CASE REPORT

Solitary osteochondroma of the trapezoid disguised as a tooth fragment

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SUMMARY

Fight bite injuries of the hand are common presentations in A&E departments and usually result from a fist blow to the mouth. The authors report a case of a 24-year-old man who presented 6 weeks after an injury to his right wrist following an altercation. Radiographic examination and CT scans were in keeping with a tooth fragment embedded in the trapezoid. However, post excision histology subsequently revealed the lesion to be a solitary osteochondroma of the trapezoid.

Osteochondromas are benign lesions of bony or cartilaginous origin and are usually found in the metaphyseal region of long bones. They represent by far the most common primary bone tumours. However, osteochondromas arising from the carpal bones are extremely rare with very few cases reported in the literature. This case illustrates the need to include 'tumour' as a differential diagnosis in every unusual appearing bony lesion, even if there is a history of trauma.

sustained a small laceration over the back of his hand. Initial swelling and erythema of the hand surrounding the wound subsided with oral antibiotics, which the patient self-administered. The patient reported no wrist problems prior to this injury and was generally in good health.

At the time of presentation to hospital, the wound over the dorsum of the hand had healed and there were no obvious signs of infection. Range of motion of the patient's right wrist was slightly reduced in extension and there was tenderness over a small palpable lump around the dorsal aspect of the second carpometacarpal joint. Examination of his hand was otherwise unremarkable and his neurovascular status was intact.

INVESTIGATIONS

Initial plain film radiographs showed some irregularity within the dorsal cortex of the trapezoid, which was thought to represent a fracture [figure 1](#).

BACKGROUND

Osteochondromas are cartilage-capped bony outgrowths that occur in 3% of the general population and account for more than 30% of all benign bone tumours.^{1 2} The vast majority of these lesions (85%) are solitary, non-hereditary tumours—about 15% of osteochondromas occur as multiple lesions in the context of hereditary multiple exostoses (HME).^{3–5} Most osteochondromas are diagnosed in children and adolescents—they are often asymptomatic and found incidentally, but can occasionally cause mechanical symptoms. Because of the characteristic radiographic appearance of these lesions, the diagnosis is generally straightforward and can be made with simple X-rays.^{2 3} In some cases, however, CT scan or MRI may be necessary and in rare circumstances the diagnosis has to be confirmed with a tissue biopsy.^{3 6}

Osteochondromas of the carpal bones are extremely rare, with only a few cases reported in the literature.^{7–12} The scaphoid is the most commonly affected carpal bone and we are not aware of any previous reports of an osteochondroma arising from the trapezoid.

CASE PRESENTATION

A 24-year-old, right-hand dominant joiner presented to our emergency department reporting pain and persistent swelling over the dorsal aspect of his right wrist following an injury 6 weeks earlier. He had been involved in an altercation where he punched an individual in the face and

Figure 1 Anteroposterior radiograph of the right wrist—unusual appearance of the trapezoid (arrow).

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Figure 2 CT of the hand showing the radiopaque lesion near the carpometacarpal joint in the dorsal aspect of the trapezoid (arrow).

The patient was subsequently referred to the orthopaedic team and a CT of the right wrist was obtained to confirm the diagnosis. The CT scan showed a small triangular cortical flake lying over the dorsal aspect of the trapezoid but no obvious fractures [figure 2](#).

Given the difficulty for an accurate diagnosis the case was discussed in the musculoskeletal multidisciplinary team meeting where it was agreed that the triangular high-density fragment identified on the CT images was in keeping with a foreign body and was likely to represent a tooth fragment due to its high density and the mechanism of injury.

The patient was taken to theatre for surgical exploration and excision of the suspected foreign body for histological examination.

DIFFERENTIAL DIAGNOSIS

With a history of trauma and the patient's symptoms, the diagnosis of a *carpal fracture* was initially considered.

