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Acute Onset Common Peroneal Nerve Palsy Secondary to Fibular Head Osteochondroma in an Adolescent: A Case Report

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Learning Point of the Article:

Early surgical decompression (<3 months from symptom onset) is critical to prevent permanent nerve damage and ensure full functional recovery.

Abstract

Introduction: Common peroneal nerve (CPN) palsy in the pediatric population is rare, particularly in the absence of trauma. Among the uncommon causes, osteochondroma of the fibular head can lead to compressive neuropathy. Early diagnosis and prompt surgical intervention are crucial to achieving optimal outcomes.

Case Report: A 9-year-old male child with acute onset of foot drop leading to high stepping gait. Clinical examination revealed complete loss of left ankle dorsiflexion with no sensory loss. In comparison to other right knee, there was a smooth rounded prominence felt over the fibular head and neck. Radiological and electromyography investigations suggested sessile bony swelling possibly osteochondroma of fibular head denting on Common peroneal nerve (CPN). Early surgical intervention in the form of osteochondroma excision and neurolysis of the CPN offered complete recovery. We describe the case of a 9-year-old boy who had an osteochondroma of the fibular head resulting in common peroneal neuropathy and full foot drop. We go over the diagnosis, course of treatment, and body of research on nerve issues in paediatric children associated with osteochondroma.

Conclusion: Atraumatic common peroneal palsy is rare in adolescent age. Fibular head osteochondroma should always be kept in mind considering age group and possible location of pressure nerve palsy which fully recovers with early surgical intervention.

Keywords: Acute, common peroneal, osteochondroma, nerve palsy, foot drop, adolescent.

Introduction

The most common benign bone tumor is osteochondroma, accounting for 20–50% of all benign bone tumours and 9% of all bone tumors. It manifests radiologically and clinically as a sessile or pedunculated outgrowth on the outer surface of the bone [1]. Even though they are frequently asymptomatic, osseous abnormalities, fractures, compression of nearby arteries or nerves, or malignant change can all result in symptoms. Less than 1% of all cases of osteochondromas appear with nerve compressions such as common peroneal nerve (CPN) [2]. To date, trauma has been identified as the most common cause of CPN palsy, with tumours accounting for 6% of cases [3].

Case Report

A 9-year-old male child presented with a high stepping gait due left foot drop of acute onset of 10 days (Fig. 1). Patient did not injure his knee or any external compression in the form of sleeping over any hard surface in lateral position. On

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Author's Photo Gallery


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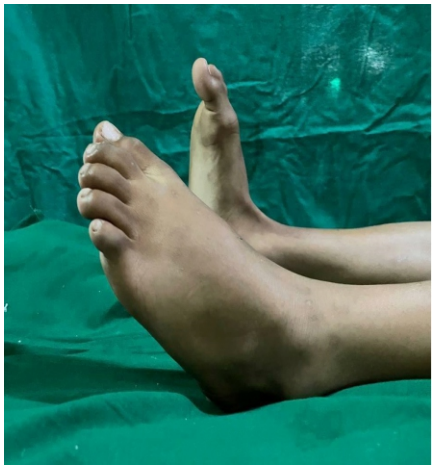

Figure 1: Clinical picture of foot drop on left side.

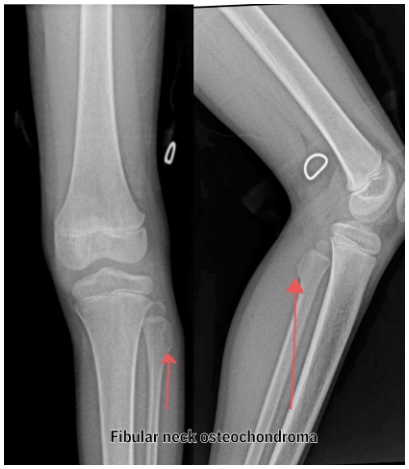

Figure 2: Radiographs showing sessile osteochondroma of fibular head and neck.

