), clinical characteristics of epilepsy (age at onset, duration, seizure type, remission, EEG findings), or psychological distress (anxiety and depression symptoms). Forgetfulness was the most commonly reported reason for non-adherence, with the morning dose most frequently missed. education on the importance of treatment regularity, along with the use of reminder strategies, may help improve adherence to antiepileptic medication.

MANAGEMENT OF WOMEN WITH EPILEPSY

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Objectives
Women with epilepsy are confronted with many questions regarding pregnancy, childbirth and the health of their future child. The greatest concern is the potential harmful effects of anti-seizure medications on the health of the future child. Epileptic seizures during pregnancy are also dangerous for the fetus. However, the health of the woman herself is no less important than the health of the baby. It is important for a woman with epilepsy to know how epilepsy may progress during pregnancy, whether epilepsy treatment needs to be adjusted, which method of delivery is preferable, and how and whether to breastfeed. Women who do not plan to become pregnant in the near future must also be aware of the most effective contraceptive method and the interactions between anti-seizure medications and hormonal contraceptives. According to literature, up to 65% of women with epilepsy have unplanned pregnancies. Therefore, it is extremely important for a woman to be aware of the risks that may accompany pregnancy and childbirth as early as possible in order to be better prepared to cope with them.

Materials and Methods
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Results
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Conclusions
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SLEEP FRAGMENTATION IN IDIOPATHIC GENERALIZED EPILEPSIES: DOES INTERICTAL ACTIVITY PLAY A ROLE?

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Objectives
Sleep and epilepsy share a reciprocal relationship, with a myriad of factors contributing to both sleep disruption and poor seizure control. Idiopathic generalized epilepsies (IGE) are a group of homogeneous epilepsy syndromes that are especially prone to an increased risk of seizures upon sleep deprivation. Currently, very few studies have explored the relationship between sleep fragmentation and epilepsy-related factors, such as interictal activity, and even fewer have done so in the context of IGE. In this study, we investigated whether sleep fragmentation is related to clinical and electroencephalography (EEG) characteristics in a small sample of patients with IGE.

Materials and Methods
We conducted a prospective, cross-sectional study of people with IGE. We collected data regarding patient age, epilepsy syndrome, and seizures. Participants were asked to complete the Pittsburgh Sleep Quality Index (PSQI) questionnaire. We then performed overnight polysomnography (PSG) and 24-hour EEG with additional oculography and chin muscle electrodes to distinguish sleep stages. The spike index (SI) during sleep was calculated as the sum of the durations of all epileptic discharges divided by the total sleep time. The duration of an epileptic discharge was measured from the start of the spike/polyspike to the end of the final wave. The arousal index (AI) was extracted from the PSG data according to the American Academy of Sleep Medicine guidelines. Data were analyzed using SPSS version 30. Spearman's rank correlation coefficient was used to evaluate the correlation between SI and AI, as well as between AI and PSQI. The Mann-Whitney U test was used to compare median values between independent groups.

Results
We enrolled a total of 16 patients (11 female) with a mean age of 14.7 years (±1.9). The IGE syndromes included juvenile myoclonic epilepsy (JME, n=7), juvenile absence epilepsy (JAE, n=5), and epilepsy with generalized tonic-clonic seizures

alone (GTCA, n=4). The median PSQI score was 5 (IQR 2.25-9.50), with 8 of 16 patients (50%) reporting scores ≥5, indicating poor subjective sleep quality. The median SI was 0.0001 (IQR 0-0.009) and the median AI was 11.1 (IQR 9.25-20.3). A moderate positive correlation was found between the SI and AI (ρ=0.527, p=0.036). No significant correlation was observed between the AI and PSQI scores (p=0.834). Five of the 16 patients experienced daily seizures (absences, myoclonic seizures, or both); this subgroup had a median SI of 0.01 (IQR 0.006-0.02) and a median AI of 15.6 (IQR 10.1-22.4). The difference in AI between patients with and without daily seizures was not statistically significant (p=0.364).

Conclusions

In this study of a small sample of IGE patients, we found that interictal epileptic discharges may contribute to sleep fragmentation, as indicated by the moderate positive correlation between the spike and arousal indices. This relationship appeared to be independent of daily seizure occurrence or subjective sleep quality, highlighting that subclinical interictal activity itself may be a driver of poor sleep architecture in this population. The finding that half of our patients reported poor subjective sleep quality emphasizes the importance of screening for sleep problems in individuals with IGE. Further studies with larger sample sizes are needed to draw more reliable conclusions.

THE EFFECT OF INVASIVE VAGUS NERVE STIMULATION ON COGNITIVE FUNCTION

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Objectives

There are clinically confirmed effects of invasive vagus nerve stimulation (VNS) on the reduction of epileptic seizures and improvement of depressive symptoms (Austelle CW et al. Vagus nerve stimulation (VNS): recent advances and future directions. Clin Auton Res. 2024;34(6):529-547).

The objective of the current study is to investigate the impact of VNS on different neurocognitive domains in epilepsy patients. The main aim is to evaluate positive effects on different neurocognitive domains.

Materials and Methods

The sample of this case series study consists of participants suffering from drug resistant epilepsy who are awaiting VNS implantation, planned according to epileptologist's decision. The testing of neurocognitive domains was done for three participants (VNS1, VNS2, VNS3, - one male, two female patients), three times (once before implantation as a baseline, then 6 and 12 months after implantation). The current study described the first preliminary results.

The following tests were used for neurocognitive assessment: visual working memory (n-back), evaluation of visuospatial processes (mental rotation and perspective taking), language processing (thing-category and sentence generation), and visual object recognition tests; additionally navigational processing and learning was examined with a maze task; finally, overall depressive conditions were controlled by PHQ9 depression screening tool.

Results

A positive trend was observed in the sentence generation test, maze test, and thing-category test, with participants' performance improving with each measurement. A positive effect was also observed regarding depressive conditions (measured by the PHQ-9), with these symptoms decreasing over time. However, other measures (n-back test, mental rotation, perspective taking, and visual object recognition) did not show a consistent trend that could indicate that the performance in these domains improved with each measurement. Results also showed that two out of three participants had more than 50% improvement in seizure control.

Conclusions

The preliminary results indicate the presence of both positive trends and variability in individual performance across different tests. Therefore, this preliminary research shows a need for continuation; particularly to evaluate the differences between the VNS group and control groups (epilepsy control and general population control group) and to determine if the control groups would also show natural fluctuations in results. Further investigation is needed into the correlation between seizure control and results of testing, based upon the finding that epilepsy patients with >50% of seizure control after VNS implantation had better results in neurocognitive tests.

The study should be expanded to include and evaluate more patients with VNS implantation to examine the statistical significances in the results.

Despite the small sample size, this is a unique glimpse into an innovative intervention and its neurocognitive impacts from a longitudinal perspective.

Experimental Neurology and Technological Innovations in Neurology

SENSORY RECOVERY FOLLOWING NERVE HYDRODISSECTION WITH 5% GLUCOSE SOLUTION: A CASE REPORT

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1. Veselibas centrs 4

Objectives
To report a unique case of isolated thumb sensory loss that resolved following ultrasound-guided nerve hydrodissection with a 5% glucose solution.

