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MedPeer Publisher
Abbreviated Key Title: MedPeer
ISSN:3066-2737
homepage: https://www.medpeerpublishers.com

# Solitary Osteochondroma Of The Metacarpal – A Case Report

**DOI:** 10.70780/medpeer.000QGMM

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## ABSTRACT

Solitary osteochondroma is a rare benign bone tumor of the hand that arises from the cortical surface. The diagnosis is established using imaging techniques and confirmed by histological examination. Important differential diagnoses include Nora's lesion and Turret exostosis. Treatment typically involves surgical management, with complete excision being the primary approach. We report the case of a 64-year-old woman with a solitary osteochondroma of the metacarpal. After eight-month follow-up, the functional outcomes were excellent.

## KEYWORDS

Osteochondroma, exostosis, bone tumor, hand tumor

# MAIN ARTICLE

## Introduction

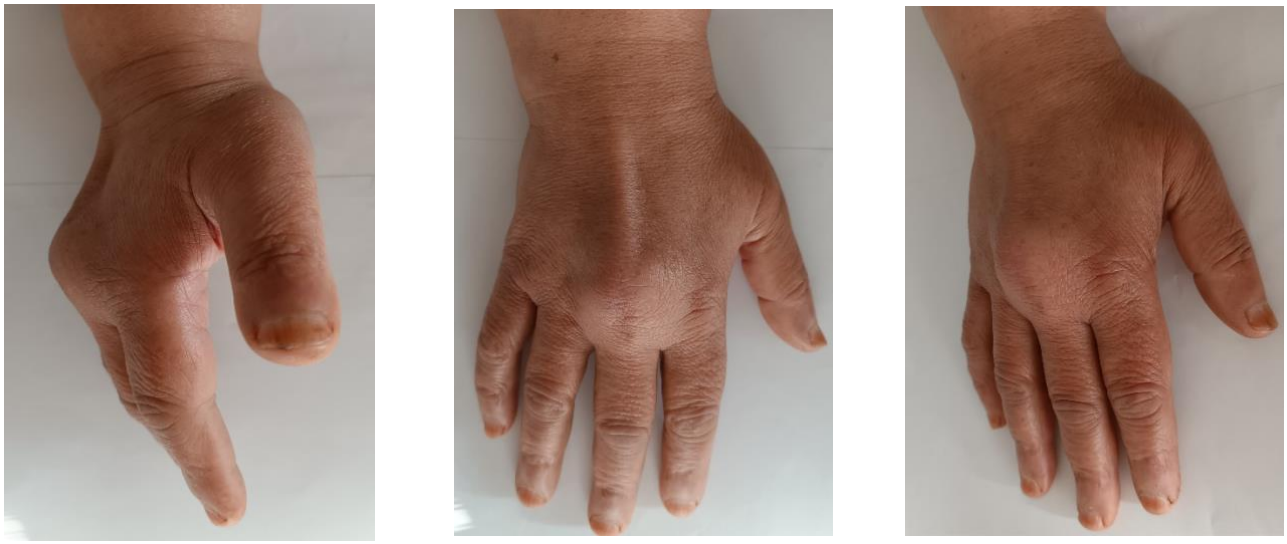
Osteochondroma, also known as exostosis, is a bony outgrowth covered by a cartilaginous cap. It is the most common benign bone tumor, accounting for approximately 40% of all benign bone tumors. In the majority of cases, it is located in the epiphyses of long bones, particularly the femur and humerus. Its occurrence in the hand, including the metacarpals, is rare.

## Case Report

This case involves a 64-year-old right-handed housewife who presented with a swelling on the dorsal side of the hand, above the third metacarpophalangeal joint, developing for 3 years. Her medical history included trauma to the right hand reported three years earlier. The swelling was hard, painless, immobile, and without any signs of inflammation. It formed a bump measuring 3 cm in length and 2 cm in width. The swelling caused a deficit in the extension of the 3rd finger and significant aesthetic discomfort.

