

Disclosures: A. Markh: I Have No Relevant Financial Relationships To Disclose.

Case Description: This is a case of a 73-year-old woman with right foot drop following spinal cord ganglioma at T7-T8 level s/p surgery. Post-operatively she was issued a semi-solid AFO and a rigid knee extension brace for complaints of foot drop and right knee buckling. However, she did not tolerate the AFO because of severe plantar foot pain and because it did not stop her right knee buckling. The knee brace complicated sit-to-stand transfers and failed to support the weak quadriceps muscles on the right. The patient presented to our rehabilitation clinic complaining of persistent right foot drag and right knee buckling when she walks. She brought into clinic her semi-solid AFO and the knee immobilizer brace.

Setting: Tertiary care hospital.

Results or Clinical Course: We did a trial of a polyethylene anterior shell to convert her semi-solid AFO to a solid AFO and provide dorsiflexion stop to improve her right knee buckling. The patient tolerated it well and reported improvement in knee control during stance and ambulation. This gave us feedback that the patient would benefit from ordering an AFO with dorsiflexion stop.

Discussion: AFOs are commonly used in patients who have weak dorsiflexors, spastic plantarflexors, or difficulty with clearing the foot while walking. There are various AFO designs. Custom features such as 'stops' and 'assists' allow the provider to tailor the AFO to a patient's specific needs. For example, a 'dorsiflexion stop' or anterior stop is used to limit ankle motion to neutral or slight plantarflexion. As the patient's center of mass moves forward during gait, the tibial advancement is limited by the AFO creating a knee extension moment. This can improve stability of the knee especially when the quadriceps are weak and the knee buckles. This feature can also be accomplished by attaching an anterior shell to a patient's pre-existing AFO. We did not find any studies that focus specifically on using a temporary anterior shell attachment to a patient's pre-existing PLSO or semi-solid AFO to see if they would benefit from a dorsiflexion stop feature.

Conclusion: We have shown in this case report that an anterior shell can be used as an evaluation tool prior to ordering a new expensive AFO.

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The Unique Case of Dual Median-Ulnar Innervation of the First Dorsal Interosseous and Abductor Digiti Minimi: A Case Report

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Disclosures: A. Mathews: I Have No Relevant Financial Relationships To Disclose.

Case Description: A 67-year-old man presented to the electrodiagnostic laboratory for evaluation of bilateral arm and hand numbness. Patient reported progressive numbness in bilateral arms for many years without an inciting event. Numbness was reportedly most severe in his right hand in no particular peripheral nerve distribution. Physical examination revealed symmetric muscle bulk without weakness in the hand, normal reflexes, and intact sensation.

Setting: Tertiary care hospital.

Results or Clinical Course: Bilateral ulnar compound muscle action potentials (CMAPs) recorded at the first dorsal interosseous (FDI) demonstrated a pseudo-conduction block across the forearm. Further investigation lead to evaluation for a Martin-Gruber anastomosis, recording at the FDI bilaterally and the abductor digiti minimi (ADM) on the left. Distal stimulation of bilateral ulnar and median nerves produced equivalent CMAP amplitudes that were preserved with proximal stimulation. Similarly, distal stimulation of left ulnar and median nerves recorded at ADM produced equivalent CMAP amplitudes that were preserved with proximal stimulation. Note that these responses were recorded with relatively low stimulation.

Discussion: These findings are indicative of a Martin Gruber anastomosis in the forearm with superimposed dual innervation of both the FDI and ADM by the median and ulnar nerves in the hand. Multiple

anomalous ulnar/median innervations are rare and only mentioned in few case reports. Due to their unusual presentation, these types of anomalies are difficult to recognize by means of electrodiagnostic study. **Conclusion:** It is important for the electromyographer to be mindful of the possibility of numerous ulnar/median anomalies in effort to prevent erroneous diagnoses and perhaps unnecessary surgical interventions.

