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Spontaneous displacement of olecranon fracture through geode salvaged by elbow replacement

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Keywords

Geode
Rheumatoid arthritis
Fracture olecranon
Elbow replacement

Abstract

We present a case of pathological fracture of olecranon through a giant geode. Fracture was initially undisplaced and was treated conservatively. It later progressed to a transolecranon dislocation as a result of a pseudarthrosis at the fracture site. The patient presented 4 years later when she developed symptoms of ulnar nerve palsy. She was treated by a total elbow arthroplasty with ulnar nerve transposition. The current report highlights this unusual case and reviews the relevant literature

Case report

A 71-year old lady suffering from rheumatoid arthritis presented with a painful right elbow of 5 months duration and paraesthesia in the ring and little fingers for 2 months. There was no history of recent trauma. She was a known case of rheumatoid arthritis. Examination revealed a swollen and deformed and unstable right elbow with evidence of dislocation of the radial head. The elbow had a range of movement from 40 degrees to 70 degrees. She also had early clawing of the ring and little fingers and reduced sensation in the little finger. However, the clinical picture was atypical on account of the underlying rheumatoid deformities of both hands. A radiograph of the affected elbow revealed a transolecranon fracture-dislocation of the elbow through a pseudarthrosis in the ulnar fracture(Fig 1a and 1b).

She had been seen 4 years earlier by a rheumatologist for discomfort in the right elbow and the radiograph done then showed a hairline fracture through a pre-existing simple cyst in the proximal ulnar metaphysis (Fig 2). This had been treated conservatively in an above elbow cast for 12 weeks. Subsequent radiographs showed minimal although progressive displacement of the fracture over the next 7 months (Fig 3). As she remained asymptomatic, she was lost to follow-up for 4 years.

In view of the pain, instability and tardy ulnar nerve palsy with underlying rheumatoid arthritis, a cemented GSB-III total elbow replacement was performed (Fig.4) The small proximal olecranon fragment was excised. The ulnar nerve was found to be severely stretched. It was released and transposed anteriorly.

Postoperatively, the paraesthesiae resolved at 2 weeks. At 3 months, she achieved a range of painless movement from 10-130 degrees with physical therapy and was doing extremely well at her 2-year follow-up.

Discussion

Geode is a subchondral cystic lesion often seen in rheumatoid arthritis patients.^{3, 10} Jacobs suggested this to be more appropriate term than 'cyst' to describe these lesions as it does not have an epithelial lining and generally are not fluid filled.⁴ Geode are common in rheumatoid patients but spontaneous fracture through them is rare. Most commonly affected sites are femoral neck, and tibial plateau^{10, 11} but they are also reported in olecranon.^{6,9,14}

As giant geode can progress to fracture of the olecranon. It has been suggested to perform curettage and bone grafting of the lesion to prevent pathological fractures.^{7, 13}

This patient was initially managed conservatively by rheumatologist and was subsequently lost to follow up. She progressed on to develop transolecranon fracture dislocation of the elbow with ulnar nerve palsy 4 year later. It was an incomplete fracture initially which then went on to become a complete transverse undisplaced fracture. It was treated conservatively in a plaster cast taking into account the low energy trauma, the apparently stable undisplaced transverse configuration and the fact that the patient was a 67 year old rheumatoid lady with limited demands. However, on careful review, subsequent radiographs over the next 8 months did show the fracture beginning to drift and the radial head moving anteriorly. This should have prompted the treating surgeon to perform internal fixation with bone. Unfortunately, as her symptoms improved, she was lost to follow-up. She was seen 4 years later with symptoms of tardy ulnar nerve paresis that developed as the displacement and valgus deformity increased causing traction on the nerve. By then, she had a pseudarthrosis at the fracture site, which had displaced completely along with the intact superior radio-ulnar articulation. The radius and ulna had migrated anterolaterally and proximally by about 3.5 centimetres. The rheumatoid process eroded the radial head and olecranon. The soft tissues anterior to the elbow were contracted and she was in severe pain.

Options at this stage were limited because of poor bone quality and damage to the joint due to chronic dislocation and rheumatoid process. The patient was 71 years old with limited demands, but good triceps function. Hence, we decided to perform a total elbow replacement and used the technique described by Gallay S. et al to preserve the fibrous attachment of the triceps to the proximal ulna by working through the intervals on the medial and lateral aspects of the triceps.¹ The proximal olecranon fragment however was too small and needed excision. The GSB-TII replacement was used which has a 'plug-in' non-constrained sloppy hinge. Its intrinsic stability means that one does not need to rely entirely on the collateral ligaments^{2, 12}. She also had an ulnar nerve transposition to relieve her neuropraxia.

