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TECHNICAL NOTE

Transarticular arthroscopic excision of an elbow cyst

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We present the case of a symptomatic anterior elbow cyst supposedly due to repeated (exertional) trauma. Instead of the usual open excision, arthroscopic excision was performed using a Wissinger rod through an additional anterolateral portal for distraction. Histopathology confirmed the lesion to be a ganglion. MRI 12 months postoperatively showed no recurrence.

Keywords : elbow cyst ; arthoscopic excision.

INTRODUCTION

Synovial cysts are uncommon around the elbow. The most common causes of cysts in this region are rheumatoid arthritis and osteoarthritis (*1*). Conservative management is usually the treatment of choice, unless the cyst causes significant local pain or compression neuropathy (*2, 3, 5*) or when its location impairs function. Open excision is usually the preferred surgical technique. Feldman (*1*) previously described an arthroscopic technique for elbow cyst excision ; another case was reported in 2004 by Mileti *et al* (*6*). We present a cyst excised through a modified arthroscopic technique.

CASE REPORT

A 44-year-old right-handed female, a beautician by profession, presented with a 9-month history of swelling with intermittent pain over the right elbow restricting work significantly since one month. The medical history did not reveal previous elbow injuries and the patient presented no signs or symptoms of rheumatoid arthritis or osteoarthritis. On examination there was a $3 \times 2 \times 2$ cm localised cystic swelling just anterior to the radial head. Palpation of the mass caused pain, flexion of the elbow was terminally restricted due to pain, but all other movements were pain free and full. There were no associated neurological deficits. A roentgenogram of the elbow joint showed a soft tissue shadow at its anterior aspect. In view of the size and location of the mass, magnetic resonance imaging (MRI) was performed, which showed a well-defined multiseptated mass anterior to the radiocapitellar joint, with hypointense T1 and hyperintense T2 signal, originating from the elbow joint. Most of the mass had signal intensity compatible with fluid, suggesting a cystic lesion (fig 1).

The patient had been treated conservatively with non-steroidal anti-inflammatory drugs intermittently, but this failed to achieve pain control. Due to

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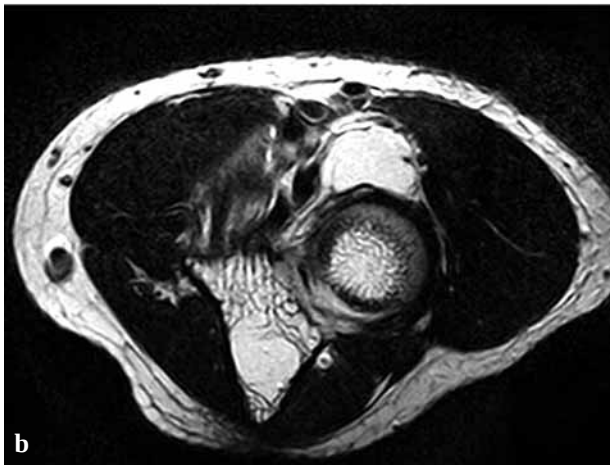

Fig. 1. — **a**) Sagittal T2-weighted MR image showing a multiseptal high signal intensity cystic mass anterior to the radiocapitellar joint.
b) Axial T2-weighted MR image : the cystic mass was located over the anteroradial aspect of the radial head and capitellum, and showed a communicating tract with the elbow joint (arrow).

progression of symptoms and limitation in daily activities, surgical excision was planned.

We performed elbow arthroscopy with the patient in the prone position under general anaesthesia and pneumatic tourniquet (250 mmHg). The right arm was brought to the edge of the operating table, with the forearm hanging freely and the elbow flexed at 90°. The locations of the lateral epicondyle, olecranon, and radial head were marked with a marking pen, and the transarticular approach was established for initial arthroscope entry as described by Kim and Jeong (*4*) : "The entry point for the transarticular approach is at the intersection of a horizontal line drawn from the radiocapitellar joint to the olecranon, with a sagittal line drawn just lateral to the olecranon". Other portals made were anteromedially and anterolaterally. Following Mileti *et al* (*6*), we used an additional anterolateral portal, which was anterior and distal to the anterolateral portal, through which a transfixing Wissinger rod was inserted to distract and keep the anterior neurovascular bundle away from the operating field (fig 2). The operational arthroscope was introduced through the anteromedial portal and instrumentation through the proximal anterolateral portal.

