Dieterich Disease Treated with Curettage and Bone Grafting: A Case Report

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Learning Point for this Article:

Any pain should not be neglected and more so when it is chronic, in this case we see how careful scrutiny on radiograph and a targeted magnetic resonance imaging helped diagnose an uncommon pathology of metacarpal causing chronic pain which was rectified with treatment and patient had significant relief.

Abstract

Introduction: Avascular necrosis of metacarpal head is a rare entity. There are very few reported cases in the literature and most of them are isolated case reports. Multiple treatment options including successful conservative management are described in literature.

Case Report: We report a case of 57-year-old male who presented to us with a history of chronic pain over the index finger metacarpophalangeal joint. Clinical examination revealed painful range of movement of the affected joint. Radiographs revealed lytic foci. A magnetic resonance imaging scan to further evaluate the condition revealed decreased joint space, articular cartilage thinning, and subarticular cysts.A diagnosis of Dieterich's disease was madeand initial conservative treatment was given for 3months. Curettage of the lesion and autologous cancellous bone grafting from ipsilateral distal radius was done after failed conservative treatment. The patient was symptom free in up to 1-year follow-up.

Conclusion: Non-specific pain of the metacarpals is often neglected. High index of suspicion and careful scrutiny of radiographs are needed to diagnose case of Dieterich's disease.Though uncommon Dieterich's disease should be considered as a probable diagnosis in metacarpal pain. Currettage with bone grafting gives satisfactory outcomein patientswith persistent symptoms after conservative treatment has failed

Keywords: Dieterich, metacarpal avascular necrosis, curettage.

Introduction:

Avascular necrosis of metacarpal head is a rare entity. There are very few reported cases in the literature and most of them are isolated case reports. The condition was first described by Dieterich or Mauclaire around 1932 [1, 2]. Apart from idiopathic etiology, trauma, systemic lupus, and steroid use have been attributedto the cause of this condition [3,4]. There is a male preponderance in 3:2 ratio. Long finger is most commonly involved followed by index finger and most uncommon being the thumb [5]. Multiple treatment options are described including conservative management, curettage and bone grafting, osteochondral mosaicplasty, and flexion osteotomy [6,7].

Case Report:

We report a case of 57-year-old male who is a lecturer by occupation and right hand dominant. He presented to us with a history of chronic pain over the index finger metacarpophalangeal joint since 1year. He denied any history of trauma or steroid use. There was no other joint involvement. Clinical examination revealed painful range of movement of the affected joint. Radiographs revealed lytic foci in the second metacarpal head with no specific arthritic changes (Fig. 1). A

Access this article online

Website: www.jocr.co.in

DOI: 2250-0685.1026

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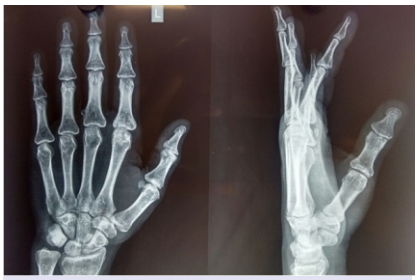

Figure 1: Radiograph on presentation. Focal sclerosis of the second metacarpal head with decreased joint space and altered contour of articular surface.

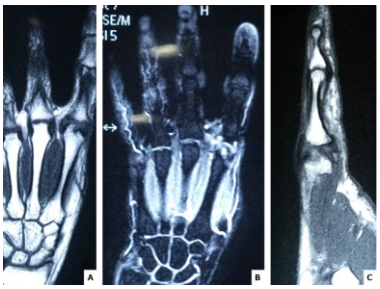

Figure 2: Magnetic resonance imaging images. (a) Coronal T1W image showing hypodense lesion in the second metacarpal head. (b) Coronal T2W image showing hyperdense lesion. (c) Sagittal section showing decreased joint space and cystic lesion in the metacarpal head.

magnetic resonance imaging (MRI) scanto further evaluate the condition revealed decreased joint space, articular cartilage thinning, and subarticular cysts (Fig. 2). Laboratory investigations for inflammatory or infective cause gave unremarkable result. A diagnosis of Dieterich's disease was madeand initial conservative treatment with non-steroidal anti-inflammatory medications was given for 3months. The symptoms persisted and surgical management was undertaken. Curettage of the lesion and autologous cancellous bone grafting from ipsilateral distal radius was done (Fig. 3 and 4). Sutures were removed at 2-week postsurgery. Postoperatively, a below elbow slab was maintained for 3weeks. At 3weeks from surgery, mobilization was started. The patient was symptom free in up to 1-year follow-up and radiograph showed no recurrence and metacarpal head contour was well maintained (Fig. 5).

