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Dr. Ghaniuzzoha Asadi
Sant Muktabai Municipal
Hospital, Barve Nagar,
Ghatkopar (W), Mumbai,
Maharashtra, India

Dr. Aditya Sadawarte
Sant Muktabai Municipal
Hospital, Barve Nagar,
Ghatkopar (W), Mumbai,
Maharashtra, India

Dr. Prutvi Shetty
Sant Muktabai Municipal
Hospital, Barve Nagar,
Ghatkopar (W), Mumbai,
Maharashtra, India

Correspondence
Dr. Ghaniuzzoha Asadi
Sant Muktabai Municipal
Hospital, Barve Nagar,
Ghatkopar (W), Mumbai,
Maharashtra, India

Fibular head osteochondroma causing tingling numbness in leg due to entrapment neuropathy of common peroneal nerve – A rare case report

Dr. Ghaniuzzoha Asadi, Dr. Aditya Sadawarte and Dr. Prutvi Shetty

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Abstract

Osteochondromas are the benign tumors of the bone located mainly in the metaphyses of long bones. It is a very common benign developmental tumor of appendicular skeleton which can arise from any bone that develops from endochondral ossification. The tumor is usually covered by a 1-3 mm cartilaginous cap composed of hyaline cartilage. Etiology of osteochondroma is thought to be a misdirected growth of a portion of the physal plate. It appears mostly in children or adolescents and more common in males. The growth of osteochondroma usually ceases at skeletal maturity. The radiological pathognomonic characteristic of this tumor is the cortical and marrow continuity of the lesion with the adjacent bone. The lesion may be solitary or multiple. Most common site for solitary osteochondroma is the long bones around knee i.e distal end of femur and proximal tibia. Rare sites of occurrence are the scapula, the pelvis, the fibula, the spine, the metacarpals and the metatarsals. The incidence of primary bone tumor in the fibula is rare (2.5%). Entrapment neuropathy of common peroneal nerve occur while it winds around neck of fibula. At this particular location, the nerve is superficial and covered only by subcutaneous tissue and fat. Many reasons for entrapment neuropathy of common peroneal nerve has been mentioned in literature of which fibular head osteochondroma is a rare one. We report a case of 21 year old male who presented with bony hard painless swelling on posterolateral aspect of left knee and tingling numbness of left leg and left foot due to extraneural compression of common peroneal nerve at fibular neck by fibular head osteochondroma which recovered completely after excision of tumorous mass. A histopathological examination of the mass confirmed the diagnosis of a benign osteochondroma. Recurrence of osteochondroma after its surgical excision is rare and can be attributed to incomplete removal of the cartilaginous cap. Prognosis after complete excision is excellent.

Keywords: Entrapment neuropathy, fibular head, osteochondroma

1. Introduction

Sir Astley Cooper in 1818, first described osteochondroma. Osteochondromas are commonly encountered benign tumors located mainly in the metaphyses of long bones with more than 35% cases affecting the bones around the knee. These tumors are considered developmental lesions rather than true neoplasms. It is believed that these lesions result from the separation of a fragment of the epiphyseal growth cartilage, which herniates through normal bone that surrounds the growth plate. Osteochondromas tend to grow eccentrically rather than centrifugally. The lesion may be solitary or multiple, the latter forming part of hereditary multiple exostoses syndrome. The incidence of primary bone tumors in the fibula is rare (2.5%)^[1]. The most common tumours found in the proximal fibula are osteochondromas, giant cell tumours, osteosarcomas, and Ewing's tumours^[2]. Most commonly they present as a slow growing bony hard painless swelling discovered accidentally. Fibular head osteochondroma may alter the normal anatomical course of nerves and vessels. Common peroneal nerve is vulnerable to injury while it winds around neck of fibula. At this particular location, the nerve is superficial and covered only by subcutaneous tissue and fat. Many reasons for entrapment neuropathy of common peroneal nerve has been mentioned in literature of which fibular head osteochondroma is a rare one^[3-6]. We report a case of 21 year old male who presented with bony hard painless swelling on posterolateral aspect of left knee and tingling numbness of left leg and left foot due to extraneural compression of common peroneal nerve at fibular neck by fibular head osteochondroma which recovered completely after excision of tumorous mass.