Materials and Methods
A 40-year-old male chef presented with isolated sensory loss on the dorsal surface of the thumb, persisting for several weeks. He denied any history of trauma or other precipitating event and was otherwise healthy. Given his occupational history involving repetitive hand movements, high-resolution ultrasound was performed using a Canon Aplio 600 system with a 17 MHz hockey-stick probe. A small neuroma of the dorsal digital branch of the radial nerve was identified, appearing as a focal thickening (0.87 mm vs. the normal 0.35 mm diameter), clearly visualized in both short- and long-axis views. A positive sono-Tinel sign was elicited at the site.

Results
Ultrasound-guided hydrodissection of the neuroma was performed using a 27G needle and a 5% glucose solution to release surrounding adhesions. Within a few hours, the patient reported a return of sensation to the dorsal surface of the proximal phalanx. Complete sensory recovery extending to the distal phalanx was observed over the following weeks.

Conclusions
High-resolution ultrasound enables accurate identification of peripheral nerve pathology. In this case, ultrasound-guided hydrodissection with a 5% glucose solution facilitated the resolution of sensory loss, supporting its use as an effective and minimally invasive treatment for focal neuropathies.

Headache/Pain

TREATMENT-RESISTANT NEUROPATHIC PAIN DUE TO LINGUAL NERVE NEUROMA TREATED WITH ULTRASOUND-GUIDED 5% GLUCOSE HYDRODISSECTION: A CASE REPORT

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Objectives
To describe a rare case of chronic, treatment-resistant neuropathic pain caused by a lingual nerve neuroma, successfully managed with ultrasound-guided 5% glucose hydrodissection followed by surgical excision.

Materials and Methods
A 68-year-old woman presented with severe, persistent neuropathic pain (10/10 on the numerical rating scale) localized to the distal two-thirds of the left side of the tongue, following papilloma and abscess excision at the tongue root. The pain was elicited by light touch, while taste sensation remained intact. Over eight years, she underwent more than 50 treatment regimens, including anticonvulsants, antidepressants, opioids, benzodiazepines, antipsychotics, injection therapies, trigeminal nerve blocks, cryoablation, transcranial magnetic stimulation, stereotactic radiotherapy (CyberKnife), acupuncture, leech therapy, osteoreflexotherapy, hypnosis, and phonophoresis—none of which provided relief. Cranial nerve MRI was unremarkable, and initial ultrasound imaging failed to detect a neuroma.

Results
Re-examination using a high-frequency (17 MHz) hockey-stick probe on a Canon Aplio 600 ultrasound system revealed inhomogeneous, hypoechoic thickening of the left lingual nerve at a site corresponding to a positive sono-Tinel sign, consistent with neuroma formation. Ultrasound-guided perineural injection of 2 ml of lidocaine (20 mg/ml) and 2 ml of dexamethasone (4 mg/ml) produced immediate and complete pain relief. Although the pain recurred the next day, its intensity was reduced (10/10 during mastication; 5/10 at rest). The patient subsequently underwent three monthly sessions of ultrasound-guided hydrodissection with 2–5 ml of 5% glucose, each yielding incremental improvement. Pain levels decreased to 5/10 during eating and resolved entirely at rest and overnight. Two additional 5% glucose injections provided no further benefit. The patient then underwent surgical neuroma excision by a plastic surgeon, resulting in complete pain resolution. Neverthelss postoperative soreness at the surgical site persists.

Conclusions
High-resolution ultrasound, combined with sonopalpation and thorough anatomical knowledge, is critical for detecting lingual nerve neuromas that are often missed by conventional imaging modalities. Ultrasound-guided hydrodissection with 5% glucose is a safe, minimally invasive option that can provide significant symptomatic relief. In refractory cases, surgical excision and nerve repair may offer definitive resolution.

Movement Disorders

ADHERENCE TO THE MEDITERRANEAN DIET IN PATIENTS WITH PARKINSON'S DISEASE IN LITHUANIA

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Objectives
Parkinson's disease (PD) is a chronic neurodegenerative disorder characterized by motor and non-motor symptoms. Despite significant advances in treating motor symptoms, no effective disease-modifying treatment exists. Recently, a growing body of evidence suggests that a healthy diet can reduce the risk of PD, slow disease progression, and alleviate specific motor and non-motor symptoms.

Materials and Methods
The cross-sectional study was conducted in Vilnius University Hospital Santaros Klinikos, evaluating PD patients' dietary habits and motor and non-motor symptoms. According to the calculated Mediterranean diet (MeDi) score (ranging from 0 to 55 points; a higher score corresponds to better adherence), participants were divided into tertiles (T1-T3). The third tertile defined the highest adherence to MeDi. Disease-related characteristics were compared between the highest and lowest MeDi adherence groups.

Results
Fifty-nine PD patients were recruited, 33 (55.9%) males, mean age 67.03 ± 6.78 years, mean age of the disease onset 59.58 ± 6.84 years, median disease duration of 6 years (IQR-8), median Hoehn-Yahr stage 2 (IQR-1), mean LEDD 956.39 ± 494.47 mg, mean MDS-UPDRS III score 29,98 ± 12,61 points. The mean MeDi scores in T1 and T3 were 25.36 ± 3.23 and 36.16 ± 2.15, respectively. Patients in the T3 had a higher age of disease onset, respectively 63.21 ± 5.75 and 58.39 ± 2.57 years (p = 0.015), and the lower LEDD, respectively, 808.89 ± 389.77 mg (p=0.039) compared to those in T1. There was no statistically significant difference between T3 and T1 in MDS-UPDRS part I-IV scores. There were fewer patients with anxiety defined according to the Hospital Anxiety and Depression scale, respectively, 21.1% and 53.6% (p=0.008), and fewer constipation, respectively, 52.6% and 78.6% (p=0.061) in T3 tertile compared to T1. According to Parkinson's Disease Questionnaire – 39 (PDQ-39), patients in the T3 tertile had lower scores for emotional well-being, stigma and body discomfort compared to those in T1 tertile, respectively 16.22 ± 12.94 vs. 26.93 ± 19.49 (p=0.035), 11.84 ± 10.12 vs. 29.46 ± 26.51 (p=0.013), 27.16 ± 26.20 vs. 39.88 ± 23.28 (p=0.029). A higher MeDi score was associated with decreased odds of pain (OR=0.86, CI 95% 0.75-0.98), urinary dysfunction (OR=0.86, CI 95% 0.75-0.99), constipation (OR=0.88, CI 95% 0.78-0.99), and anxiety (OR=0.88, CI 95% 0.79-0.99).

Conclusions
PD patients with better adherence to MeDi had an older age of motor symptoms onset, lower LEDD, and fewer anxiety symptoms compared to those with worse adherence. A higher MeDi score was associated with decreased odds of pain, urinary dysfunction, constipation, and anxiety.

ASSOCIATION OF MOTOR SEVERITY WITH DEPRESSIVE SYMPTOMS IN CERVICAL DYSTONIA: AN OBSERVATIONAL QUESTIONNAIRE-BASED STUDY

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Objectives
Our objective was to determine the prevalence and profile of depressive symptoms in adults with cervical dystonia and to examine how the severity of this psychological factor relates to motor impairment and pain severity for earlier recognition and comprehensive management of such patients.

