

C A S E R E P O R T

Simultaneous bilateral olecranon fracture: a case report and review of the literature

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Abstract. *Background and aim of the work:* A bilateral fracture of the olecranon is a rare injury, with only few cases reported in the literature. *Methods:* A single case of bilateral Mayo type II A olecranon fracture in a 88 years old woman is described. A research of all articles regarding simultaneous bilateral olecranon fracture was performed in the PubMed database. *Result:* The reported case demonstrated good clinical and radiographic results at 5 months follow-up with surgical treatment. The literature search produced other 6 cases in 5 case reports. Except for one case of fatigue fracture that had been treated conservatively, the others received surgical treatment with satisfactory results. *Conclusion:* Simultaneous bilateral olecranon fracture is very uncommon. Bilateral internal fixation yields good clinical and radiographic results in most cases. (www.actabiomedica.it)

Key words: Olecranon, Bilateral, Elbow, Treatment

Introduction

Olecranon fractures are very common, especially in the elderly. However, a bilateral fracture of the olecranon is a very rare injury. Aim of the present study is to report a case of traumatic bilateral olecranon fracture and review the literature about this rare injury.

Case

An 88-year-old woman fell down while running towards the bus. The traumatic mechanism was a simultaneous bilateral indirect trauma with the elbows in a flexed position. After the injury she developed swelling, pain and function loss of both upper limbs. She referred to the emergency department on the same day. At orthopedic evaluation the patient presented bilateral elbow swelling with local hematoma and pain in the olecranon region. The skin was intact and no peripheral nervous or vascular suffering was observed. Medical history collection revealed only atrial fibrilla-

tion. The patient resulted to be independent in activities of daily living (ADL) and active in relation to age before trauma. The patient underwent bilateral elbow X-rays revealing bilateral displaced olecranon fracture, classified as Type IIA according to the Mayo classification (Fig.1). The patient was discharged from the emergency department with a provisional bilateral above-elbow cast.

Surgical intervention was undertaken five days after as a scheduled procedure. The patient was placed supine under a bilateral axillary brachial plexus block with the arms on the chest. The two sides were approached sequentially by the same surgical team. Bilaterally, the fracture was exposed with a posterior approach, debrided and reduced with pointed forceps. Stable internal fixation was provided with two parallel intramedullary k-wires (1.6mm) inserted from the proximal ulna and a tension band wire (Fig.2). After abundant irrigation with saline solution the skin was closed in layers.

After surgery, an arm sling was bilaterally held in place for three weeks. Early active assisted motion was encouraged.



Figure 1. Plain radiographs (lateral and AP view) obtained the day of trauma. (A), (B) Mayo type II A olecranon fracture of the left elbow. (C), (D) Mayo type II A olecranon fracture of the right elbow

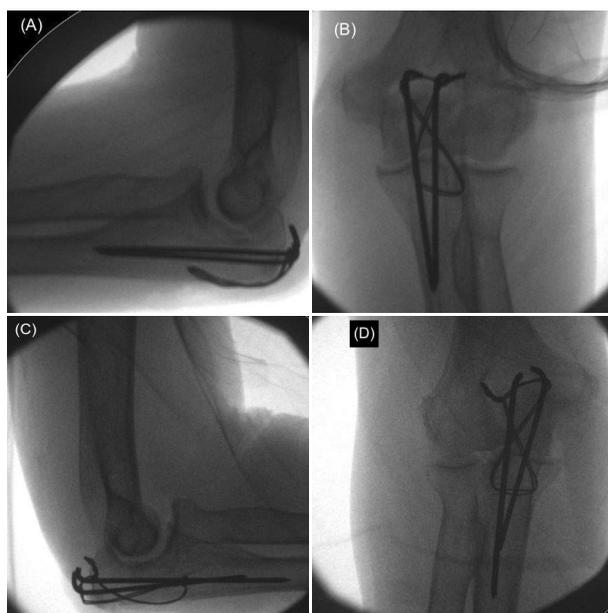


Figure 2. Intraoperative plain radiographs (lateral and AP view) after internal fixation with tension band wire. (A), (B) Left elbow. (C), (D) Right elbow

One month after surgery the patient resumed most ADL with few residual pain, active and passive ROM was 0-10-140° bilaterally.