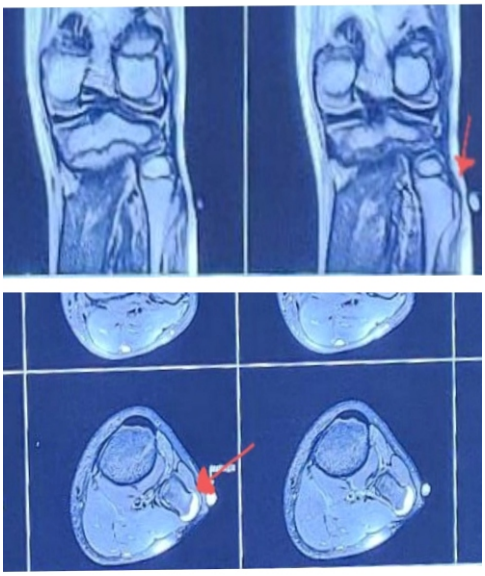

Figure 3: Magnetic resonance imaging coronal and axial sections showing osteochondroma of fibular head.

examination, in comparison to the right knee, there was a smooth rounded prominence felt over the fibular head and neck and associated findings of complete loss of left ankle dorsiflexion with no sensory loss. Blood parameters showed erythrocyte sedimentation rate and C-reactive protein within normal limits.

Radiographs were done which revealed a sessile bony growth at the fibular head with intact cortical regularity (Fig. 2). Magnetic resonance imaging (MRI) showed presence of cartilage cap with surrounding oedema with CPN tenting seen due to the osteochondroma (Fig. 3). Electromyography (EMG) suggested denervation of left tibialis anterior muscle with normal sensory conduction pattern.

After thorough evaluation, fibular osteochondroma is considered the reason for CPN palsy, and surgical excision of fibular osteochondroma is planned. Intraoperatively, finings or preop evaluation confirmed fibular osteochondroma tenting on the CPN is visualized (Fig. 4). Under spinal anesthesia, the patient is placed supine with a sandbag placed underneath the affected buttock and a tourniquet was inflated after exsanguination. An 8 cm linear incision was taken just posterior to the fibula, along the line of the biceps femoris tendon and after a superficial surgical dissection, CPN was visualized. The nerve was mobilized and it was retracted anteriorly using a rubber drain tube. Muscles were stripped and fibula was exposed. En-block tumor excision was performed. Closure was done in layers followed by the above knee splint was given in an ankle neutral position. Excision of osteochondroma was done carefully thus relieving pressure followed by perineural neurolysis of CPN (Fig. 5). Gross specimen size was 2.4 cm X 1.5 cm X 1.5cm and histopathological examination confirmed the swelling as osteochondroma (Fig. 6) with no evidence of any malignant transformation. Post operative x-rays revealed the removal of the osteochondroma and loss of the bony contour which could be the possible reason for compression of CPN (Fig. 7).

The patient had an uneventful surgery and post-operative rehabilitation protocol initiated along

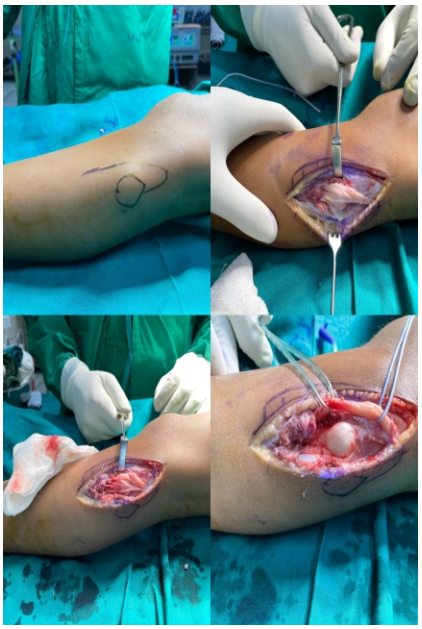

Figure 4: Intra operative images showing of fibular osteochondroma compressing common peroneal nerve and after neurolysis.