Materials and Methods
This observational, cross-sectional survey was performed at Pauls Stradiņš Clinical University Hospital (Riga, Latvia; 2024 – 2025), where 52 out-patients with neurologist-confirmed cervical dystonia diagnosis completed a structured survey. The survey comprised the Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS) for motor severity, a Patient Health Questionnaire-9 (PHQ-9) for depression, and a numerical rating scale for pain intensity. Prevalence and severity were described with appropriate summary statistics, and associations between TWSTRS and PHQ-9 scores were examined using Spearman's rho ($p < 0.05$ denoted statistical significance). TWSTRS data were unavailable for 18 patients owing to incomplete examination. Patients were additionally stratified into standard PHQ-9 severity bands, and pain prevalence and mean pain scores were compared descriptively across these groups. Ethics approval and written informed consent were obtained.

Results
PHQ-9 stratification yielded 19 patients with minimal (0–4), 15 mild (5–9), 8 moderate (10–14), 9 moderately severe (15–19) and 1 severe (≥ 20) depressive symptoms. Pain prevalence increased with depression: 84 % in the minimal group, 60 % in mild, and 100 % from moderate upward, though the mild group showed a lower rate than minimal, which reflects small-sample variability. Mean common pain scores (0–10 scale) likewise rose—headache from 0.8 in the minimal group to 4.0 in the moderately-severe band (8.0 in the single severe case) and neck-muscle pain from 3.9 to 5.0; hand-arm pain climbed from 0.4 to 3.5. Among 34 patients with TWSTRS data, mean motor severity was similar across depression bands (≈ 12–13) and PHQ-9 and TWSTRS were not significantly correlated (Spearman $r = 0.10$, $p = 0.56$). Overall pain affected 81 % of the cohort—neck-muscle pain 71 % and headache 46 %—with a median intensity of 6/10. Nearly half (48 %) reported that dystonia and its depressive burden limited social activity.

Conclusions
Depression is a common, clinically impactful comorbidity in cervical dystonia, occurring in roughly one-third of patients and co-existing with substantial pain. Motor scores did not rise significantly with depression in this sample, but the high pain burden alongside mood symptoms warrants clinical vigilance and routine psychological screening. Early, multidisciplinary intervention that integrates targeted mental-health and pain management strategies is essential to optimise overall patient well-being, quality of life and functional outcomes.

ASSOCIATIONS BETWEEN SLEEP AND NON-MOTOR SYMPTOMS IN RBD-SCREENED PRODROMAL PARKINSON'S DISEASE WITH HYPOSMIA OR ORTHOSTATIC HYPOTENSION

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Objectives
Parkinson's disease (PD) is a progressive neurodegenerative disorder affecting both motor and non-motor systems (NMS). Recent studies support the existence of prodromal PD (p-PD) in which motor onset is preceded by non-motor symptoms such as sleep disturbances, hyposmia, gastrointestinal dysfunction, and mood disorders. This study examined whether sleep disturbances are associated with other non-motor features in suspected p-PD to refine early phenotyping and risk stratification.

Materials and Methods
Participants were recruited in 2024-2025 from the Kaunas cohort MONICA 5 study and identified by responses to the Innsbruck REM Sleep Behavior Disorder Inventory (RBD-I). Sixty-two individuals were enrolled (31 suspected p-PD; 31 controls). Collected data included demographics, clinical characteristics, sleep symptoms, olfactory dysfunction, autonomic signs, and other non-motor measures.

Results
Groups did not differ by age, sex, education, marital status, occupation type, exposure to metals or polluted environments, childhood drinking water source, physical activity, dominant hand, or family history of PD ($p>0.05$). Suspected p-PD showed a higher prevalence of insomnia (71.0% vs 12.9%, $p<0.001$) and pathological daytime sleepiness (22.6% vs 0%, $p=0.005$). Cognitive impairment was more frequent in p-PD (54.8% vs 16.1%, $p=0.001$). Orthostatic hypotension (25.8%), hyposmia (80.6%), and constipation (32.3%) were observed exclusively in the p-PD group. In the p-PD group, non-motor symptom questionnaire scores correlated with depressive and anxiety symptoms ($r=0.578$, $p=0.001$); olfactory dysfunction correlated with cognitive impairment ($r=0.410$, $p=0.001$) and with depressive/anxiety symptoms ($r=0.396$, $p=0.001$).

Conclusions
In this study cohort, sleep disturbances, particularly insomnia and daytime sleepiness, co-occurred with hyposmia, autonomic features, cognitive impairment, and mood symptoms in suspected p-PD group. Suspected p-PD individuals with olfactory dysfunction shows significant correlation with both cognitive and affective measures. Our results underscore the value of a multifaceted screening approach in individuals with RBD symptoms. Such comprehensive prodromal profiling

could improve early PD risk stratification beyond any single marker.

ETIOLOGICAL DIAGNOSIS OF CEREBELLAR ATAXIA: A RETROSPECTIVE FIVE-YEAR SINGLE-CENTER STUDY IN LATVIA

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Objectives
This study investigates the etiology of cerebellar ataxia in Latvia and examines associated diagnostic challenges. It considers acute, subacute, and chronic presentations, with emphasis on hereditary forms. Genetic testing is highlighted for its role in improving diagnostic accuracy, informing prognosis, and enabling targeted treatment in select cases. As the first retrospective analysis of cerebellar ataxia etiology in Latvia, the study aims to enhance understanding of regional disease patterns and diagnostic challenges.

Materials and Methods
We performed a retrospective, cross-sectional, single-center study at Pauls Stradiņš Clinical University Hospital, including 116 patients diagnosed with cerebellar ataxia between 2019 and 2024. Among them, 67 had clinically or molecularly confirmed diagnoses. Epidemiological and clinical data were extracted from medical records. Patients were categorized into five groups: sporadic ataxias, autosomal dominant cerebellar ataxias (ADCAs), autosomal recessive cerebellar ataxias (ARCAs), mitochondrial ataxias, and ataxias of undetermined etiology. Descriptive statistics were used, with results presented as frequencies and percentages. The study protocol received approval from the institutional ethics committee.

Results
The study cohort comprised 116 patients, with women representing 56.0% (n=65) of cases. Genetic testing or established clinical and radiological criteria confirmed the diagnosis in 67 individuals (57.8%). Among these confirmed cases, patients were categorized as sporadic ataxias (n=46; 39.7%), autosomal dominant cerebellar ataxias (ADCAs, n=14; 12.1%), autosomal recessive cerebellar ataxias (ARCAs, n=6; 5.2%), and mitochondrial ataxias (n=1; 0.9%).
In the sporadic ataxia subgroup, the leading diagnoses included multiple system atrophy (MSA, n=14; 30.4%), immune-mediated cerebellar ataxia (n=13; 28.2%), alcohol-related cerebellar degeneration (n=8; 17.4%), and stroke-associated ataxia (n=5; 10.9%). Among immune-mediated cases, seronegative encephalitis was most frequent (n=7).
Overall, 21 patients (18.1%) had a genetically confirmed diagnosis. For ADCAs, SCA2 was predominant (n=8), with isolated instances of SCA1, SCA4, SCA6, SCA8, SCA14, and SCA28. Within ARCAs, RFC1-related CANVAS was the most common diagnosis (n=4), along with a single case of ataxia-telangiectasia. Mitochondrial etiology was observed in one case (0.9%), consistent with Leigh syndrome.

