Posttraumatic Arthritis of Dip Joint with Deformity and its Management- A Case Report

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Abstract

Posttraumatic Distal interphalangeal joint arthritis is a rare occurrence which is managed with arthrodesis by dorsal approach. When it occurs with deformity and soft tissue contracture, it will be difficult for a surgeon to do arthrodesis without damaging the skin.

Our patient was 24 years old male with posttraumatic arthritis of 4th DIP joint with deformity and skin contracture. The patient was operated with wedge osteotomy and arthrodesis by volar approach. The patient had good functional outcome with no complications. Hence by reviewing this case we conclude that planning and individualised approach is necessary especially when managing a case like this.

Keywords: DIP joint arthritis • Deformity and contracture • Arthrodesis • Brunner incision.

Introduction

Post traumatic arthritis of distal interphalangeal joint is a rare condition characterised by pain, tenderness, restriction of movements and deformity. Post traumatic arthritis of fingers is described less in the literature. But arthritis in distal interphalangeal joints whatever etiology if symptomatic are managed with arthrodesis which has good functional outcome very well established in the literature though there are recent advances like arthroplasty which has limitation in indications and worst complications associated with it [1,2]

Here we described a case of post traumatic arthritis of 4th distal interphalangeal joint who had 80° ulnar deviation of distal phalanx and skin contracture medially. With contracture and deformity in mind, we managed the patient with wedge osteotomy and arthrodesis by volar brunner incision [1,2].

Case

A 24 years old male patient right hand dominant student by occupation presented with pain and deformity in right 4th finger for 7 months. The patient had history of fall from two wheeler 7 months back and sustained injury to right finger. There was no history of burns. The patient had denied any treatment history after the injury and no details available with the patient. The patient had pain and deformity over the distal part of 4th finger which was gradually progressive for 7 months.

On examination the patient had tenderness over the 4th right distal interphalangeal joint with around 80 ulnar deviation of distal phalanx. The patient had skin contracture over the ulnar side of the joint with thin stretched intact skin dorsally and radially (Figure 1). There was no evidence of infection. The patient had complete restriction of motion with complete motion in middle and proximal interphalangeal joint.

The patient expected pain relief and good function as much as possible after the surgery. We had planned for arthrodesis of distal interphalangeal joint which has good functional outcome supported by literature [2]. After explaining the procedure and getting signed consent from the patient, the patient was operated under wrist block. Due to the presence of skin contracture medially and thin skin dorsally we decided to open the joint volarly by brunner incision which is a V shaped incision where the tip at the lateral edge of the distal crease (Figure 2) [1]. After exposing the joint, debridement was done. Close wedge osteotomy of joint surfaces was planned as mentioned in Figure 3. This lead to correction of deformity at the expense of shortening of the finger about 0.8 cm. But it gave added advantage in reducing tension over the contracture when correcting the

Figure 1. Clinical picture showing deformity and contracture.

Figure 2. X-ray showing complete erosion of 4th distal interphalangeal joint with no cartilage and exposed subchondral bone.

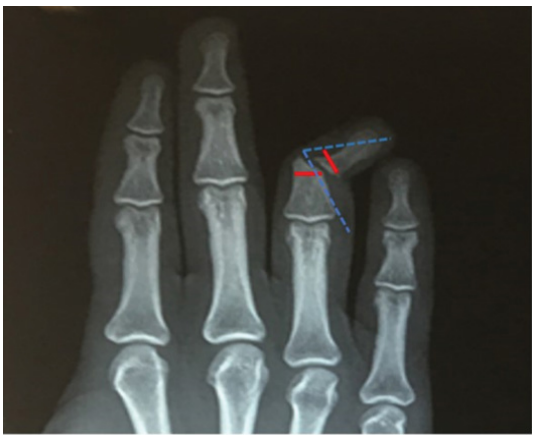

Figure 3. Showing lines of osteotomy(red line) and incision(blue line).

Figure 4. 6 month postoperative clinical picture volar and dorsal aspect.

deformity. After the osteotomy two bone ends were opposed to each other bringing the distal phalanx in line with middle phalanx and fixed with two 1 mm intramedullary k wires. Thus arthrodesis in neutral position had been achieved correcting the deformity without any break in contracture medially.

Postsurgery followup at 3 months patient was absolutely free from pain and completely satisfied with the surgery (Figure 4). Eventhough patient has reduced grip strength compared with normal hand when measured in dynamometer, the patient had good functional outcome compared to preoperative status as evident from the DASH score calculated. The preoperative DASH score was 37.75 which gradually decreased to 18.25 6th month postoperatively.

Discussion

In a metaanalysis by et al Dickson stated that arthrodesis of distal interphalangeal joint with kirschner wires had good union rates and least complication rates than other methods like screws and cerclage wires. He also stated that most surgeons would fuse the joint in full extension because it is adequate for most work of the hand and cosmetically acceptable [2,3].

Mühldorfer-Fodor M [4] stated that arthrodesis of distal interphalangeal joint of middle and ring finger does not lead to reduction in grip strength which is compensated by increased force in index and little finger.

There was no or little literature documenting the posttraumatic arthritis of dip joint with deformity and its management. In this case the patient had arthritis of DIP joint finger with ulnar deviation of distal phalanx and skin contracture medially which was a very unique presentation to be noted. With references from the literature above, we managed this case with arthrodesis using k wires. However the technical aspects of procedure in this case was different where volar approach was used and close wedge osteotomy was done for correction of deformity at expense of shortening. Even though there was technical difficulties in managing this case the functional outcome was good as mentioned above in terms of union and grip strength [3].

So this case was managed well with arthrodesis using brunner incison with good functional outcome and patient satisfaction. Hence I conclude that careful planning and individualistic approach is a key in managing a neglected case like this with difficulties.

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