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HEALTH POLICY & OPINIONS

Enchondroma Presenting as an Acutely Painful Hand

Letter to the Editor

Tom Jose, Thomas Mathew, Awais Iqbal

Go-To-Doc Urgent Care Centre, Royal Preston Hospital, Preston, UK

Cite as: Jose, T., Mathew, T. & Iqbal, A. (2023) Enchondroma causing pathological fracture. Sushruta J Health Policy vol 15; Issue 2: Art 7
doi.org/10.38192/15.2.7

Article information
Submitted Jan'23
Reviewed Jan'23
Revised Mar'23

Abstract

Enchondromas are intramedullary cartilage neoplasms with benign imaging features that constitute approx. 90% of benign tumours in the hands.

We present a 25-year-old previously fit and well female patient with Enchondroma of the metacarpal bone with characteristic imaging and pathologic fracture to increase its awareness for early diagnosis and treatment.

Key Words:

Enchondroma, pathological fracture, benign neoplasm, chondrosarcoma

Introduction

Enchondroma is the most common primary bone tumour of the hand.[1] It is a benign, cartilaginous tumour often presenting as a pathologic fracture. Enchondroma lesions usually appear within the bony medulla, creating an expansile mass.

Almost a third of enchondromas remain asymptomatic and require no treatment. Symptomatic presentations include a palpable mass, pain, or a pathologic fracture[2]. There is no predilection for either males or females. The peak incidence is between 10-30 years. Pain and fractures were the most common symptoms leading the patients to consultation. [1 3] The most common site is the hand, usually in the phalanges or metacarpal bones, followed by the ribs and the long bones of the arm.[4]

Malignant transformation of solitary enchondromas of the hand to secondary chondrosarcomas is extremely rare.[5] Microscopically distinguishing hand enchondroma from low-grade hand chondrosarcoma is a diagnostic challenge for pathologists, but the primary surgical treatment for both conditions is curettage because the latter has a low metastatic potential.[1]

Small localized asymptomatic lesions can be treated conservatively while most expanding or symptomatic lesions should be treated with simple curettage. Surgical management with curettage is the standard of care for symptomatic lesions.[6] Reconstruction entails filling the tumour cavity with a bone graft, or it may be decided not to perform a reconstruction. However, controversy surrounds the timing of surgery for pathologic fractures and the use of surgical adjuncts and post curettage void management. An allograft cortico-cancellous bone can be used effectively in the treatment of enchondromas of the hand. It is especially useful in the treatment of patients with multiple tumours.[7] Most patients return to full function after surgery.

Postoperative complications are typically joint stiffness and soft-tissue-related deformities, whereas recurrence and malignant degeneration of solitary lesions are much less common. Recurrences may occur in these defects many years after excision surgery and go undetected until they cause widening or cortical erosion.[8] Patients with a diagnosis of multiple enchondromas had a higher rate of recurrence following surgery, and patients presenting with a recurrent lesion had a higher rate of complications. Following pathologic fracture, no differences in outcomes were observed when enchondromas were treated primarily or following fracture healing.[9]

Case report

We report a 25-year-old female who attended the urgent care centre with sudden onset severe pain to her right hand after turning a door handle. The hand examination elicited tenderness to the head of 4th metacarpal bone. X-ray of the hand showed a well-defined lucent lesion located at the head of the 4th metacarpal with some cortical irregularity to the neck of 4th metacarpal indicating a minimally displaced pathological fracture.

The patient was referred to orthopaedic team for further management.

Discussion

The hand enchondromas are unique as they may also demonstrate cellular atypia, confusing the histopathological picture with that of chondrosarcoma. Enchondromatous tumours typically begin and grow in childhood arising from rests of growth plate cartilage or chondrocytes that proliferate and enlarge, then stop growing but remain present throughout adulthood. [1]

Symptomatic enchondromas are equally likely to present as painful lesions or as pathological fractures. Patient age, the affected finger, the affected bone, and the percentage of the bone occupied by the pathologic lesion on AP radiographs can be used to predict pathologic fracture risk for enchondromas.[10] In some case series, almost half of neoplasms affecting the bones of the fingers presented initially with

a pathologic fracture, most commonly the small finger.[11]

Physical examination is nonspecific for diagnosis of Enchondroma and imaging plays a key role in diagnosis. Radiographs usually show a well-defined lucent lesion within the medulla of the bone.[12],[13]
Common complications are pathological fracture but malignant transformation into chondrosarcoma is rare and occurs in less than 5% of cases.
Pathologic fractures are commonly treated by curettage and bone grafting, with follow-up x-rays to monitor for healing and recurrence.
An incisional biopsy is obtained intraoperatively. Recurrence may be seen in 2-15% of patients.

Conclusion

The diagnosis of pathological fracture due to enchondroma should be suspected when patients present with hand or limb pain disproportionate to the mechanism of injury. Early detection of enchondroma is possible as an incidental finding if we closely examine routine X-rays so that appropriate treatment can be instituted and complications like pathological fractures can be avoided.

Acknowledgements
The authors would like to thank Mr Yogdutt Sharma, Medical director of GTD for his assistance with proof-reading and editing the article.

Conflicts of interest
There are no conflicts of interest.

Author's contributions
All authors have critically reviewed and approved the final draft and are responsible for the content of the article.

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