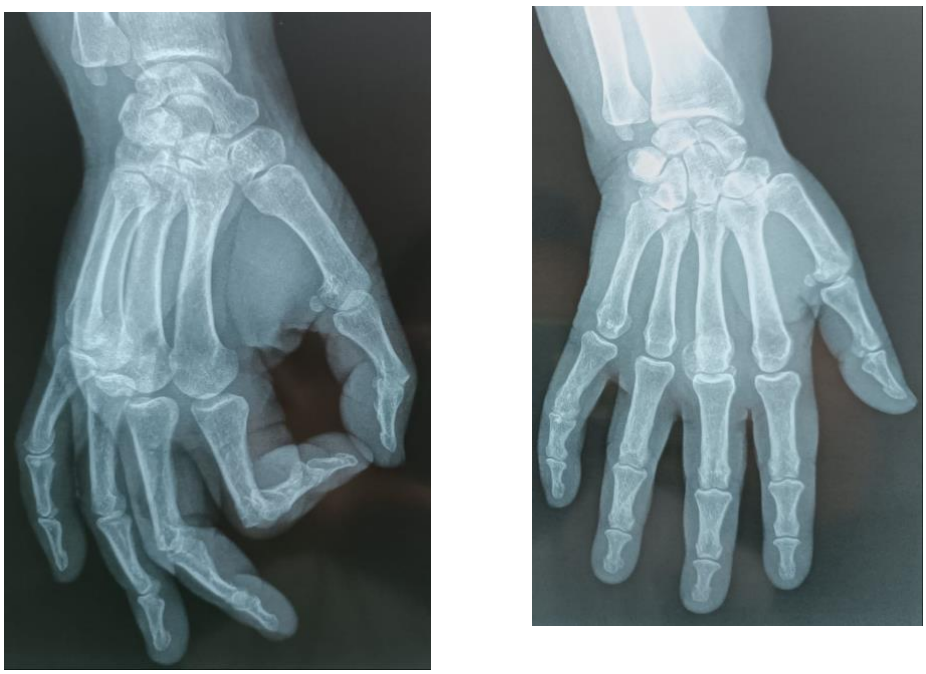
Radiographs of the hand (PA and oblique views) showed a well-defined, pedunculated bony outgrowth with dorsal development in contact with the neck of the third metacarpal. CT scan confirmed the presence of the exostosis, along with irritative tenosynovitis in the adjacent area.

The patient underwent surgery under regional anesthesia. Exploration via a dorsal approach to the swelling revealed a tumor at the neck of the third metacarpal. An excisional biopsy of the lesion was performed with a bloc resection of the tumor. Histopathological examination confirmed the diagnosis of osteochondroma. Postoperatively, the patient received medical treatment and functional rehabilitation to restore strength and range of motion of the third finger. After eight-month follow-up, there was no tumor recurrence, and recovery of the extension of the third finger was complete.



