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Dr. Ashutosh Kumar
M.S. (Ortho.), Senior Resident, Department of Orthopaedics, IGIMS, Patna, India

Dr. Vidya Sagar
M.S. (Ortho.), Senior Resident, Department of Orthopaedics, IGIMS, Patna, India

Dr. Amarjeet Kumar
M.D, Senior Resident, Department of Anesthesia, AIIMS, Patna, India

Dr. Manish Ranjan
Assistant Professor, Department of Orthopedic, PMCH, Patna, India

Correspondence
Dr. Ashutosh Kumar
M.S. (Ortho.), Senior Resident, Department of Orthopaedics, IGIMS, Patna, India

Bizarre parosteal osteochondromatous proliferation (Nora's lesion) of middle phalanx in an adult female

Dr. Ashutosh Kumar, Dr. Vidya Sagar, Dr. Amarjeet Kumar and Dr. Manish Ranjan

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Abstract
Bizarre parosteal osteochondromatous proliferation (BPOP; also called Nora's lesion) is a benign surface osteocartilaginous lesion. This condition seen in hands followed by the feet, long bones and the skull. The importance of the lesion lies in its clinical and pathological differentiation from malignant lesions mainly in osteosarcoma in children and chondrosarcoma in adults. The lesion is 20–50% recurrence rate. We present a case report of BPOP of the middle phalanx of the right middle finger.The importance of the case lies the involvement of phalanges is not rare, but if present it mainly in the proximal phalanges. In my case present in middle phalanx of the right middle finger.

Keywords: Bizarre parosteal osteochondromatous proliferation, middle phalanx, adult female

Introduction

Case report

A 35-year-old female presented to our outpatient clinic with pain and slowly progressive swelling on the radial aspect of middle phalanx of the right middle finger, with no apparent trigger. Swelling was present for the past 13 years but pain emerged only recently. Pain was unrelenting and not related to activity. Due to pain and cosmetic reason she requested a consultation. On physical examination a discrete, non mobile, hard mass measuring 2x0.7 cm was fixed to the underlying bone with no overlying skin changes. There was minimal tenderness on deep palpation and minimal restriction on the terminal movement of distal interphalangeal joint. Neurovascular examination was normal. Plain X-rays showed a well circumscribed bone-like mass around the distal half of the middle phalanx of the middle finger on the right hand. There was neither breach in the cortex nor medullary involvement. Enbloc resection and decortications were done to prevent the reoccurrence of the bizarre parosteal osteochondromatous proliferation (BPOP). Under ultrasound guided median and radial nerve block was performed by the Anaesthesiologist using 0.5% bupivacaine of volume 3ml for each nerve before start of surgery. Gross specimen showed the surface of the lesion covered by a cartilage cap with osteoid tissue in the interior continuous with the cortical bone. Histopathological examination of specimen revealed cartilage at the margins of the lesion, bone at the center, with fibrous granulation tissue admixed in between. Diagnosis of BPOP was based on the preoperative imaging findings which were later confirmed by histopathological examination.

BPOP is a rare disease that typically presents as aparaosteal mass affecting the surface of bones in the hands and feet, especially the proximal and middle phalanges and carpals and tarsal bones [1]. It presents as an exophytic outgrowth consisting of cartilage, fibrous tissue and bone. Histologically it is characterized by a heterogeneous mixture of bone, cartilage, and fibrous tissue in the exophytic outgrowth [2]. Despite no malignant transformation, metastasis, or death associated with BPOP it has a very high rate of reoccurrence, 50% within 2 months to 2 years of surgery [3]. Despite having characteristic clinical, radiological and histological features, it is repeatedly confused with other benign and malignant lesions such as paraosteal osteosarcoma, and osteochondroma.

Resection of the capsule with decortication of the underlying cortical bone is the treatment of choice to reduce the reoccurrence rate [4]. Due to misdiagnosis and inappropriate treatment associated with BPOP the clinical, radiological and histological features should be considered to make a correct diagnosis as many conditions may mimic BPOP.

Fig 1: Nora's lesion Right middle Finger

Fig 2: X-ray of Nora's lesion Middle Phalanx of Right middle Finger

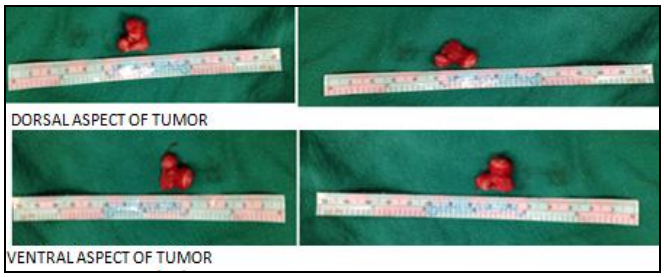

Fig 3: Intraoperative measurement of tumor size

Exposure of tumor through dorsal incision and under figure turniqute

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Fig 4: Exposure of wound through dorsal inscion

Differential diagnosis
Osteochondoma
BPOP
Turret exostosis
Florid reactive periostitis
Juxtaphyseal osteosarcoma

Discussion
BPOP was first described by Nora and colleagues. They reported 35 cases of what they described as 'peripheral skeletal osteochondromatous tumefactions', which were histologically and radiologically distinctive. It is a benign lesion with atypical microscopic features and a high chance of recur. Hands are the commonest site of involvement followed by the feet and skull. The importance of the case lies the involvement of phalanges is not rare, but if present it mainly in the proximal phalanges. In my case present in middle phalanx of the right middle finger.
In summary, BPOP is a rare osteocartilaginous lesion, mainly occure in the adult population. In view of a varied differential diagnosis and a high rate of local recurrence, an early identification and a wide excision are essential in Nora's lesions. Bizarre parosteal osteochondromatous proliferation (Nora's lesion) can occur in middle phalanx. The condition needs to be differentiated from florid reactive periostitis, turret exostosis, osteochondroma and juxtaphyseal osteosarcoma.

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