Conclusions
In this single-center cohort, cerebellar ataxia displayed considerable etiological heterogeneity. Sporadic forms, particularly multiple system atrophy and immune-mediated cerebellar ataxia, were most frequent, while genetic causes accounted for 18.1% of cases, predominantly SCA2 and RFC1-related CANVAS. Rare etiologies included mitochondrial ataxia (Leigh syndrome). These findings highlight the diagnostic complexity of cerebellar ataxias.
Our data demonstrate a lower proportion of genetically confirmed cerebellar ataxia cases compared with reports from other European cohorts. This discrepancy may reflect limited access to genetic testing, local diagnostic constraints, or population-specific differences in disease prevalence. These results emphasize the need to expand genetic diagnostics in Latvia.

INITIAL MANIFESTATIONS IN DYSTONIA: A SYMPTOM PROFILE ANALYSIS OF 52 PATIENTS IN LATVIA

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Objectives
To investigate the initial presenting symptoms in patients diagnosed with dystonia and determine whether dystonia or tremor is more commonly reported at disease onset.

Materials and Methods
A descriptive, retrospective study was conducted at Pauls Stradiņš Clinical University Hospital in Riga, Latvia. Fifty-two patients with a confirmed clinical diagnosis of dystonia participated by completing a standardized Latvian-language survey. survey included a specific question on the first symptom noticed at disease onset, with a choice between “Dystonia” (e.g., muscle contractions, abnormal postures, neck or limb twisting) and “Tremor” (e.g., rhythmic shaking of the head or hands). Responses were manually reviewed and translated into English. Only clearly marked and interpretable answers were

included in the final analysis.

Results
Among all valid responses, 62% of patients reported dystonia as the first presenting symptom, while 38% reported tremor. Dystonia most commonly involved the cervical region, presenting as neck stiffness, twisting, or sustained abnormal postures. Tremor was more often described in the hands or head. These findings suggest a predominance of dystonia as the initial clinical manifestation in this population.

Conclusions
Dystonia was more frequently identified as the initial symptom compared to tremor, occurring in 62% of surveyed patients. This highlights the need for early recognition of dystonic features, particularly in individuals who initially present with tremor, so that diagnosis is not delayed. Improved clinical awareness may lead to earlier intervention and better management outcomes for patients with dystonia.

Multiple Sclerosis and other Demyelinating Diseases

2024 REVISIONS TO THE MCDONALD CRITERIA: IMPLICATIONS FOR EARLY AND ACCURATE MULTIPLE SCLEROSIS DIAGNOSIS

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Objectives
Recent updates to the diagnostic framework for the initial diagnosis of multiple sclerosis (MS), published in 2024, introduce key innovations designed to enhance early recognition and diagnostic accuracy. This summary outlines the main changes, including the integration of specific MRI-based features and adjusted criteria for lesion distribution. These revisions aim to assist clinicians in applying a more precise and timely diagnostic approach, especially for patients undergoing their first evaluation with suspected MS. The objective of this analysis is to present an overview of the 2024 modifications to the MS diagnostic criteria and examine their potential to improve patient assessment and care pathways. The updated protocol places greater emphasis on imaging and laboratory evidence, aiming to reduce diagnostic uncertainty, particularly in atypical cases or early disease stages. The goal is to provide healthcare professionals with actionable insights that can be applied in diverse clinical settings.

Materials and Methods
A structured literature review was conducted to examine the 2024 updates to the MS diagnostic framework. Notably, the criteria now formally incorporate advanced MRI markers—such as the central vein sign and paramagnetic rim lesions—as supportive indicators for distinguishing MS from its mimics. The definition of lesion dissemination has been broadened to include the optic nerve as a valid anatomical site. The diagnostic role of cerebrospinal fluid (CSF) analysis, particularly the presence of oligoclonal bands (OCBs), remains a cornerstone when imaging findings are inconclusive. Special attention was given to the implications of these changes for patients with radiologically isolated syndromes (RIS). Additionally, the review included special considerations for older patients, individuals with vascular comorbidities, and those with progressive-onset MS, where the application of adapted criteria may reduce diagnostic uncertainty and support earlier intervention.

Results
The 2024 diagnostic revisions represent a substantial advancement in the identification and classification of multiple sclerosis. Among the key updates are the options to replace dissemination in time with two alternative findings—such as positive cerebrospinal fluid (CSF) biomarkers—and to replace dissemination in space with specific imaging-based features, including ≥6 lesions with a central vein sign or the presence of paramagnetic rim lesions. The expanded imaging criteria enhance diagnostic specificity, while the inclusion of the optic nerve as a recognized site for lesion dissemination allows for a more comprehensive assessment of demyelinating activity. These modifications facilitate earlier and more confident diagnosis, enabling timely treatment initiation that may positively impact long-term disease outcomes. Furthermore, the updated framework improves the ability to distinguish MS from other inflammatory or structural disorders of the central nervous system, particularly in complex or atypical cases.

Conclusions
Adopting the revised criteria in clinical practice is expected to lead to more accurate and timely diagnoses, enabling interventions at an earlier stage of disease progression. As understanding of MS pathology deepens, ongoing refinement of diagnostic tools—including biomarker validation and imaging advancements—will remain essential to delivering personalized and effective care.

ASSOCIATIONS OF RETINAL NERVE FIBRE LAYER THICKNESS WITH CLINICAL DATA IN PATIENTS WITH MULTIPLE SCLEROSIS IN LITHUANIA

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Objectives

To evaluate relationships between retinal nerve fiber layer (RNFL) changes and clinical symptoms, disability and disease course in patients with multiple sclerosis (MS).

Materials and Methods

We conducted a retrospective medical documentation review of patients diagnosed with MS according to the 2010/2017 McDonald criteria, treated at the Department of Neurology of Kaunas Clinics, Lithuanian University of Health Sciences (LUHS) Hospital. Approval was obtained from the Kaunas Regional Biomedical Research Ethics Committee (No. BE-2-113). RNFL thickness was measured by optical coherent tomography (OCT) at baseline and, for some patients, follow-up; to minimize bias from optic neuritis, thickness was defined as the mean of both healthy eyes or, if unilateral optic neuritis had occurred, the measurement from the unaffected eye. Disability assessed according to Expanded Disability Status Scale (EDSS).

Results

A total of 84 MS patients (27 men, 57 women) were included (mean age 33 ± 9 vs. 34 ± 9 years; 68 % urban). Most patients have relapsing-remitting MS disease course (85 %). At baseline, 78 % of men and 77 % of women had never experienced optic neuritis (ON); at follow-up, similar proportions remained ON-free (64 % vs. 62 %). The thinner baseline RNFL was associated with higher baseline disability (EDSS; $r = -0.232$, $p = 0.017$) and greater EDSS worsening over time ($r = -0.310$, $p = 0.002$). RNFL correlated more strongly with pyramidal system impairment ($r = -0.409$, $p < 0.001$) and pelvic organ dysfunction ($r = -0.316$, $p = 0.002$) than with visual acuity ($r = 0.068$, $p = 0.270$). Older age correlated with thinner RNFL ($r = -0.278$, $p = 0.005$) and higher baseline EDSS ($r = 0.273$, $p = 0.006$).

