

Simultaneous Triquetrum, Lunate, and Capitate Interosseous Ganglion Cysts

Mohammed Ali¹, Tricia Walker¹, Syed Mannan¹

Learning Point of the Article:

Causes of persistent wrist pain include variety of causes. A more detailed imaging should always be sought especially when the plain radiographs are nonconclusive. IGC should be included in the differential diagnosis list of chronic wrist pain.

Abstract

Introduction: Intraosseous carpus ganglion cysts are very rare causes of hand and wrist pain. Isolated cases of lunate, scaphoid, pisiform, hamate, triquetrum, capitate, metacarpal, and phalanx cysts have no report of more than two carpal cysts, according to our knowledge.

Case Report: A case of simultaneous triquetrum, lunate, and capitate intraosseous ganglion cysts is presented. A 56-year-old right-handed woman presented with a 6-month history of persistent left-wrist pain. An old minor trauma was reported; however, the plain radiographs did not show any fractures. Subsequently, magnetic resonance imaging was performed, and it showed small cystic structures in the lunate, triquetrum, and capitate which is keeping with small intraosseous ganglia. The patient did not want to go down the surgical route as the pain was to some extent manageable.

Conclusion: Intraosseous carpal ganglion cysts, although rare, can cause chronic wrist pain and should be included in the differential diagnosis.

Keywords: Intraosseous cyst, ganglion, wrist, carpus, benign tumor.

Introduction

Carpus intraosseous ganglion cysts (IGC) are considered a rare cause of wrist pain [1]. Isolated cases of lunate, scaphoid, pisiform, hamate, triquetrum, capitate, metacarpal, and phalanx cysts have been reported in the literature [2, 3]. Nearly 70% of hand tissue ganglions develop from the posterior part of the scapholunate ligament, and these are reported in all age groups and most frequently in the second, third, and fourth decades of life [2]. Although there are certain conditions which might be related to ganglion cysts such as trauma, mucoid degeneration, intramedullary metaplasia of mesenchymal cells, and congenital rests of synovial producing cells, the etiology remains unknown [4]. Herein, we describe a patient with simultaneous IGC of lunate, capitate, and triquetrum bones.

Case Report

A 56-year-old female presented with a 6-month history of left wrist pain and a history of a fall onto outstretch left hand. The patient complained of a dull aching pain exacerbated by normal daily activities and moderately eased by rest. On clinical examination, she was tender over the dorsum of the wrist, the anatomical snuff box, and over the hypothenar eminence. There was a reduced range of movement in the wrist joint. No palpable masses were present. Grip strength was slightly reduced on the left side due to pain. The initial radiographs which were performed in the emergency department did not show any obvious bony abnormality (Fig. 1), and subsequently, the patient was referred to fracture clinic as subtle scaphoid or carpus fracture. As per hospital guidelines, this patient had

Access this article online

Website:
www.jocr.co.in

DOI:
2250-0685.1258

Author's Photo Gallery



Dr. Mohammed Ali



Dr. Tricia Walker



Dr. Syed Mannan

¹Department of Orthopaedics, North Cumbria University Hospitals NHS Trust, United Kingdom.

Address of Correspondence:

Dr. Mohammed Ali,
Department of Orthopaedics, North Cumbria University Hospitals NHS Trust, United Kingdom.
E-mail: Mohammed.ali17@nhs.net



Figure 1: Plain radiograph.

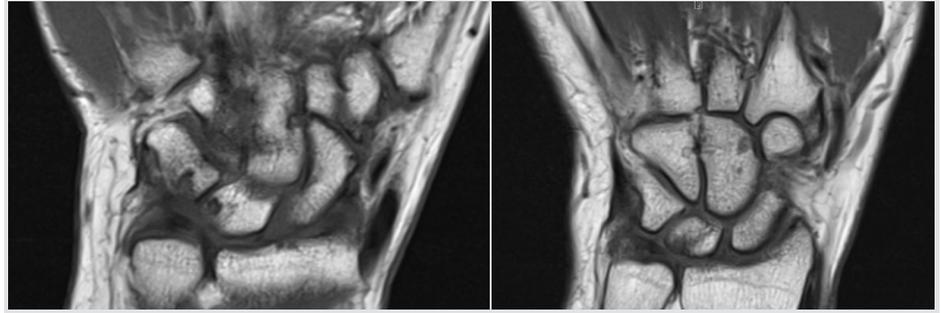


Figure 2: (a and b) Computed tomography scan of the wrist shows intraosseous ganglion cyst of lunate, capitate, and triquetrum bones.

magnetic resonance imaging (MRI) which demonstrated an IGC of lunate, capitate, and triquetrum bones along with moderate osteoarthritis of the scaphoid trapezium trapezoid joint (Fig. 2a and b). The patient did not want to go down the surgical route and preferred to be treated non-operatively. She was given a splint and oral painkillers to use when required.