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Osteochondroma after Ankle-Foot Orthosis Use: A Case Report

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Case Description: A 52-year-old woman with a history of chronic myeloid leukemia (CML) status post stem cell transplant presented to outpatient clinic with bilateral shin pain. Patient had developed peripheral neuropathy and chronic graft-versus-host-disease after treatment for CML. Due to these complications, she displayed weakness in her ankle plantarflexors, dorsiflexors, and great toe extensors as well as ankle plantar flexion contractures. She was fitted with bilateral ankle-foot-orthoses (AFOs) to aid in gait mechanics. Eight months after receiving custom-made solid AFOs, the patient began experiencing a dull pain in bilateral anterior shins along the most proximal contact point of her AFOs. Examination revealed a mildly tender, immobile lump over bilateral tibial plateaus without neurovascular compromise. Radiographs of the lower extremity revealed well-defined exostosis from the anterior distal tibial diaphyseal junctions consistent with bilateral osteochondromas at the area of contact with her AFOs.

Setting: Academic rehabilitation hospital.

Results or Clinical Course: Patient followed up with her primary oncologist who deemed the osteochondromas unrelated to her prior history of chemotherapy and radiation. Observation for growth of osteochondromas was recommended without plans for surgical resection. She had AFOs adjusted to minimize pressure over osteochondroma sites with improvement in pain.

Discussion: Osteochondroma is a benign bone tumor that typically occurs in the pediatric and adolescent population. Although most cases are idiopathic, osteochondroma formation may be linked to local trauma. To date there have been no published reports of osteochondroma formation with AFO use. This case demonstrates that osteochondroma formation is a possible adverse effect of long term AFO use. **Conclusion:** Osteochondroma formation should be considered on the differential for new pain at the site of orthotic wear. Additionally, maintaining a high suspicion for osteochondral lesions is important to prevent bone deformity or even fracture due to expansion of an osteochondroma.

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High Prevalence of Cranial Asymmetry May Exist in Infants with Neonatal Brachial Plexus Palsy (NBPP)

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Objective: Determine the incidence of cranial asymmetry in infants with NBPP.

Design: Prospective cross-sectional.

Setting: Brachial Plexus Clinic at the University of Michigan Orthotics and Prosthetics Center

Participants: Twenty eight infants (14 male, 14 female; mean age, 5 months) with NBPP were recruited from the Brachial Plexus Clinic at the University of Michigan Orthotics and Prosthetics Center to

participate in the study (mean number of visits = 2). Inclusion criteria: less than one year of age and no previous exposure to plagiocephaly cranial remodeling therapy or surgical intervention.

Interventions: Not applicable

Main Outcome Measures: Reported measures include patient demographics and birth history (delivery type, presentation, induction of labor, birth aid, shoulder dystocia and torticollis); NBPP factors include palsy side, Narakas score and range of motion (shoulder flexion in adduction and elbow flexions in abduction). Cranial diagonal difference and cephalic index were measured to determine plagiocephaly factors.

Results or Clinical Course: There were a total of twenty babies (71%) observed with plagiocephaly throughout the study (eight resolved). Shoulder dystocia was found to be prevalent among the group (46%) and was more common along the resolved group (88%, $P=.02$). Babies in the non-plagio group generally exhibited more active range of motion in shoulder flexion, elbow flexion abduction and adduction than babies with plagio. All other factors had no significant correlations.

Conclusion: High prevalence of plagiocephaly exists among the NBPP population examined. Shoulder dystocia may be an important feature that can be used as a predictive quality in the future. In summary, parents and physicians should encourage infants to use their upper extremity to change position; for example, tummy time, could be introduced in order to strengthen the muscle and potentially reduce chance of cranial asymmetry.

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Rectus Sheath Hematoma (RSH) Imitating Right Hip Pain

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Case Description: An 86-year-old man presented after a fall from his wheelchair at home. CT head showed a large right intraventricular hemorrhage. He was not on anticoagulation prior to admission. The patient had 3 year history of right hip pain and it had not improved with treatment in rehabilitation. Right hip X-ray was unchanged. The following day, there was a palpable mass in the right lower quadrant and CT abdomen showed a large RSH. DVT prophylaxis was discontinued and he was started on IV fluids. The following morning, the patient was unresponsive and transferred to the ICU for further monitoring.

Setting: University inpatient rehabilitation neurotrauma unit.

Results or Clinical Course: He was found to have increased anemia and was also treated for urosepsis. He was stabilized and transfused packed red blood cells. He did return to inpatient rehabilitation and was able to continue to participate in therapy. His RSH and right hip pain did gradually improve throughout his stay.