In adjusted linear regression (controlling for age and sex), each 20 µm reduction in RNFL predicted a 0.46-point increase in EDSS ($B = -0.023$, $p = 0.015$; model $p = 0.013$) and a 0.32-point rise in cerebellar EDSS score ($B = -0.016$, $p = 0.007$; model $p = 0.037$). Pelvic function decline was significantly linked to sex ($B = -0.257$, $p = 0.008$; $R^2 = 0.105$, $p = 0.037$) but not to RNFL or age. Trends toward thinner RNFL and older age predicting reduced 6-minute walk distance were observed ($p \approx 0.06$).

Among the 45 patients with repeat OCT, baseline RNFL again predicted EDSS progression ($r = -0.310$, $p = 0.002$), and RNFL change correlated with EDSS change ($r = -0.273$, $p = 0.042$), pyramidal ($r = -0.336$, $p = 0.016$), and brainstem impairments ($r = -0.385$, $p = 0.006$).

Conclusions

The thinner baseline RNFL significantly correlated with higher baseline disability, greater disability progression, more pronounced pyramidal and sensory impairment and reduced walking distance. Each 20 µm decrease in RNFL predicted a 0.46-point increase in EDSS and a 0.32-point increase in cerebellar EDSS. RNFL thinning between OCT visits likewise predicted future disability worsening.

DOUBLE IMMUNE RECONSTITUTION THERAPY IN MULTIPLE SCLEROSIS: A CASE-BASED APPROACH

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Objectives

Immune reconstitution therapy (IRT) is widely used in highly active relapsing MS to achieve long-term disease control. Among approved IRTs, alemtuzumab and cladribine differ in their mechanisms and safety profiles.

Alemtuzumab induces profound T-cell depletion but is associated with B-cell hyperproliferation and a relatively high risk of secondary autoimmunity. Despite initial efficacy, some patients may develop renewed disease activity or treatment-related complications. Retreatment with alemtuzumab is often debated due to concerns over diminishing benefit and immune imbalance.

Cladribine provides a different approach, achieving moderate and selective lymphocyte depletion without driving B-cell overshoot. It carries a lower burden of laboratory monitoring and fewer autoimmune risks.

This abstract explores the concept of double IRT — sequential use of alemtuzumab followed by cladribine — in a patient with suboptimal long-term response and intolerance to alemtuzumab.

Materials and Methods
We present a case of a 40-year-old woman with highly active RMS who received alemtuzumab in 2020 and 2021 with partial stabilization, followed by disease reactivation, autoimmune thyroiditis, and type 2 diabetes. Retreatment with alemtuzumab was not pursued. In 2024, cladribine was initiated in standard dosing (two courses of 7 tablets). Clinical and radiological outcomes were evaluated before and after treatment. The rationale for double IRT was supported by published evidence (Adamec et al., Eur J Neurol 2022) and mechanistic differences between the two agents.

Results
Cladribine was well tolerated. Following two courses in 2024–2025, no new relapses occurred. MRI showed contrast-enhancing lesions prior to treatment, but no further radiological activity afterward. EDSS improved from 3.5 to 3.0. Moderate lymphopenia was observed, with lymphocyte counts of 0.85×10^9/L after the first year and 0.6×10^9/L after the second, without infectious complications. While some sensitive symptoms persisted, the patient reported better daily functioning. A mild depressive episode with anxiety and fatigue occurred but responded well to SSRI therapy. Cladribine provided clinical stabilization with a manageable safety profile and reduced monitoring needs compared to alemtuzumab.

Conclusions
This case highlights how sequential immune reconstitution therapies may complement one another. Alemtuzumab induces profound T-cell depletion but carries a risk of secondary autoimmunity, whereas cladribine provides selective and moderate lymphocyte reduction, mainly affecting B-cells and memory subsets. Using cladribine after alemtuzumab may therefore help restore a more balanced immune profile, reducing autoimmunity risk while maintaining disease control. Beyond the immunological rationale, this strategy may be particularly attractive for patients with comorbidities, since cladribine requires fewer hospital visits, less laboratory monitoring, and offers an oral regimen compared to repeated infusions. Although evidence is still limited to case reports and small series, our observation supports the need for systematic evaluation of “double IRT” as a tailored approach in MS management.

FATIGUE AND IMMUNE ACTIVATION IN MULTIPLE SCLEROSIS PATIENTS WITH AND WITHOUT POLYNEUROPATHY

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Objectives
The objective of this study was to evaluate fatigue severity in multiple sclerosis (MS) patients with and without polyneuropathy, and to assess immune activation using the QuantiFERON-Monitor (QFM) assay. Results were compared with healthy donors to explore the impact of disease and treatment on immune function.

Materials and Methods
A total of 44 patients with clinically confirmed multiple sclerosis (MS) were included in the study, all diagnosed according to the revised McDonald criteria, ensuring standardized and internationally accepted diagnostic accuracy.: 26 without polyneuropathy and 18 with polyneuropathy. Fatigue severity was assessed using a standardized 0–100 fatigue scale. Immune activation was evaluated using the QuantiFERON-Monitor (QFM) assay, which measures interferon-γ (IFN-γ) release after stimulation of both innate and adaptive immune cells, providing a global assessment of cellular immune responsiveness.The control group consisted of 15 healthy donors without autoimmune or neurological disorders and with no history of immunosuppressive or immunomodulatory treatment. The control group of healthy donors was age- and gender-matched to the patient cohort. Statistical analyses were conducted using both parametric (independent t-test) and non-parametric (Mann–Whitney U test) approaches, with normality checked by the Shapiro–Wilk test.

Results
Patients with polyneuropathy showed slightly higher fatigue scores (mean 65.3 ± 21.1) compared to patients without polyneuropathy (mean 61.4 ± 21.4). However, this difference was not statistically significant ($p > 0.05$). Analysis of immune activation with the QuantiFERON-Monitor assay demonstrated that healthy controls had the highest responses, with a mean of 685.6 IU/ml and a median of 652.5 IU/ml. In contrast, MS patients overall had markedly lower levels, with a mean of 367.6 IU/ml and a median of 299.0 IU/ml. When subgrouped, MS patients without polyneuropathy had a mean of 391.5 IU/ml, while those with polyneuropathy showed a slightly higher mean of 479.7 IU/ml. Shapiro–Wilk testing indicated a non-normal distribution of values in MS patients, while controls conformed to normality. Both parametric testing (t-test, $p = 0.003$) and non-parametric analysis (Mann–Whitney U test, $p = 0.004$) confirmed that QuantiFERON values were significantly lower in MS patients compared to controls. Within the MS cohort, no statistically significant differences were observed between patients with and without polyneuropathy.

Conclusions
MS patients showed reduced immune activation compared to healthy controls, most likely reflecting treatment-related immunosuppression. The presence of polyneuropathy was associated with slightly higher fatigue but did not significantly influence immune activation, indicating that QuantiFERON-Monitor values are more reflective of therapy effects than of polyneuropathy status or disease-specific mechanisms.

TRANSVERSE MYELITIS: RADIOLOGICAL CHALLENGES ACROSS VARIOUS ETIOLOGIES — A CLINICAL CASE SERIES

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Objectives
Transverse myelitis (TM) is a rare inflammatory disorder of the spinal cord with diverse etiologies, often leading to significant neurological deficits. Accurate and timely diagnosis is essential but challenging due to the overlap of clinical presentations and imaging findings.

Materials and Methods
A retrospective case series of six patients hospitalized at a university center was analyzed. Clinical presentations, cerebrospinal fluid (CSF) findings, and multimodal imaging results, including MRI and PET/CT, were reviewed to identify diagnostic challenges and therapeutic responses.