Discussion

There are multiple causes of wrist pain. The most common causes include arthritis and post-traumatic conditions such as scapholunate advanced collapse and scaphoid nonunion advanced collapse. Infection has to be ruled out in all patients with previous surgery [5]. IGC or in other terms synovial bone cyst, juxta-articular bone cyst, ganglionic cystic defect of bone, and subchondral bone cyst, is a very rare cause of wrist pain. Fisk was the first to describe IGC [6] in 1949 as a periosteal ganglion-like lesion developing a cystic bony defect through intraosseous penetration. Followed by Crabbe [7] in 1966 who named it the IGC. Pathogenesis of IGC still remains controversial. Differential diagnosis of painful cystic lesions of the carpus will include osteoid osteoma, giant cell tumor, enchondroma, intraosseous ganglion, osteoblastoma, and Kienbock's disease [5, 6]. In osteoid, osteoma pain is more significant and normally responds very well to NSAIDs. Enchondroma or intraosseous chondroma is normally asymptomatic and almost exclusively located in the scaphoid [5]. The radiographic appearances in the other tumors are very different from that of IGC. In the majority of published series, IGC has been reported in lower limbs, and mainly occur in the epiphysometaphyseal part of the femur and tibia [7]. IGC can be a painless incidental finding or painful and is effectively treated with analgesic medications [8]. The pain in IGC is believed to be due to increased intraosseous pressure secondary to pathological process development within an inextensible limited cavity [7]. Furthermore, patients might have swelling if the cyst ruptures or increasing pain if develop pathological fractures [9, 10, 11]. Diagnosis is normally confirmed by clinical picture supported by computed tomography, MRI or histopathology in some cases. Management depends on the

patient's clinical symptoms and the imaging findings. When they are asymptomatic lesions, the management can be regular clinical and radiographic evaluation to identify progression (increase in the size of the IGC and/or cortical erosion) which might require surgical intervention [7]. On the other hand, symptomatic IGCs, might not respond to painkillers and then surgery would be indicated [12]. Surgery will involve curettage of the cyst followed by an autologous bone grafting with the intention to avoid any recurrence or collapse. A vascularized bone graft is advisable when treating bone cysts associated with fracture [13]. In our case, the patient responded well to conservative measures did not require surgery, however, still under follow-up. Osagie et al. [14] reported a 17-year-old male with a 12-month history of progressive right wrist pain due to an intraosseous ganglion of the trapezoid and capitate. The lesions were found to be continuous with the wrist synovium. Due to the size of the defect following the curettage, bone graft was harvested from the ipsilateral iliac crest and cancellous bone used to pack the cavity [14].

Conclusion

IGC is benign tumors which are rarely reported in carpal bones. Simultaneous multiple carpal cysts are very rare, and management represents a challenge when patients are symptomatic. This case is of interest because of the rarity, and it reports a successful non-operative treatment. IGCs can be missed on plain films. Therefore, more detailed imaging is always required in patients with persistent symptoms.

Clinical Message

Causes of persistent wrist pain include a variety of causes. A more detailed imaging should always be sought especially when the plain radiographs are nonconclusive. IGC should be included in the differential diagnosis list of chronic wrist pain.

References

1. Tuzuner T, Subasi M, Alper M, Kara H, Orhan Z. Penetrating type intraosseous ganglion cyst of the lunate bone. *West Indian Med J* 2005;54:384-6.
2. Nazerani S, Ebrahimpour A, Najafi A, Shams Koushki E. Intraosseous ganglion cyst of the lunate. *Trauma Mon* 2012;16:198-200.
3. Fealy MJ, Lineaweaver W. Intraosseous ganglion cyst of the scaphoid. *Ann Plast Surg* 1995;34:215-7.
4. Bennett DC, Hauck RM. Intraosseous ganglion of the lunate. *Ann Plast Surg* 2002;48:439-42.
5. Rajeev A, Ali M, Ralte A, Chakaravathy J. Osteoid osteoma as an unusual cause of wrist pain - A case report and review of literature. *Int J Surg Case Rep* 2014;5:896-8.
6. Fisk GR. Bone concavity caused by a ganglion. *J Bone Joint Surg Br* 1949;31B:220.
7. Crabbe WA. Intra-osseous ganglia of bone. *Br J Surg* 1966;53:15-7.
8. Fealy MJ, Lineaweaver W. Intraosseous ganglion cyst of the scaphoid. *Ann Plast Surg* 1995;34:215-7.
9. Mnif H, Koubaa M, Zrig M, Jawahdou R, Sahnoun N, Abid A, et al. Ganglion cyst of the carpal navicular. A case report and review of the literature. *OrthopTraumatol Surg Res* 2010;96:190-3.
10. Gude W, Morelli V. Ganglion cysts of the wrist: Pathophysiology, clinical picture, and management. *Curr Rev Musculoskelet Med* 2008;1:205-11.
11. Chantelot C, Laffargue P, Masméjean M, Peltier B, Barouk P, Fontaine C. Fracture du scaphoidecarpien sur kyste intra-osseux. *Ann Chir Main* 1998;17:255-8.
12. Logan SE, Gilula LA, Kyriakos M. Bilateral scaphoid ganglion cysts in an adolescent. *J Hand Surg Am* 1992;17:490-5.
13. Uriburu IJ, Levy VD. Intraosseous ganglia of the scaphoid and lunate bones: Report of 15 cases in 13 patients. *J Hand Surg Am* 1999;24:508-15.
14. Osagie L, Gallivan S, Wickham N, Umarji S. Intraosseous ganglion cysts of the carpus: Current practice. *Hand (NY)* 2015;10:598-601.

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

Ali M, Walker T, Mannan S. Simultaneous Triquetrum, Lunate, and Capitate Interosseous Ganglion Cysts. *Journal of Orthopaedic Case Reports* 2018 Nov-Dec; 8(6): 58-60.