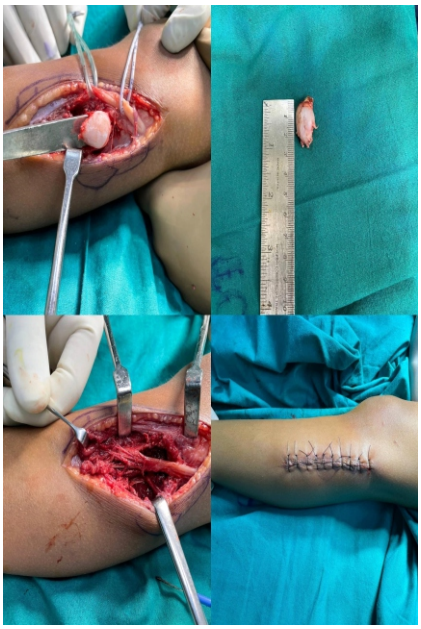

Figure 5: Excision of Osteochondroma with decompression of nerve and final closure.

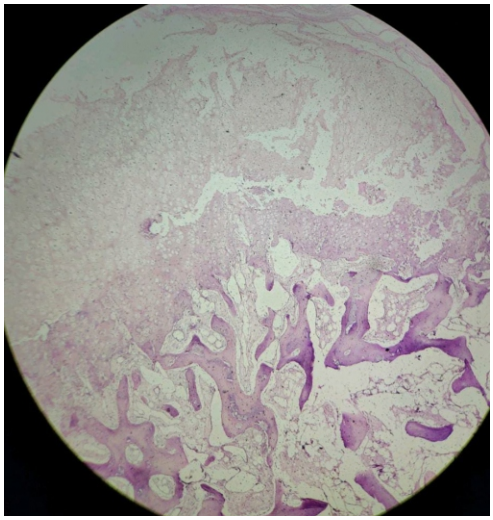

Figure 6: Histopathology of the excised sample showing fibular osteochondroma.

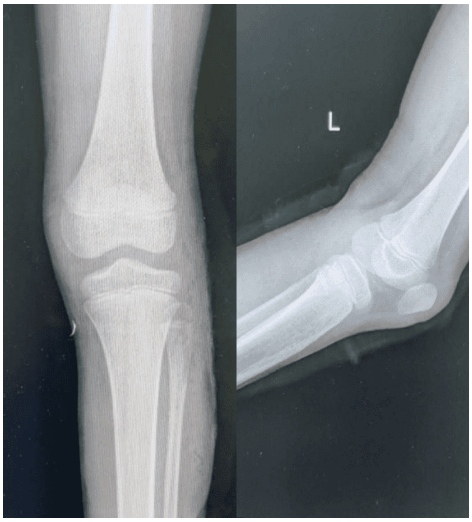

Figure 7: Post operative radiographs after Osteochondroma excision.

with foot drop orthosis. Patient eventually gained full power 5 months after the procedure and was able to perform the activities of daily living. After 2 years of follow up, he has full functional and neurological recovery.

Discussion and Review of Literature

In the appendicular skeleton, osteochondroma is the most common benign developmental tumor. It is distinguished by an atypical, ectopic endochondral ossification surrounding the physis. Osteochondromas are either sessile or pedunculated and in 90% of the cases, they are solitary. The tumor is usually covered by a 1–3 mm cartilaginous cap, which is composed of hyaline cartilage, without cellular atypia [4].

The anatomical course of the CPN and its increased number of fascicles in (the fibular head and neck) area make the nerve vulnerable to any sort of injury. Although injury secondary to a fracture, iatrogenic, or application of skeletal traction or a tight cast are the major causes of peroneal palsy, non-traumatic lesions can to cause peroneal nerve neuropathy and include idiopathic peroneal palsy, intrinsic and extrinsic nerve tumours, extra neural compression by a soft tissue tumour, osseous mass, synovial cyst and ganglion cyst, etc. [4, 5].