Results
Case 1: A 52-year-old female with diplopia and gait disturbances was diagnosed with tick-borne encephalitis-related myelitis based on CSF and MRI findings.
Case 2: A 59-year-old female with a history of spinal meningioma developed radiation-induced myelitis at the Th11 level, confirmed by MRI demonstrating focal spinal cord edema.
Case 3: A 27-year-old female with cervical and thoracic spinal cord lesions underwent PET/CT, revealing mediastinal lymphadenopathy consistent with neurosarcoidosis; spinal MRI demonstrated positive dynamic.
Case 4: A 32-year-old female with acute lower limb paresthesia and paresis showed thoracic myelitis on MRI (Th4–Th6) and CSF oligoclonal bands, suggesting a demyelinating pathology.
Case 5: A 52-year-old female comorbid with HCV infection presented with acute tetraparesis; cervical MRI revealed longitudinal lesions at C5–C7, with CSF showing elevated IgG. Steroid therapy and plasma exchange resulted in clinical improvement.
Case 6: A 49-year-old male comorbid with HIV infection with urinary retention and lumbar pain exhibited longitudinal extensive thoracic myelitis (Th2–Th10) on MRI. Symptoms were retrospectively associated with previous HCV therapy; corticosteroid treatment led to partial neurological recovery.

Conclusions
Transverse myelitis represents a heterogeneous group of disorders requiring careful clinical evaluation and advanced imaging techniques for accurate diagnosis. This case series emphasizes the pivotal role of MRI and adjunctive modalities such as PET/CT in differentiating underlying etiologies and optimizing treatment strategies to improve patient outcomes.

Neuroimmunology

PREVALENCE OF ANTIGANGLIOSIDE AND MYELIN PROTEIN ANTIBODIES IN MULTIPLE SCLEROSIS PATIENTS WITH AND WITHOUT POLYNEUROPATHY

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Objectives
This study aimed to assess the prevalence of antiganglioside antibodies (GM1, GD1a, GD1b, GQ1b) and peripheral myelin protein antibodies (P0, PMP22) in multiple sclerosis (MS) patients with and without polyneuropathy, compared to healthy controls, in order to explore the underlying nature of polyneuropathy in the MS group.

Materials and Methods
Serum samples were collected from 56 patients with clinically confirmed MS, diagnosed according to the revised McDonald criteria to ensure diagnostic standardization. Of these, 21 patients presented with polyneuropathy, while 25 had no evidence of peripheral nerve involvement. A control group of 15 healthy donors, with no known autoimmune, neurological, or immunosuppressive conditions, was included. Controls were matched for age and sex with the MS cohort. The mean age in the MS group was 42 ± 8 years (34 females, 22 males), while the control group had a mean age of 45 ± 12.3 years (9

females, 6 males). Antibody detection was performed using enzyme-linked immunosorbent assay (ELISA) for antiganglioside (GM1, GD1a, GD1b, GQ1b) and peripheral myelin protein (P0, PMP22) antibodies. Comparative statistical analyses were conducted to assess group differences. Ethical approval was obtained, and all participants provided informed consent.

Results

Antiganglioside antibodies, including anti-GM1 and anti-GD1b, were detected in both MS patients and healthy controls. The prevalence of anti-GM1 IgM was 12% in MS patients and 8% in controls. Anti-GD1b IgM was found in 8% of MS patients and 9% of controls. Anti-GQ1b antibodies were rare across all groups (≤10%). No statistically significant differences in prevalence or antibody titers were found between MS patients with polyneuropathy, MS patients without polyneuropathy, and controls ($p > 0.05$ for all comparisons). Antibodies targeting peripheral myelin protein (P0, PMP22) were infrequent in all groups.

Conclusions

Antiganglioside and peripheral myelin protein antibodies were present at similar frequencies in MS patients and healthy controls, regardless of polyneuropathy status. No significant associations with demographic variables or clinical phenotype were observed. These findings suggest that such antibodies are not reliable biomarkers for identifying MS subgroups or for stratifying patients based on peripheral nerve involvement.

Neuromuscular Diseases

ULTRASOUND IN NEUROMUSCULAR DISORDERS: A POWERFUL TOOL FOR DIAGNOSIS AND MONITORING

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Objectives

Despite advances in diagnostic testing, significant challenges remain in the diagnosis of inflammatory polyneuropathies. Recently, considerable attention has been given to neuromuscular ultrasound, with numerous studies proposing various measurement protocols; however, it is still unclear which protocol offers the greatest clinical value. So, the aim of this study was to evaluate and compare several established ultrasound protocols used to assess inflammatory polyneuropathies within a unified patient group.

Materials and Methods

High-resolution nerve ultrasound examinations were carried out following three protocols: the Bochum Ultrasound Score (BUS)/Neuropathy Ultrasound Protocol (NUP), the Ultrasound Pattern Sum Score (UPSS), and the protocol recommended by the European Academy of Neurology and the Peripheral Nerve Society (EAN/PNS). These protocols were applied to patients diagnosed with chronic inflammatory demyelinating polyneuropathy (CIDP), acute inflammatory demyelinating polyneuropathy (AIDP), and multifocal motor neuropathy (MMN), as well as to a group of healthy controls. The reference upper limits for nerve size were adapted to fit our laboratory's normative values for all protocols. Additionally, nerve measurements were reanalyzed using the standard EAN/PNS reference values.

Results

A total of 189 individuals participated in the study (105 men and 84 women): 40 with CIDP, 13 with MMN, 11 with AIDP, and 125 healthy controls. Using the original EAN/PNS protocol bilaterally, 72.9% of CIDP cases were correctly identified. When adjusted according to our normative data, the protocol achieved a 100% detection rate and 100% sensitivity. The adjusted BUS/NUP and UPSS protocols each demonstrated a 90% specificity in diagnosing CIDP. For MMN, the EAN/PNS protocol (applied unilaterally) detected 69.23% of cases and had a 100% sensitivity, whereas the UPSS protocol showed the highest specificity at 96%. In AIDP cases, the adjusted EAN/PNS protocol identified 90.9% of patients using either unilateral or bilateral assessments, with a sensitivity of 91% and specificity of 88%.

Conclusions

The EAN/PNS protocol, especially when adjusted to local normative values, proved most effective for identifying treatable inflammatory neuropathies. Meanwhile, the BUS/NUP and UPSS protocols were particularly useful for distinguishing between different subtypes of inflammatory polyneuropathy. Additional detailed investigations are necessary to establish optimal approaches for disease monitoring.

Others

CHRONIC SMOKER WITH CHRONIC MYSTERY: YEARS OF DIGITAL GANGRENE BEFORE THE DIAGNOSIS OF BUERGER'S DISEASE

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1. Riga East Clinical University Hospital

Objectives
To illustrate a classical but delayed presentation of Buerger's disease (also known as Thromboangiitis Obliterans or TAO) in a young smoker from Latvia, highlighting the consequences of late recognition and to raise awarness among clinicians in the Baltic states where the disease is rarely reported but the risk factor – smoking - remains common in the society.