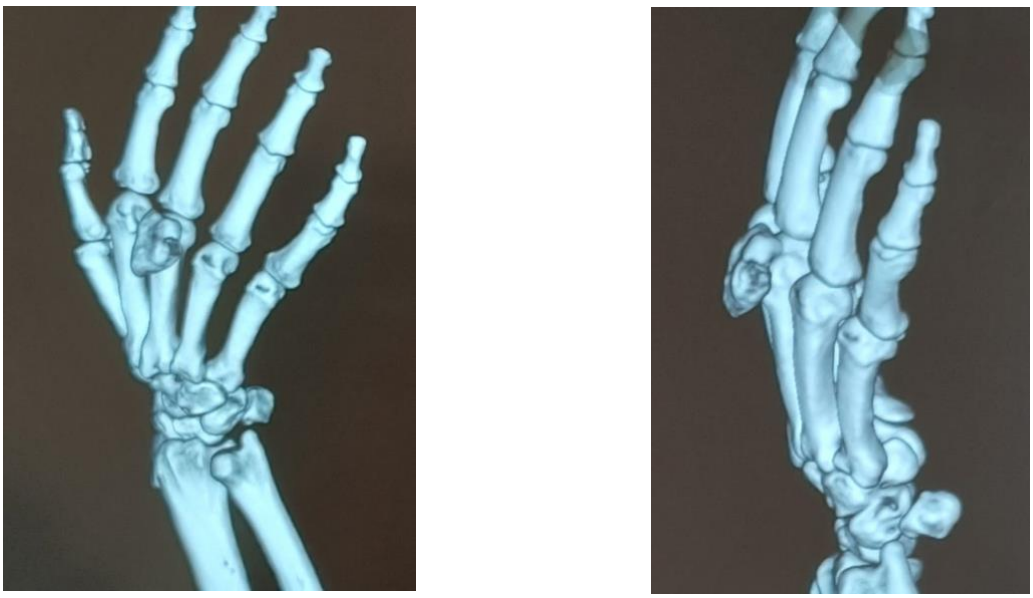
A B C

**Fig. 1.** (A–C) Clinical presentation of osteochondroma of the metacarpal bone.

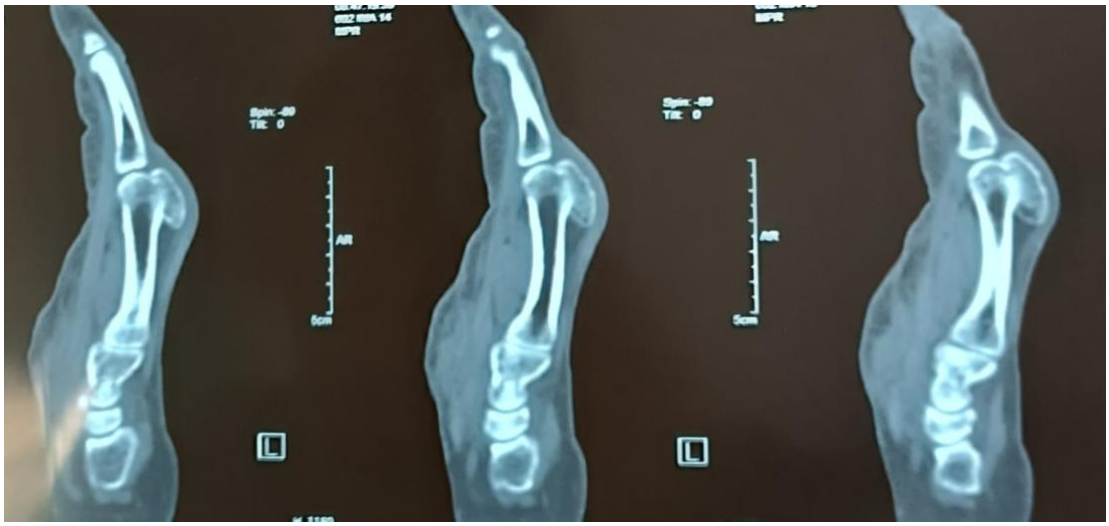


A B

**Fig. 2.** (A–B) X-ray of the right hand showing a pedunculated dorsal mass outgrowth at the neck of the third metacarpal.