Discussion:

Dieterich's disease is a rare entity affecting metacarpal bones seen more commonly in males with 3:2 male-to-female ratios, presents usually in the third decade of life. Long finger has higher incidence of 46% followed by index finger and ring with 19%, least common in thumb with only 5% incidence [5]. A cadaveric study on metacarpal vascularity by Wright and Dell shows the susceptibility of the metacarpal head to vascular insufficiency. 35% of metacarpal head lacks a central arteriole leaving the pericapsular vessels the only source [5]. Trauma, steroid use, or any conditions resulting in end vessel vasculitis are attributed as etiological factors though idiopathic etiology is most common [3]. After first published report in 1932, various case reports have been published on this disease. Due to the paucity of reports, there is no universal consensus on the best treatment modality. Successful management with conservative treatment has been reported [8]. Plain radiography of shows metacarpal head flattening and collapse, but MRI scan or bone scintigraphy isbetter tools for diagnosis [9]. In cases of failed conservative management, surgical intervention has been described. Curettage of the lesion and filling the subchondral defect with autologous graft from distal radius as a modality of treatment has shown good outcome. Other surgical options such as osteochondral mosaicplasty and flexion osteotomy have also been described [7, 10]. We resorted to the surgical management after failed conservative trial for 3months. Curettage and bone grafting as a modality was decided as the lesion was small with no significant involvement of the articular cartilage or arthritic changes of the joint.

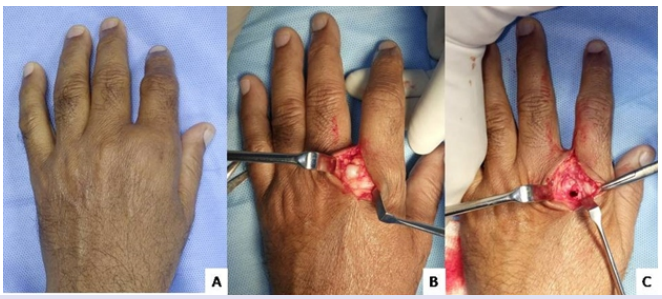

Figure 3: Intraoperative image. (a) Clinical image before incision, (b) dorsal approach to metacarpal head, (c) void after curettage of lesion.

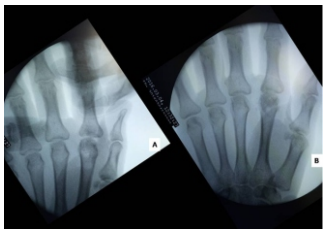

Figure 4: Intraoperative fluoroscopy images. (a) Before bone grafting, (b) after bone grafting.

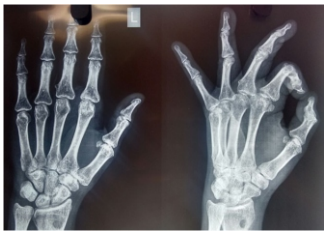

Figure 5: Follow-up radiograph.

Conclusion:

Non-specific pain of the metacarpals is often neglected. High index of suspicion and careful scrutiny of radiographs are needed to diagnose case of Dieterich's disease. MRI is useful in cases of unremarkable radiological and laboratory findings. Though uncommon Dieterich's disease should be considered as a probable diagnosis in metacarpal pain and curettage with bone grafting gives satisfactory outcome.

Clinical Message

Dietrich's disease is a cause of chronic non-specific pain of fingers. Plain radiograph may not show remarkable changes, but MRI is useful in diagnosis. Curettage and bone grafting gives pain relief and good functional outcome.

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Conflict of Interest: Nil
Source of Support: Nil

Consent: The authors confirm that Informed consent of the patient is taken for publication of this case report

How to Cite this Article

Maryada V R, Joseph V M, Pancholi S, Reddy A V G. Dieterich Disease Treated with Curettage and Bone Grafting: A Case Report. Journal of Orthopaedic Case Reports 2018. Mar- April; 8(2): 13-15