Fig. 2. — Diagram showing the transfixing rod

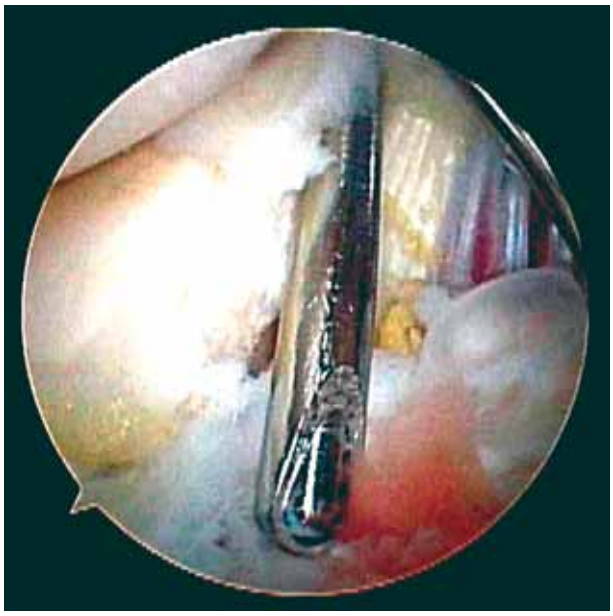

Fig. 3. — A cyst seen volar to the radial head

Fig. 4. — The opening and stalk of the cyst

The cyst was located anteriorly to the radial head (fig 3). After gentle shaving of some portion of the cyst, multiple septae were seen within the cyst (fig 4). The transfixing Wissinger rod provided good distention and proper visualisation and allowed complete excision of the cyst wall with no damage to the surrounding neurovascular structures. The entire specimen was sent for histopathological study. After the procedure a bulky dressing was applied to the elbow. Postoperatively there were no neurological deficits and the patient was started on gentle active mobilisation the next day. The histopathology examination revealed that the specimen had a thin fibrous wall without definite epithelial lining cells suggesting a ganglion (fig 5). After 6 weeks, the patient was completely symptom free and had full range of movement. A follow-up MRI scan performed after 12 months showed no evidence of recurrence (fig 6).

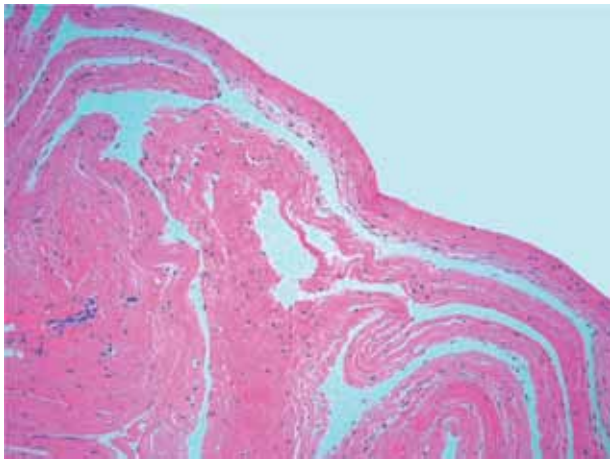

Fig. 5. — Specimen showing a thin fibrous wall without definite epithelial lining cells suggesting a ganglion (× 100).

DISCUSSION

The treatment of choice of symptomatic elbow ganglia is initially conservative, and includes rest of the affected part, and the use of non-steroidal anti-inflammatory drugs, and intralesional corticosteroids. In patients with persisting symptomatic cysts not responding to conservative therapy, surgery is indicated. Generally, open excision is performed for troublesome elbow cysts. However, arthroscopy has the potential to replace it, but increased technical skill and a thorough knowledge

Fig. 6. — Postoperative (12 months) sagittal T2-weighted MR image showing no recurrent cystic mass.

of the arthroscopic anatomy is necessary, particularly of the anterior structures. Various hazards have been reported during elbow arthroscopy (*7*). Keeping all this in mind we modified the transarticular approach by creating an additional portal and by using a transfixing rod, which not only allowed retraction of neurovascular structures but also helped distend the elbow even more and provided good visualisation. In the present case this allowed us to completely excise the cyst. During the operation, it is mandatory that as much as possible of the capsule lining is removed to reduce the possibility of recurrence. The arthroscopic excision of cysts located about the elbow has clear benefits not offered by open techniques (*7*). The additional portal with the transfixing rod can be used in elbow arthroscopy and in the treatment of other intraarticular disorders.

In summary, we can recommend the modified transarticular approach for arthroscopic excision as a useful and safe alternative to the open excision of cysts of the elbow joint.

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