2. Case Report

21year old male presented to orthopaedic opd with chief complaint of bony hard painless swelling on the side and back of left knee and tingling numbness of left leg and left foot. Two years back he noticed a painless hard swelling which was initially small to begin with. It slowly progressed to current size .Since last three months he was experiencing tingling numbness of outer aspect of left leg and left foot. There was no history of trauma or fever. On physical examination there was a 4*2*2 cm non-tender, hard irregular bony swelling fixed to bone present on posterolateral aspect of left knee not associated with dilated veins, visible pulsation, scars or sinuses. There was no restriction of range of movement of knee joint and there was no neurologic deficit in the extremity. Result of lab analyses was within normal limits. Plain radiograph of left knee joint showed exophytic lesion with cortical and medullary continuity protruding from head and neck of fibula with narrow implantation base, features suggestive of solitary pedunculated fibular head osteochondroma (Fig1). Patient was posted for surgical excision of mass. Under spinal anaesthesia, patient in supine position with a sandbag under affected buttocks under tourniquet, a linear incision was taken along the line of biceps femoris tendon. After superficial surgical dissection, common peroneal nerve was isolated. The tumorous mass was found to be indenting common peroneal nerve at the site where it winds around neck of fibula. The nerve was decompressed and mobilized. It was retracted anteriorly with infant feeding tube (Fig 2). Fibular head and neck exposed and tumorous mass excised along with cartilaginous cap (Fig 3). The mass sent for histopathological examination. Incision closed in layers. Procedure went uneventful. Post-operative radiograph taken which showed complete excision of tumourous mass (Fig 4). Intravenous antibiotics given for three days post-operatively. Sutures were removed on day 14th. Histopathological examination confirmed diagnosis of benign osteochondroma. Patient's symptoms were relieved post-operatively and his recovery was uneventful with full neurological functions.



Fig 1: Plain Radiograph showing solitary exophytic growth suggestive of fibular head osteochondroma decompressed, isolated and retracted.



Fig 2: Intra-operative image showing common peroneal nerve decompressed, isolated and retracted.



Fig 3: Excised Tumorous mass intra-operatively.



Fig 4: Post-operative radiograph after excision of osteochondroma.

3. Discussion

Osteochondromas account for 34% of the benign cartilage tumours and 8% of all bone tumours. These growths are comprised of bone which is surrounded by 1-3 mm cartilage cap. They present as slow growing non-tender bony hard swelling. They can be more commonly solitary (90%) or rarely multiple. They may be pedunculated or sessile. These lesions may also appear with complications such as bone deformities, fractures, neurological or vascular compromise and very rarely malignant transformation. Most commonly they are discovered accidentally but mass effect on nearby structures, nerve or vessel can be symptomatic [1]. The common peroneal nerve is vulnerable to injury while it winds around the neck of the fibula. At this location, the nerve is superficial and covered only by subcutaneous tissue and fat. Several reasons of common peroneal nerve palsy had been reported in literature before. Extranural compression by ganglion cysts, osteophytosis, cysts of lateral meniscus and synovial cysts from proximal tibiofibular joint & benign bone tumors around the proximal fibula causing entrapment neuropathy of common peroneal nerve had been reported before [3-6]. The incidence of primary bone tumours in the fibula is 2.5%. The most common tumours found in the proximal fibula are osteochondromas, giant cell tumours, osteosarcomas, and Ewing's tumours [2]. The growth of the osteochondroma usually ceases at skeletal maturity. Etiology of osteochondroma is thought to be a misdirected growth of a portion of the physal plate [7]. It appears mostly in children or adolescents and more common in males. Plain radiograph is often sufficient for the diagnosis of osteochondroma. Computed tomography and MRI can be useful for identifying any mass effect over nearby neurovascular structures due to slowly growing tumorous mass [8]. Most of the cases of solitary osteochondroma are observed over a time and surgical excision is required if neurovascular involvement occur [9-10].

4. Conclusion

This case report presents a rare presentation of entrapment neuropathy of common peroneal nerve due to uncommon fibular head osteochondroma. Recurrence of osteochondroma after its surgical excision is rare and can be attributed to incomplete removal of the cartilaginous cap. Prognosis after complete excision is excellent.

5. Consent

For this case report to be published patient satisfactorily given informed consent for history, physical examination and publishing clinical photos and other relevant details.

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