**A** **B**



**C**

**Fig 3.** (A-C) CT scan appearance of the tumor.

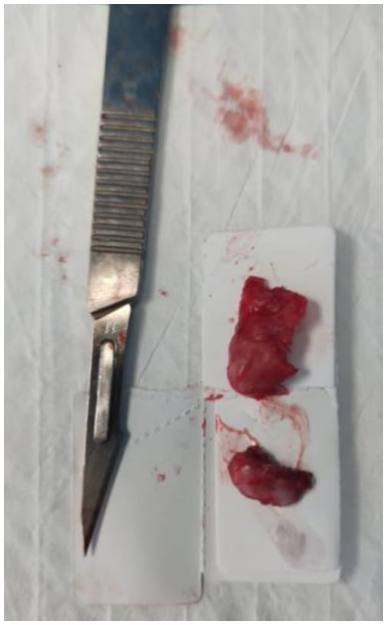


**Fig 4.** Macroscopic appearance of the osteochondroma.

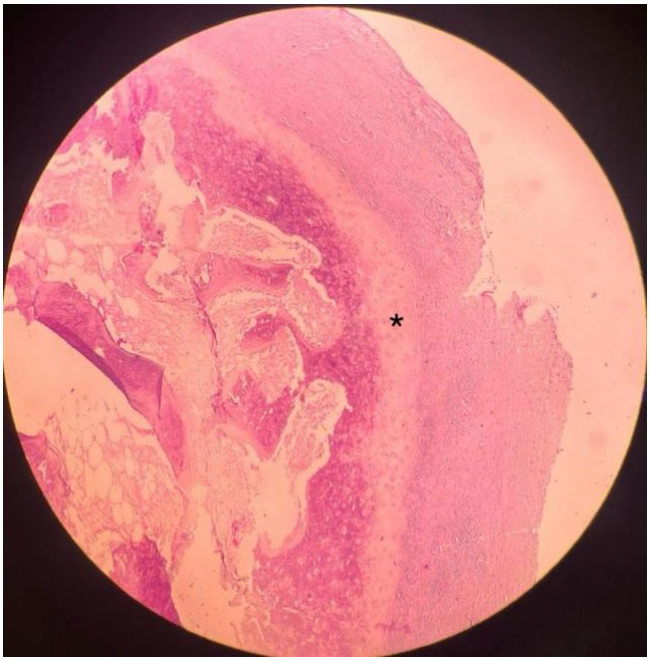



**Figure 5 :** G: x40 Staining: HE Morphological aspect compatible with an osteochondroma.

*: Osteocartilaginous metaplasia

**Discussion**

Osteochondroma is a hamartoma that develops during growth through enchondral ossification, covered by a cartilaginous cap. It accounts approximately 40% of benign bone tumors and 10% of all bone tumors. It is more commonly diagnosed in males, with the majority of cases (70%) being identified before the age of 20 [1,2]. There are two clinical forms of osteochondroma: solitary exostoses and multiple hereditary exostoses (MHE). The metaphysis of long bones is the most frequent site of occurrence [3]. However, localization in the hand is rare, except in cases of MHE. Solitary osteochondroma involving the metacarpal bones has been rarely reported in the literature, with its frequency not exceeding 1%, according to Mirra [4].

The diagnosis of osteochondroma is generally straightforward, as standard radiographic imaging is typically sufficient for confirmation. It usually appears as an additional lesion in the metaphysis of long bones, the girdles, or the axial skeleton. While the length to width can vary, two forms are commonly distinguished: pedunculated, with a narrow attachment to the bone, and sessile, which lack such a narrow base [4]. In rare cases, due to the tumor's location, size, or atypical radiological appearance, additional imaging with computed tomography (CT) or even a biopsy may be required.

Several differential diagnoses must be considered, as these lesions may resemble other surface tumors, both benign and malignant. These include periostitis ossificans, bizarre paraosteal osteochondromatous proliferation (Nora's lesion), and Turret exostosis [5,6]. Paraosteal sarcoma and chondrosarcoma are additional differential diagnoses featuring a more aggressive course. Radiographs are key to distinguishing between osteochondromas, which are continuous with the medullary canal of the underlying bone, and Nora's lesion and paraosteal sarcomas, which are not [6,7,8].

The surgical treatment of solitary exostosis involves its excision. Surgery is indicated for symptomatic osteochondromas, cosmetic reasons, or when malignancy is suspected. The risk of malignant transformation is 1–2% in solitary exostoses [9] and 10–20% in MHE [10]. Malignant transformation typically leads to chondrosarcoma and, more rarely, to osteosarcoma. Certain signs, such as an increase in tumor size, osteolysis, blurred borders of the exostosis, calcifications outside the primary ossification, and erosion of the supporting or adjacent bone, should raise suspicion of malignancy. In most cases, the prognosis after surgery is excellent, with rapid resolution of symptoms.

**Conclusion**

The incidence of a solitary osteochondroma in the metacarpal is rare, typically causing a conflict with the extensor tendons.

The diagnosis is based on radiological examination, ideally supplemented by a CT scan, and is confirmed through histological examination. Treatment involves surgical excision, which must be complete to prevent recurrence.

## ACKNOWLEDGEMENTS

The authors have no acknowledgements to declare and report no conflicts of interest.

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