Figure 3. Plain radiographs obtained five month after surgery (lateral and AP view) show uneventful fracture healing. (A), (B) Left elbow. (C), (D) Right elbow

Five months after surgery plain radiographs (Fig. 3) showed uneventful union and the patient referred full recovery of ADL (Fig. 4).

Discussion

There are only a few cases of bilateral olecranon fracture described in the literature. Only one case has been described in elderly patients at our knowledge. *Sayyed J Kirmani et al* report the case of a 75 years old patient affected by rheumatoid arthritis that suffered a spontaneous bilateral olecranon fracture while walking with crutches. Both lesions were treated conservatively due to poor bone stock of the patient. (3) In this case, the authors attributed to rheumatoid arthritis related damage to the trochlear notch the cause of this injury, which has to be considered as a fatigue fracture. Conversely, the few cases of bilateral fracture described in young patients are related to high-energy trauma, including falls from a significant height, falls down the stairs and road traffic accidents.

Amit Patel et al reported the case of a 28 years old patient who fell down the stairs. She had been treated with bilateral tension band wire fixation under gen-



Figure 4. Clinical pictures showing satisfactory ROM recovery without pain at 5 months follow-up

eral anesthesia in supine position. Both elbows were immobilized at 90 degrees of flexion for 3 weeks. The patient showed full ROM recovery at 6 months. The authors did not report complications (4). *Kalande et al* treated a 30 years old carpenter who reported a bilateral olecranon fracture falling from a height of 3 meters. Surgical treatment was conducted under general anesthesia. Internal fixation with tension band wiring on the left elbow and plate fixation on the right was chosen. Early active mobilization was allowed at 7 days. After 6 months the patient showed full recovery of ROM and was able to resume his work. As a complication the author reported hardware intolerance causing discomfort. (5)

Raviraj et al presented the case of a 22 year old male involved in a motor vehicle accident, he hurted a truck from behind driving a motorbike. He reported bilateral olecranon with comminuted fracture of the radial head and coronoid fracture bilaterally. No other fractures were associated. He was treated in general anesthesia with locking compression plates on both elbows. Postoperative splints at 100° of flexion were placed bilaterally for 3 weeks. Clinical evaluation at 16 weeks showed complete ROM. No complications were reported from the author. (6)

Çıtlak et al describes two cases of bilateral olecranon fracture in very young patients (17 and 18 years old respectively). Fall from the stairs and fall from the first floor were described as trauma mechanisms. In both cases, internal fixation and early active mobili-

zation allowed the patients to achieve full ROM and fracture healing without complications.

The case reported in the present paper has some differences from the previously reported cases. Despite the advanced age of the patient, a relevant trauma was necessary to produce the fracture and no severe osteoporosis nor other relevant comorbidities came out at clinical evaluation. Being the patient an active and independent woman, with relatively high functional demand and good bone stock, the case is better comparable to the cases previously described in younger patients. Likewise, bilateral internal fixation and early active mobilization produced very satisfactory clinical and radiographic results.

Conclusion

Bilateral olecranon fracture is a rare injury, with few cases described in literature. Damage to the trochlear notch caused by rheumatoid arthritis has been related to the only atraumatic case described. The majority of traumatic cases are due to high energy trauma in young patients. In the healthy elderly woman described in the present paper, a fall to the ground while running was sufficient to cause the fracture. In patients with good bone stock and high functional demand, bilateral internal fixation was the treatment of choice. Satisfactory clinical and radiographic results were reported in all patients.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article

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