Materials and Methods
We present the case of a 40-year old male, heavy smoker from Latvia who first came to our attention due to a cerebral infarction in the vertebrobasilar blood supply area and had recurrent digital ulcerations. Clinical evaluation included laboratory investigation, lumbar puncture and vascular imaging. The diagnosis of TAO was established according to Shionoya criteria. Written informed consent for case publication was obtained.

Results
The neurological assessment showed corticonuclear insufficiency, hemihipesthesia, moderately severe left hemiparesis and ataxia. Physical examination revealed ulceration on two fingers, palmar part of the right arm, progressive ischemic pain. Medical history revealed multiple episodes of digital gangrene requiring repeated multiple finger amputations over a sixteen-year period. Laboratory investigations, including autoimmune diseases, were unremarkable. Vascular imaging demonstrated preserved proximal vessels. These findings, in combination with the medical history, risk factors, supported the diagnosis of TAO. After two weeks, neurological examination showed improvement, with only mild hemiparesis and features of ataxia remaining. The patient was counselled extensively on absolute tobacco cessation, which remains the only proven measure to halt progression.

Conclusions
This case illustrated the classical course of TAO whilst underlining the consequences of delayed recognition, which in this case lead to repeated amputations and significant morbidity. In the Baltic states, where smoking prevalence remains high, awareness of this disease is particularly important. Absolute tobacco cessation remains the only intervention proves to halt disease progression.

IMPACT OF CLIMATE CHANGE TO VECTOR BORNE NEUROINFECTIONS (SESSION: NEUROINFECTIONS)

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1. University of Tartu

Objectives
NA

Materials and Methods
NA

Results
NA

Conclusions
Climate change allowes ticks and mosquitos to spread in new areas and enables the distribution of vector borne diseases into previously unaffected areas, leading to a shift in the spectrum of potential pathogens of central nervous system infections Europe. Following global warming and increased flooding, the environmental conditions of disease vectors are changing, causing a need to consider also previously non-native or nearly eliminated pathogens in the differential diagnosis of neuroinfections. Additionally, globalization and increasing human mobility of people confront us with pathogens that are unusual in Europe. The presentation will introduce the most important pathogens, their geographical distribution, their risks, clinical presentations, prevention strategies and treatment options, focusing on tick borne encephalitis, Lyme neuroborreliosis, West Nile virus, Zika Virus and Dengue virus infections.

MANAGEMENT OF SIALORRHEA IN ADULTS: CHALLENGES AND THERAPEUTIC STRATEGIES

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1. Pauls Stradiņš Clinical University Hospital

Objectives

Sialorrhea (drooling) in adults is often caused by neurological disorders that impair swallowing, facial muscle control, or salivary regulation. It commonly occurs as a secondary symptom in conditions such as Parkinson's disease, motor neuron disease, cerebral palsy, stroke, traumatic brain injury, multiple sclerosis, Huntington's disease and various forms of dementia — including Alzheimer's and Lewy body types. These disorders disrupt motor or autonomic functions involved in saliva control. Despite its frequency and impact on quality of life, sialorrhea remains underrecognized and undertreated.

Materials and Methods

A literature review and meta-analysis of 23 recent publications (2020–2025) on pharmacological, non-pharmacological, and surgical treatments for sialorrhea in adults were conducted. Studies addressing sialorrhea as an underrecognized and undertreated symptom were also reviewed. A comprehensive search in PubMed and Web of Science was performed, adhering to PRISMA guidelines to ensure methodological transparency and rigor.

Results

This meta-analysis included 23 eligible studies. Non-invasive first-line treatments—such as behavioral strategies, oral motor therapy, and speech/swallowing interventions—were associated with short-term improvements in adult sialorrhea, but none demonstrated lasting benefits. Oral anticholinergic agents, particularly glycopyrrolate, were effective in 75–95% of patients, though high discontinuation rates (30–70%) due to side effects limited their use. Transdermal scopolamine offered short-term relief but was similarly constrained by tolerability.

Botulinum toxin therapy significantly reduced salivary output (by ~0.30–0.34 g/min), with effects beginning within 1–4 weeks and lasting 10–15 weeks per cycle. Both type A (BoNT-A) and type B (BoNT-B) showed high efficacy—BoNT-B supported by randomized controlled trials and BoNT-A by meta-analyses. Adverse effects were generally mild, including dry mouth and transient dysphagia, with low discontinuation rates.

Surgical interventions provided long-lasting outcomes, outperforming non-surgical therapies. Submandibular gland excision (SMGE), alone or combined with parotid duct ligation (PDL) or rerouting, achieved symptom control in ~80–85% of patients. The DROOL procedure (SMGE with bilateral PDL) yielded both objective improvements (e.g., reduced airway inflammation) and subjective benefits, with 65–67% of patients or caregivers reporting sustained symptom relief and fewer pulmonary complications. In contrast, intra-oral four-duct ligation showed high recurrence and less favorable long-term results.

Despite being common across many neurological conditions, sialorrhea remains underdiagnosed and undertreated. In Parkinson's disease, 70–88% report drooling, yet only 27% receive a formal diagnosis and under 44% receive treatment. Similar underrecognition trends are seen across other neurological populations, despite the substantial burden this symptom imposes on daily functioning and quality of life.

Conclusions

Despite its significant impact on quality of life, sialorrhea remains an underrecognized and undertreated symptom in adult patients. Greater clinical attention and proactive management are warranted to ensure timely and effective intervention. A variety of effective treatment options exist for managing sialorrhea, and several of these—including both conservative and advanced approaches—are available in Latvia, making individualized care feasible.

NEUROPHYSIOLOGICAL CONNECTIONS BETWEEN EATING DISORDERS AND EXAM ANXIETY IN UNIVERSITY STUDENTS: AN EEG STUDY

Esra Sultan Demir [1], **Elif Ebru Ermiş** [2], **Onur Yigitaslan** [3], **Merve Yılmaz** [4], **Mine Akboga** [5]

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Objectives

Eating disorders and exam anxiety are common issues among university students, with shared risks and potential connections[1,2]. EEG (electroencephalography) techniques are suggested to provide insights into the brain networks of individuals with these conditions[3]. This study aims to investigate the effects of exam anxiety on eating attitudes and evaluate these effects neurophysiologically using EEG. The findings are expected to enhance the understanding of anxiety's role in treating eating disorders

Materials and Methods
Data were collected from 11 students using a demographic data form, the Revised Test Anxiety Scale (RTAS), and the Eating Attitudes Test (EAT-40). EEG measurements were taken during pre-exam and exam periods, with participant's eyes open and closed

Results
Paired t-tests were conducted to analyze differences in EEG data.Measurements focused on the FZ (frontal), CZ (central), and PZ (parietal) electrodes, while correlations between RTAS and EAT-40 scores were calculated.Significant differences were observed in the FZ region for both eye conditions across periods, and in the CZ region with eyes closed ($p<0.05$).No significant differences were found in the PZ region ($p=0.341$).Moderate correlations were identified between EAT-40 scores and pre-exam ($r=0.365$) and exam-period ($r=0.351$) data with eyes open, but no significant relationship was found between EAT-40 and RTAS ($r=0.031$)

Conclusions
Study offers a perspective to understand the potential effects on EEG and indicates that exam anxiety affects EEG wave activity in specific regions, while relationships between eating attitudes and EEG data are significant but limited.Future research should explore these interactions in greater detail to better understand their neurophysiological basis

Rare Neurological Diseases

A RARE CAUSE OF HYPERTROPHIC OLIVARY DEGENERATION FOLLOWING CAVERNOUS MALFORMATION HEMORRHAGE: A CASE REPORT

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Objectives
Hypertrophic olivary degeneration (HOD) is an uncommon form of trans-synaptic degeneration involving the dentato-rubro-olivary pathway, also known as the Guillain–Mollaret triangle. Unlike most neurodegenerative conditions, HOD is characterized by neuronal hypertrophy of the inferior olivary nucleus rather than atrophy. While it is most frequently associated with ischemic or hemorrhagic stroke, surgical trauma, or demyelinating disease, its occurrence following hemorrhage from a cavernous malformation (CM) is rare and underreported. This case report describes a patient who developed HOD after hemorrhage from a mesencephalic CM, with emphasis on neuroimaging features and diagnostic considerations.

