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Abstract

An 18 year old G1P1 female, 3 months postpartum presented to the emergency department with abdominal pain that was diagnosed as cholelithiasis and choledocholithiasis. Following a cholecystectomy surgery, the patient developed weakness and gait abnormality that was diagnosed as neuralgia.
Meralgia paresthetica is such an understudied diagnosis that its incidence is unknown. Patients who are 30-85 years old, obese, diabetic, and/or pregnant are at an increased risk for the condition. This case calls attention to the underdiagnosis of meralgia paresthetica in pediatric patients with comorbidities. As aforementioned risk factors increase in the pediatric population due to societal and environmental factors, it is imperative to consider these factors when managing pediatric patients at risk for postoperative meralgia paresthetica.

Case Report

An 18 year old G1P1 female, three months postpartum, with a BMI of 26.5 presented to the emergency room with a three day history of abdominal pain. During her visit, the patient had a normal exam, with no abdominal tenderness. Laboratory studies included a normal CBC, WBC count of 8.56, Hemoglobin of 13.0, HCT of 40.6, normal electrolytes, amylase of 70, lipase of 87, and CRP of 1.4. Ultrasound of the gallbladder showed minimal dilatation of the bile duct and multiple stones in the gallbladder. The patient was discharged home with instructions for pain relief and to follow up with a surgeon for removal of her gallbladder. The patient returned to the emergency room 9 hours later with severe epigastric and right upper quadrant abdominal pain. She now complained of nausea and 1 episode of vomiting. Vital signs were stable with no fever. Examination showed an 18 yr old female in acute distress because of pain. Abdominal exam showed tenderness to palpation of the right upper quadrant with guarding. Neurological exam showed no deficits. Although the patient returned to the ER in less than 12 hours her liver function tests then showed elevations in several components: bilirubin level was 3.8, alkaline phosphatase at 236, AST at 327, ALT at 656, and Lipase was 103. CBC and metabolic panels were unchanged from her previous visit. Ultrasound of her gallbladder was repeated showing marked dilation of the bile duct (was 0.3 cm now 0.7 cm) suggestive of choledocholithiasis. The ultrasound of the gallbladder also showed stones, however, there was no evidence of cholecystitis. The patient underwent endoscopic retrograde cholangiopancreatography (ERCP) the following day after admission for removal of the stones from the common bile duct and placement of a stent. A laparoscopic cholecystectomy was also performed. Following the procedures, lab studies returned to normal. However, the patient now complained of weakness to the lower extremities and inability to walk. A neurological consult was obtained and the impression noted a peripheral neuropathy. An MRI was obtained but did not show any significant abnormality. Meralgia paresthetica was determined as the cause for patients inability to ambulate and leg discomfort. Meralgia paresthetica is a condition typically recognized in adults post surgery that is understudied and underdiagnosed in pediatric patients.

Discussion

Meralgia paresthetica is a peripheral nerve disorder that is most commonly associated with entrapment neuropathy of the lateral femoral cutaneous nerve (LFCN) secondary to abdominal surgery and metabolic disorders. The lateral femoral cutaneous nerve sits at such a susceptible location where any sort of stress placed on the abdominal wall like pregnancy, obesity, tight clothing, belts, surgery, and trauma can irritate its functioning and cause sensory symptoms[7]. Symptoms include paresthesias, allodynia, and dysesthesia in the upper and lateral thigh described as burning or tingling in nature and localized to the skin[1]. Metabolic causes for neuropathy come from the slowing of nerve conduction caused by the accumulation of metabolites in diabetes, alcoholism, and lead poisoning[2].
This patient's retrospective diagnosis of meralgia paresthetica can be attributed to many of these risk factors. Firstly, the patient underwent a laparoscopic cholecystectomy prior to experiencing symptoms of being unable to ambulate. While more commonly reported as a complication post inguinal hernia repairs, open abdominal procedures, iliac bone grafting, hip/lumbar surgeries, meralgia paresthetica may also now be a consequence of laparoscopic cholecystectomy surgeries. Being in a specific position for extended periods of time during surgery may have compromised the functioning of the nerve. Additionally, the placements of the surgeons along with surgical instruments in the limited surface area of the surgical field of a pediatric patient may interfere with anatomical structures causing compression of the lateral femoral cutaneous nerve.
Although meralgia paresthetica has been shown to occur in a wide range of age groups, it has most frequently been reported in middle-aged individuals who have a history of neuropathy, which may predispose a physician to overlook MP in the pediatric population. In addition, many studies report predominance in female patients due to a higher incidence of obesity[3][4][5].
A review of 67 patients with meralgia paresthetica in 1972 revealed that obesity, trauma, and pregnancy are responsible for over two-thirds of cases and the most effective treatments are weight loss, nerve blocks, and analgesics[6]. More importantly, according to Edelson & Stevens in 1994, ten of the twenty pediatric patients with similar risk factors and symptoms as our patient were misdiagnosed despite being under the care of multiple physicians. This is likely attributable to the poor documentation of meralgia paresthetica as a viable diagnosis in pediatric patients[4]. It is also important to note the recent rise in childhood abdominal surgeries such as cholecystectomy secondary to rising rates of childhood obesity[8]. In English and North American studies, there has been a sharp rise in female pediatric cholecystectomy since 1997 alone[8]. The rise in pediatric patients undergoing surgeries along with escalating rates of obesity and teen pregnancies, ultimately affirms that meralgia paresthetica should be included in the pediatric differential diagnosis.

Fig 1. The LFCN nerve originates in the lumbar spine specifically at the L2 and L3 nerve roots. It courses along the edge of the psoas muscle and is encompassed in fascia and the iliacus muscle layer. It then ventures medial to the anterior iliac spine before it enters the thigh to provide sensation to the anterolateral segment. Increased abdominal girth, pregnancy, surgery may interfere with anatomical structures causing compression of the lateral femoral cutaneous nerve

Conclusion

Risk factors for meralgia paresthetica that once presented themselves in older populations are now appearing in younger patients, especially obesity and its subsequent complications like gallstone disease. In many literature reviews, it is reported that meralgia paresthetica is frequently overlooked and misdiagnosed in children. As the nation's pediatric obesity levels continue to rise and the increasing occurrence of younger age at parity, clinicians must be on the lookout for meralgia paresthetica in a much different age group. Additionally, clinicians need to be aware of the implications of surgeries, now occurring in much younger individuals, that take place in areas that are in proximity of the LFCN. With increased awareness of the disorder now appearing in pediatric patients, detection and treatment can be initiated effectively and reduce hospital stays and unnecessary testing.

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