Osteochondroma is usually asymptomatic and detected as an incidental finding on radiography. It is considered the most common of all bone tumors. Complications related to the tumor are directly correlated by size and site also it can be intrinsic, extrinsic, or having a mechanical origin. Complications of osteochondroma are due to its mass effect on adjacent tissues which can be further subdivided depending on the tissue involved. Most peroneal nerve trauma mostly occurs at the fibular head region, where the CPN has not yet divided into its deep and superficial peroneal nerve and where most peroneal nerve lesions occur. Motor deficits are far more frequently involved than sensory ones. Explanation to this lies in the arrangement of the fascicles inside of the CPN. The motor fascicles of CPN run more medially, whereas the sensorial fascicles are located laterally. As the exostosis grows from inside to outside, hence the compression of the motor fibres earlier is earlier. Computed tomography and magnetic resonance imaging are vital for concomitantly demonstrating bony, vascular, and soft tissue lesions. Vascular lesions can be diagnosed by angiography or color–flow Doppler ultrasonography, whereas neural involvement can be delineated by careful clinical examination and can be confirmed with MRI and EMG studies. Staging and planning of the surgical procedure, is therefore of utmost importance while dealing with proximal fibular tumors [6, 7]. Based on the literature review a study was conducted on patients who underwent surgical removal of osteochondroma [8]. Out of 24 patients, 20 patients (83%) had complete neurological recovery. Incomplete recovery of nerve function after surgery was associated with the duration of symptoms as a mean of onset of duration of symptoms was 5 months in patients who had complete recovery as compared to 26 months in patients who had incomplete recovery. If an osteochondroma results in entrapment of the peroneal nerve, surgery must be done within 3 months to avoid a decline in surgical success [9].

Our report highlights the importance of early surgical intervention to decompress the CPN in the setting of compressive neuropathy due to osteochondroma to yield a good functional neurological recovery [10, 11].

Conclusion

Atraumatic common peroneal palsy is rare in adolescent age. Fibular head osteochondroma should always be kept in mind considering age group and possible location of pressure nerve palsy which fully recovers with early surgical intervention.

Clinical Message

Atraumatic foot drop in children should prompt evaluation for rare causes such as fibular head osteochondroma. Early surgical decompression of the common peroneal nerve within three months of symptom onset is essential for complete neurological recovery.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

1. Murphey MD, Choi JJ, Kransdorf MJ, Flemming DJ, Gannon FH. Imaging of osteochondroma: Variants and complications with radiologic-pathologic correlation. Radiographics 2000;20:1407-34.

2. Göçmen S, Topuz AK, Atabey C, Şimşek H, Keklikçi K, Rodop O. Peripheral nerve injuries due to osteochondromas: Analysis of 20 cases and review of the literature. J Neurosurg 2014;120:1105-12.

3. Arabi H, Bakzaza O, El Fikri A, Elktaibi A, Saidi H, El Alaoui M. Compression of the peroneal nerve by a neurofibroma originating from collaterals of the peroneal nerve: A case report. J Med Case Rep 2016;10:28.

4. Vanhoenacker FM, Van Hul W, Wuyts W, Willems PJ, De Schepper AM. Hereditary multiple exostoses: From genetics to clinical syndrome and complications. Eur J Radiol 2001;40:208-17.

5. Mnif H, Koubaa M, Zrig M, Zammel N, Abid A. Peroneal nerve palsy resulting from fibular head osteochondroma. Orthopedics 2009;32:528.

6. Kumar M, Malgonde M, Jain P. Osteochondroma arising from the proximal fibula: A rare presentation. J Clin Diagn Res 2014;8:LD01-3.

7. Çinar A, Yumruk al F, Salduz A, Dirik Y, Eralp L. A rare cause of 'drop foot' in the pediatric age group: Proximal fibular osteochondroma a report of 5 cases. Int J Surg Case Rep 2014;5:1068-71.

8. Keny SM, Dabral L, Meshram P, Ansari N, Gokhale N, Nawale S, et al. Acute onset common peroneal nerve palsy in a child due to fibular head osteochondroma: A case report. Int J Res Orthop 2022;8:268.

9. Flores LP, Martins RS, Siqueira MG. Clinical results of transferring a motor branch of the tibial nerve to the deep peroneal nerve for treatment of foot drop. Neurosurgery 2013;73:609-15.

10. Marciniak C. Fibular (peroneal) neuropathy: Electrodiagnostic features and clinical correlates. Phys Med Rehabil Clin N Am 2013;24:121-37.

11. Lange RH, Lange TA, Rao BK. Correlative radiographic, scintigraphic, and histological evaluation of exostoses. J Bone Joint Surg Am 1984;66:1454-9.

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