Elbow replacement is good option to salvage distal humeral fractures with poor bone quality ⁵.
⁸. This case shows that elbow replacement can be successfully used to salvage proximal ulnar fractures with degenerative changes in the elbow joint.

We agree with previous reports that giant geode at this site should be treated surgically with bone grafting because of its susceptibility to progress on to fracture and dislocation. In this patient elbow was salvaged by elbow replacement.

Conclusion

Geode in olecranon in patients with rheumatoid arthritis should be managed surgically at early stage.

References

1. Gallay SH, McKee MD (2000) Operative treatment of nonunions about the elbow. Clin Orthop Relat Res 87–101 [Medline](#). doi:10.1097/00003086-200001000-00009
- [2] Gschwend N, Seheier NH, Baehler AR. Long-term results of the GSB III elbow arthroplasty. [Miscellaneous Article]. Journal of Bone & Joint Surgery - British Volume 1999;8 1-B: 100 5-12.
- [3] Hirose T, Kurosawa H, Sakuraba K et al 1999. Giant geode as differential diagnosis of a large lobular radiolucency in the distal femur of a patient with rheumatoid arthritis. J Rheumatol 26: 1622-1623.
4. Jacobs AJ, Ginsburg WW, Bryan RS (1982) Large geode in elbow with spontaneous fracture. J Rheumatol 9:340–341 [Medline](#).
5. Kalogrianitis S, Sinopidis C, El Meligy M, Rawal A, Frostick SP (2008) Unlinked elbow arthroplasty as primary treatment for fractures of the distal humerus. J Shoulder Elbow Surg 17(2):287–292 [Medline](#).
6. Magyar E, Talerman A, Fehér M, Wouters HW (1974) Giant bone cysts in rheumatoid arthritis. J Bone Joint Surg Br 56(1):121–129 [Medline](#).
7. Nakagawa N, Abe S, Saegusa Y, Kimura H, Imura S, Nishibayashi Y, Yoshiya S (2004) Giant geode at the olecranon in the rheumatoid elbow--two case reports. Clin Rheumatol 23(4):358–361 [Medline](#). doi:10.1007/s10067-004-0892-9
8. Prasad N, Dent C (2008) Outcome of total elbow replacement for distal humeral fractures in the elderly: a comparison of primary surgery and surgery after failed internal fixation or conservative treatment. J Bone Joint Surg Br 90(3):343–348 [Medline](#). doi:10.1302/0301-620X.90B3.18971
9. Rappoport AS, Sosman JL, Weissman BN (1976) Spontaneous fractures of the olecranon process in rheumatoid arthritis. Radiology 119(1):83–84 [Medline](#).
10. Rennell C, Mainzer F, Multz CV, Genant HK (1977) Subchondral pseudocysts in rheumatoid arthritis. AJR Am J Roentgenol 129(6):1069–1072 [Medline](#).
11. Resnick D, Niwayama G, Coutts RD (1977) Subchondral cysts (geodes) in arthritic disorders: pathologic and radiographic appearance of the hip joint. AJR Am J Roentgenol 128(5):799–806 [Medline](#).
12. Schneeberger AGM, Hertel RM, Gerber CM (2000) Total elbow replacement with the GSB HI prosthesis. J Shoulder Elbow Surg 9:135–139 [Medline](#). doi:10.1016/S1058-2746(00)90042-9
13. Torikai E, Kageyama Y, Sugiyama E, Ogiwara Y, Irisawa S, Nagano A (2006) The occurrence of a geode in the olecranon of a patient with rheumatoid arthritis. Arch Orthop Trauma Surg 126(2):111–112 [Medline](#). doi:10.1007/s00402-005-0089-y
14. Wordsworth BP, Mowat AG, Watson NA (1984) Fracture through a geode in the proximal ulna. Br J Rheumatol 23(2):110–112 [Medline](#). doi:10.1093/rheumatology/23.2.110

Figure Legends

Fig 1a

Transolecranon fracture-dislocation of the elbow through the pseudarthrosis — AP Radiograph.

Fig 1b

Transolecranon fracture-dislocation of the elbow through the pseudarthrosis — Lateral Radiograph

Fig2

Hairline fracture through a pre-existing cyst in the proximal ulnar metaphysis

Fig 3

Progressive displacement of the fracture over the next 7 months

Fig 4

Cemented GSB-III total elbow replacement
(2-year follow-up)