Fracture of Supracondylar Process of the Humerus

S S Suresh

Abstract

The supracondylar process of the humerus is a rare skeletal anomaly, which is usually an incidental finding while an X-ray is done for some other purpose. The process can fracture resulting in pain and tender mobile swelling over the medial aspect of the arm, consequent neurovascular symptoms, or entrapment neuropathies. The anomaly, which fractured in a clinical situation, is described, followed by a review of the literature.

Keywords: Humeral fractures; Median nerve; Entrapment neuropathies; Osteochondroma; Case Report; Oman.

Discussion

A supracondylar process, an anomaly seen in about 1% of the population, is a bony projection found about 5-7 cm above the medial epicondyle of the humerus. It arises from the anteromedial aspect of the distal humerus and is directed downward, forward and medially pointing to the medial epicondyle. A fibrous band called the ligament of Struthers, is typically associated with the supracondylar spur and connects it to the medial epicondyle, thereby forming a ring. The median nerve and the brachial artery pass through this. It is an incidental finding when X-rays are taken for some other purpose. The fibrous band of Struthers corresponds to the lower part of the tendon of the vestigial latissimocondyloideus muscle seen in climbing mammals. The supracondylar process, the fibrous
Supracondylar band and humerus form a foramen. This is similar to the supratrochlear foramen seen in many animals. Accessory slips of pronator teres may arise from the supracondylar process. The incidence varies from 1-3.5%.5

Knox in 1841 first reported its occurrence in man, as it was previously thought to be present only in animals. The supracondylar process was described in detail by Struthers in 1849.1,7 In 1930, Lund presented the first case of a fracture of the supracondylar process.5 The process gets fractured occasionally when it is felt as a tender mobile piece of bone just above the elbow medially and it is easily made out in radiographs. If it has fractured, the treatment is excision with due care to the neurovascular structures. Conservative management is recommended if there are no neurovascular symptoms after a fracture.5

Compression of the nerve or artery can occur at many sites in the upper limb, and the least common cause of compression is the supracondylar process and the supracondylar foramen.1 The supracondylar foramen may be a site for entrapment of the brachial artery and the median nerve.3 Solieri in 19299 first described the spur and the ligament as a cause of median nerve compression. The symptomatology can mimic carpal tunnel syndrome or may cause features of claudication pain in the forearm. The branching pattern of the median nerve in the forearm is abnormal in those with a spur and a Struthers ligament.9 Occasionally, the ulnar nerve may be stretched over the spur and can result in ulnar nerve palsy. The symptoms are exaggerated by active extension and pronation of the forearm. It should be differentiated from osteochondroma, which projects away from the elbow joint, and the bony cortex of the humerus is continuous with the tumour.10 Usually it is seen in an asymptomatic patient as a painless mass or on an X-ray taken for some other purpose. The anatomic relationship with the neurovascular structures is well demonstrated by magnetic resonance imaging (MRI).10 Pecina et al recommend MRI in peripheral nerve compression syndromes, and they reported an anomaly which they named “incomplete Struthers ligament”. In their case though the ligament was incomplete it functioned the same way as a complete ligament.11

**CONCLUSION**

Purpose of this paper is to raise awareness of this entity and its clinical significance. It should also be differentiated from the osteochondromas arising from the lower medial border of the distal humerus. Distal humeral osteochondromas project away from the elbow. In a patient with pain and sensory disturbance of the forearm and hand, the elbow should be routinely examined for the presence of a supracondylar spur.

**REFERENCES**

4. Pieper I. On the incidence of the supracondyloid proc-