Discussion: Although rare, RSH has become more prevalent and may be responsible for acute onset abdominal wall pain. It occurs more often in elderly female patients who are receiving anticoagulation and it can be missed or incorrectly diagnosed. RSH is due to damage of the superior and inferior epigastric arteries and/or the abdominal wall muscles. Risk factors include poor injection technique, abdominal wall trauma or straining. Fothergill's and Carnett's sign can help differentiate RSH from intra-abdominal pathologies. Complications of RSH include anemia, hemorrhagic shock, abdominal compartment syndrome, obstructive uropathy and hydronephrosis. Conservative management includes close monitoring, fluid resuscitation and reversal of anticoagulants. Endovascular embolization of the epigastric vessels or surgery with exploration and hemostasis of the hematoma is also an option for unstable patients.

Conclusion: RSH can be life threatening and early diagnosis with conservative management leads to good outcomes without sequelae. Surgery is reserved for the more severe cases, but it is associated with significant morbidity. Protocols should be followed and further defined

in regard to stopping and restarting anticoagulation as this can have a profound affect the patient's outcome and recovery.

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Polyradiculoneuropathy Associated to Chikungunya Virus Infection: A Case Report

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Disclosures: J. C. Galloza-Otero: I Have No Relevant Financial Relationships To Disclose.

Case Description: A 52-year-old female patient with history of chronic right shoulder pain. She was diagnosed with rotator cuff tendinopathy with MRI showing partial supraspinatus tear. She then developed general malaise and multiple joint pain. She was diagnosed with Chikungunya viral infection by ELISA assay. At 3 weeks post-onset of the symptoms her right shoulder pain worsened, and she presented with weakness and a tingling sensation in the right 4th and 5th digits. At 8 weeks she started with similar symptoms on her left upper extremity. She was treated symptomatically with medications for pain and physical therapy. A short-course of steroid medication was also administered.

Setting: Outpatient physiatry and neuromuscular medicine clinic.

Results or Clinical Course: Electrodiagnostic study showed evidence of a polyradiculoneuropathy. At 4 months post-onset, the patient continues with pain and weakness in both upper extremities and neck pain. She has had partial temporary response to steroid therapy with relapse after discontinuation. Physical therapy had short-term relief of pain symptoms. She has recently noticed worsening of weakness in the lower extremities. Further developments will be discussed.

Discussion: Neurologic and musculoskeletal sequelae have been described after infections caused by different strains of arbovirus. These might include chronic inflammatory arthritis, acute flaccid paralysis, peripheral neuropathy, and polyradiculoneuropathy. This is the first reported case, to our knowledge, of a polyradiculoneuropathy associated to an ELISA confirmed case of chikungunya virus infection.

Conclusion: Multiple etiologies may be considered as culprits of acute musculoskeletal complaints after a viral illness. Complex neurological conditions should be taken into account as they may be associated to this recently epidemic, self-limiting viral illness.

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35-year-old Woman with Acute Inflammatory Demyelinating Disease (AIDP) after Laparoscopic Roux-en-Y Gastric Bypass: A Case Report

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Disclosures: R. Shah: I Have No Relevant Financial Relationships To Disclose.

Case Description: A 35-year-old morbidly obese woman underwent Roux-en-Y gastric bypass surgery complicated by dumping syndrome. Approximately two months after procedure the patient presented to the acute care hospital with weakness in all four extremities with bilateral foot drop. Lumbar puncture revealed elevated protein. Electromyography showed reduction in amplitude in all extremities, but most prominent in lower extremities. The patient was diagnosed with a variant of Guillain-Barre syndrome known as acute inflammatory demyelinating polyradiculoneuropathy (AIDP) and subsequently started on intravenous immunoglobulin gamma for five days with improvement in upper extremity weakness. Subsequently, patient was transferred to acute inpatient rehabilitation for functional upgrading.

Setting: Acute inpatient rehabilitation hospital.

Results or Clinical Course: Correlation between Roux-en-Y gastric bypass and Guillain-Barre syndrome

Discussion: Cases of Guillain-Barre syndrome after bariatric surgery are rare but have been documented in the literature. There is no clear etiology yet identified. However, it is well known that prodromal