The palpable, slightly tender lump over the second carpometacarpal joint could have been a *carpal boss*—a finding commonly associated with early osteoarthritis.

The CT images showed a small, radiopaque flake overlying the dorsal aspect of the trapezoid, which was thought to represent a *comminuted fracture* or a *foreign body*.

The diagnosis of a *bone tumour* was not considered at the time.

TREATMENT

Following the CT scan, surgical excision of the lesion was discussed, and the patient was keen to proceed. The operation was performed under general anaesthesia with a tourniquet applied to provide a bloodless field. A transverse, dorsal incision was made over the radial aspect of the carpus to expose the base of the second metacarpal and the trapezoid.

The superficial radial nerve and the extensor pollicis longus (EPL) tendon were protected throughout the procedure. The insertion of the extensor carpi-radialis longus (ECRL) was partially released and the tendon was retracted radially to expose the dorsal aspect of the trapezoid. The lesion was completely excised using a small bone chisel. Skin closure was performed with interrupted nylon sutures and the wrist was immobilised with a POP backslab postoperatively.

OUTCOME AND FOLLOW-UP

Histopathological sections of the excised tissue showed trabecular bone partly covered by hyaline cartilage—there were no foreign bodies and no atypical features found in the excised tissue. The histological findings were consistent with the diagnosis of an osteochondroma of the trapezoid.

The patient was reviewed 10 days after surgery, at which point the sutures were removed and a below-elbow cast was applied for 2 weeks. After removal of the cast the patient was referred to physiotherapy and encouraged to mobilise his wrist.

At the most recent follow-up, 6 months after surgery, the patient was pain free and had regained a full range of motion of his wrist. Radiographs did not show any signs of recurrence of the lesion. He had returned to work and resumed his normal activities without any restrictions.

DISCUSSION

An osteochondroma can be described as a cartilage-capped bony protuberance that usually occurs in the metaphyseal region of long bones.¹³ Osteochondromas represent approximately 30% of all benign bone tumours and usually appear in children and adolescents as painless, slow-growing masses.^{1 2} They can be solitary (85%) or multiple (15%), as seen in HME.^{4 5}

The most common sites for solitary osteochondromas are the distal femur, the proximal tibia and the proximal humerus, although every part of the skeleton can be affected. Sites of rare occurrence described in the literature include the long bones of the hand and foot, the scapula, pelvis, spine, ribs and mandible.^{1 2 4}

Carpal osteochondromas are extremely rare. A thorough literature search revealed three reports of scaphoid osteochondromas,^{7–9} one report of a hamate,¹⁰ one report of a trapezium¹¹ and one report of a lunate osteochondroma.¹² To the best of our knowledge this is the first reported case of a solitary osteochondroma arising from the trapezoid.

Most osteochondromas are asymptomatic and found incidentally. The diagnosis can be made using plain radiographs, CT scan or MRI and histological examination. The lesions typically appear as a protuberance on the cortical surface of a bone with overlying calcified flakes commonly present.^{3 6}

Our patient only noticed the swelling over the dorsum of his wrist following an injury to his hand. Plain radiographs as well as the CT scan were ambiguous and the diagnosis could only be made after histological examination of the excised lesion.

Although osteochondromas are benign tumours, malignant transformation does occur in 1% of solitary lesions and in 3–5% of patients with HME.^{13–15} Small or asymptomatic osteochondromas do not require any specific treatment, but should be observed. Surgical treatment should be considered when patients report mechanical symptoms or pain.

Excision of an osteochondroma is usually curative, but recurrence may be seen if the excision is incomplete.¹³

Learning points

- ▶ This case illustrates the need to include tumours in the differential diagnosis of any bony lesion, even with a history of trauma.
- ▶ Osteochondromas can be solitary or multiple and are usually asymptomatic—the diagnosis is often incidental.
- ▶ Carpal osteochondromas are extremely rare, however, they should not be discounted.

Competing interests None declared.

Patient consent Obtained.

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