



## CASE REPORT

## Carpometacarpal Boss with Extensor Tendon Rupture: Case Report

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### Abstract

Carpometacarpal boss is a rare cause of pain and swelling on the dorsum of the hand. Literature is limited on the etiology of this condition and there is no consensus on treatment. We report an unusual case of a 53-year-old man with extensor tendon rupture caused by carpometacarpal boss. Surgical excision of the bony growth and repair of the EIP utilizing interpositional tendon autograft resulted in relief of symptoms and return of function.

### Keywords

Carpometacarpal boss, Extensor tendon rupture

### Introduction

A carpometacarpal boss is rarely symptomatic. It was first described by Fiolle as a bony lump involving the second or third metacarpal base [1]. It causes swelling on the dorsum of the hand and may or may not be painful [2]. Although the etiology remains unclear, it is thought that degenerative osteophyte formation may play a role as majority of the reported cases have occurred in adults in their fourth decade of life [3]. Carpometacarpal boss may also occur due to an injury caused by direct contact trauma [4].

The most common complaint of patients with a carpometacarpal boss is pain on pressure and motion of the wrist. Some also reported snapping of the EDC and EIP tendons [4]. In others, the lesion was asymptomatic. Treatment options are controversial, but there is some agreement on surgical excision of the metacarpal boss in symptomatic patients when conservative measures fail [4-6].

### Case Report

The patient is a 53-year-old, right-handed man who

presented with a 5-week history of dorsal hand swelling, that resembled a ganglion cyst, after sustaining a non-traumatic injury to his right hand. He complained of dull pain, which increased on applying pressure to that region. Symptoms were aggravated by increased activity and improved with rest. He denied any trauma. On physical examination, he had tenderness to palpation over a firm, bony protuberance over the dorsum of the base of the second metacarpal base on the right radiating into the index finger. There was visible limitation in range of motion of the index finger on extension, suggesting a possible rupture of the extensor tendon. Active wrist motion on the affected side was about 60 degrees in both flexion and extension. Pain was elicited by passive extension of the wrist and upon palpation of the extensor tendons to the index and middle fingers. Plain radiographs showed a bony protuberance at the base of the second metacarpal on the right. Due to concern of the extensor tendon rupture, conservative treatment was not indicated. The patient was offered surgical excision of the carpometacarpal boss and possible extensor tendon repair and consented to the procedure.

The procedure was performed under WALANT (Wide Awake Local Anesthetic No Tourniquet). The right upper extremity was prepped and draped in normal sterile fashion and a midline incision, approximately 6 cm in length, over the base of the second metacarpal was utilized. Dissection was taken down to the extensor tendons for exploration and a complete rupture of the extensor digitorum communis (EDC) tendon to the index finger and the extensor indicis proprius (EIP) tendon was found. The junctura tendinae were still intact. The proximal aspects of the tendon stumps were not identifiable within this region and hence the incision was extended proximally by another 4-5 cm. At the base of

the second metacarpal, deep to the extensor tendons, a large carpometacarpal boss was visualized. The periosteum of the boss was elevated and removed with an osteotome and rongeur until was even and its removal confirmed under fluoroscopic C-arm.

Next we explored the proximal stumps of the EIP and EDC tendons to the index finger and found that the quality of the latter was extremely poor. Therefore, we decided to use the remaining aspect of the distal EIP stump at the second MCP as an interpositional autograft. A Pulvertaft weave was then performed and held with a suture at the proximal aspect of the EIP tendon stump and then taken underneath the retinaculum. An end-to-end repair was performed with multiple core sutures to the distal aspect of the EDC stump (to the index finger) and an epitendonous stitch was also placed with a nylon suture under a relatively tension-free environment. The patient's tenodesis effect was seen to return after this was completed. He could now make a full fist upon command and was able to fully extend the index finger. The wound was irrigated copiously and the skin was closed. A drain was placed to prevent hematoma formation and sterile dressings were applied. A P1 blocking splint was placed and wrapped in Ace wrap. The patient was doing well postoperatively and ROM had returned to normal in the wrist and index finger. At one month follow-up, patient had good ROM in his right hand and sensation to light touch was intact.

## Discussion

A carpometacarpal boss is a rare bony protuberance that occurs on the dorsum of the second or third metacarpal base. Most of the symptoms associated with it are due to degenerative osteophytes, or as a result of traumatic injury or repetitive use. Available data suggests that metacarpal boss is likely to occur on the dominant hand and is more common in males in their early 30's or 40's [4]. The swelling that occurs as a result of the bony growth is often mistaken for a ganglion cyst. However, there have been reported cases of the presence of both a ganglion cyst and carpal boss [7].

As of yet, there is no consensus on the optimal treatment for this condition. Rest and steroid injections may provide some relief. Earlier studies suggested that surgical treatment would be contraindicated due to the

recurrence of the boss after simple excision [8]. However, newer studies support surgical intervention for the more severe and symptomatic cases [4-6].

To the best of our knowledge this is the first case reported on the presentation of an unusual case of carpometacarpal boss leading to rupture of the EIP and EDC tendons. Therefore, the surgical treatment required is unique to this case and conservative measures would not have been beneficial. The carpometacarpal boss in our patient was excised and the EIP tendon repaired utilizing an interpositional tendon autograft from the stump of distal EIP tendon.

## Conflict of Interest

The authors declare that they have no conflicts of interest.

## Informed Consent

Informed consent was obtained from the patient for this case report.

This article is a case report on a rare patient presentation. We did not conduct any experiments on humans or animals for this study.

## References

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