Materials and Methods
This case report is based on a combined retrospective and prospective analysis of a single patient's clinical course and neuroimaging findings. Previous brain MRI studies were reviewed in conjunction with recent follow-up imaging and ongoing clinical evaluation. Data were obtained from the patient's medical records and magnetic resonance imaging, including diffusion tensor imaging (DTI), to document the progression and radiological characteristics of hypertrophic olivary degeneration.

Results
A 55-year-old female presented in December 2023 with acute-onset neurological symptoms, including left-sided facial and limb hypoesthesia, central facial paresis, and gait instability. Neurological examination revealed sensory deficits in the V2 and V3 branches of the trigeminal nerve on the left, as well as decreased sensation in the left extremities. Consciousness was preserved. Brain MRI performed during this initial episode revealed a hemorrhage in the dorsal aspect of the left mesencephalon and led to the first-time diagnosis of an underlying cavernous malformation with an associated venous angioma. The patient was managed conservatively and experienced gradual clinical improvement. A follow-up MRI performed six months after the hemorrhage demonstrated hypertrophy of the left inferior olivary nucleus with T2 and FLAIR hyperintensity, consistent with developing HOD. At that time, the patient reported no specific neurological complaints. At a subsequent follow-up 1.5 years after the initial hemorrhagic event, repeat MRI showed progression of olivary hypertrophy, now measuring approximately 1.6 cm CC and 0.5 cm AP. The signal intensity on T2-weighted and FLAIR sequences remained elevated, without evidence of atrophy. These findings were consistent with stage 4 of HOD, according to the five-stage radiological classification. Clinically, a palatal tremor was noted for the first time during this evaluation. DTI tractography showed partial disruption and volume reduction of the left central tegmental tract, confirming trans-synaptic degeneration within the Guillain–Mollaret triangle.

Conclusions
This case highlights hypertrophic olivary degeneration as a rare complication of mesencephalic cavernoma hemorrhage. Recognition of characteristic imaging features—persistent T2/FLAIR hyperintensity and olivary hypertrophy without atrophy—is essential. DTI tractography supports the trans-synaptic mechanism. Accurate identification of HOD is critical to prevent misdiagnosis, avoid unnecessary investigations, and ensure correct interpretation of delayed-onset neurological symptoms.

MANAGEMENT OF NMOSD AND ANTI-MOG DISEASE

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Objectives
Neuromyelitis optica spectrum disorder (NMOSD) and myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) are rare but severe inflammatory demyelinating disorders of the central nervous system. Although they share clinical similarities with multiple sclerosis, their pathogenesis, biomarkers, and treatment strategies are distinct. Early and accurate diagnosis is crucial, as non-targeted therapies may exacerbate disease activity.
The management of NMOSD has advanced significantly with the development of targeted immunotherapies, including monoclonal antibodies directed against complement (ravulizumab), interleukin-6 receptor (satralizumab, tocilizumab), and CD19-positive B cells (inebilizumab). These therapies have significantly reduced relapse rates and improved patient outcomes. Off-label immunosuppressive therapies, such as rituximab, azathioprine, and mycophenolate mofetil, remain widely used in clinical practice, particularly in seronegative cases. Although not specifically approved for NMOSD, they are supported by substantial real-world evidence and have demonstrated high effectiveness.
In contrast, the optimal treatment strategies for MOGAD are less clearly defined. Corticosteroids are effective for acute attacks, but long-term immunosuppressive treatment is often required to prevent relapses. Rituximab, intravenous immunoglobulins (IVIG), mycophenolate mofetil, tocilizumab, and satralizumab have been used in relapsing cases, with clinical reports supporting their effectiveness. Importantly, the natural history and long-term prognosis of MOGAD appear to differ from NMOSD, emphasizing the need for individualized management approaches.
There are also emerging reports on the use of CAR-T cell therapy in NMOSD and MOGAD, showing promising effectiveness in individual cases, although its role in routine management remains to be established. In this lecture, the experience of treating patient with CAR-T therapy will be discussed.

Materials and Methods
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Results
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Conclusions
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SPINAL DURAL ARTERIOVENOUS FISTULA MIMICKING NEURODEGENERATIVE AND INFLAMMATORY DISEASE: A CASE REPORT

Liene Korsaka [1], **Normunds Sūna** [2], **Artūrs Šilovs** [3], **Inga Sūna** [4], **Ieva Zimaiša** [5]

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Objectives
To report a diagnostically challenging case of spinal dural arteriovenous fistula (SDAVF) presenting as progressive paraparesis and extraocular fatigability, initially misattributed to neurodegenerative or inflammatory etiologies.

Materials and Methods
A 66-year-old male presented with a 6-month history of worsening bilateral leg weakness, exacerbated by exertion, walking and leading to falls. Initial outpatient lumbar magnetic resonance imaging (MRI) raised concerns of distal spinal cord edema, prompting hospital referral. Neurological exam revealed lower-limb paraparesis and fatigability of the left extraocular muscles (left eye previously operated), without sensory deficits or pathological reflexes. Electromyography and nerve conduction studies ruled out motor neuron disease, myasthenia gravis, and polyneuropathy. Cranial MRI was unremarkable. Thoracic MRI showed intramedullary signal abnormalities suggestive of longitudinally extensive transverse myelitis. Single dose of intravenous methylprednisolone (1 gram) caused clear detoriation of patient's condition, and was discontinued. Cerebrospinal fluid (CSF) analysis revealed no pleocytosis. Reevaluation of initial thoracic MRI suggested vascular cause of edema due to vaguely dilated perimedullary veins. Initial spinal digital subtraction angiography (DSA) failed to identify

pathology due to severely tortous iliac arteries hindering catheter navigation in aorta. MRI spinal angiography with dynamic post contrast sequence was followed by second spinal DSA to successfully demonstrate SDAVF localisation level. The patient underwent microsurgical resection of the fistula; histopathology confirmed the diagnosis.

Results

Following successful surgery, the patient showed rapid neurological improvement, regaining independent ambulation by postoperative day 2. No further neurological deficits were noted at early follow-up.

Conclusions

This case highlights the diagnostic pitfalls of SDAVFs, which can mimic neurodegenerative or inflammatory myelopathies. Absence of sensory signs, fatigability and misleading initial imaging contributed to delays. Early consideration of vascular etiologies in progressive myelopathy with normal CSF is essential. MRI spinal dynamic angiography prior to spinal DSA is a useful tool, indicating possible localisation of dural fistula. Prompt surgical intervention can yield swift and dramatic recovery, preventing long-term disability.

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