Technical note

Endoscopically-assisted excision of scapular osteochondroma

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A 14-year-old right-handed girl was seen in February 1997 with a 1-year history of increasing right shoulder blade grating sensation, restricted activities and intermittent pain. Examination revealed a well-built girl with a slight prominence of the right scapula. Abduction of the arm resulted in a grating sensation and crepitus from the scapulothoracic region. No other abnormal findings were noted.

Oblique radiographs and CT (Figure 1) revealed an osteochondroma on the costal surface of the right scapula near the superomedial angle. The surgical excision chosen was planned to include endoscopic assistance in an attempt to reduce the access scar.

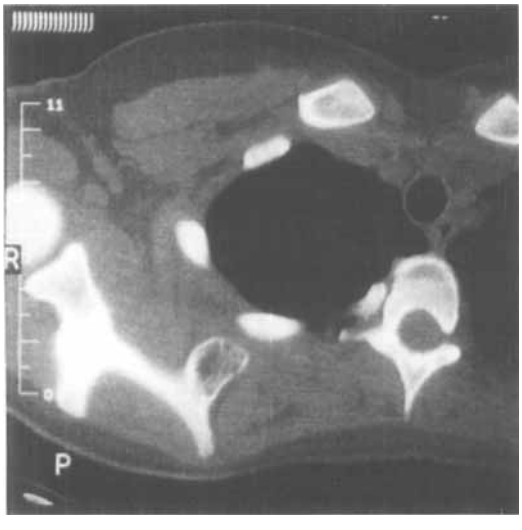

Figure 1. CT scan of the osteochondroma.

Surgery

Under general anesthesia, the patient was placed in 3/4 prone position, with the right arm separately draped and suspended by a traction apparatus in abduction and slight flexion. The lesion was approached through a 5-cm incision along the posterior axillary fold. The plane was developed superficially between the anterior structures (serratus anterior) and the posterior axillary fold (latissimus dorsi and teres major). Deep dissection was between the subscapularis and the serratus anterior, until the osteochondroma was readily palpable.

The Emory Endoretractor (Eaves et al. 1995), which has a dual function of retraction and stabilization of the endoscope, was introduced with the 30° end viewing 10-mm scope through the incision. Visualization was assisted by an optical cavity resulting from the elevation of the scapula by the lesion. The lesion was identified and the base of the lesion was dissected free of the soft tissue. Using a burr (Black max drill) introduced parallel to the endoscope through the same incision, the base of the lesion was divided. The lesion was removed from the same incision using a grasper. This resulted in collapse of the medial aspect of the plane previously developed, thus obliterating

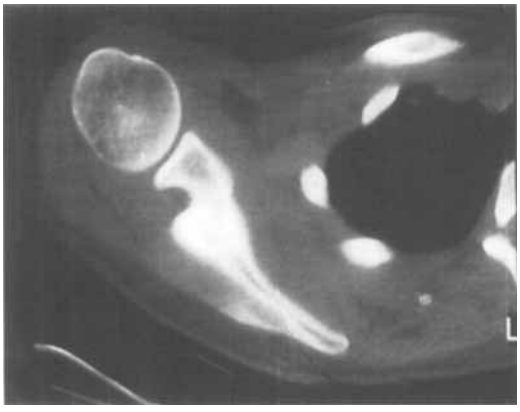

Figure 2. CT scan after complete excision of the osteochondroma.

Figure 3. Incision of the axillary portal to introduce the endoscope, length 5 cm.

the optical space. As a small ridge at the base of the lesion still remained, the optical space was recreated by using a bone hook introduced percutaneously near the superomedial corner of the scapula. The basal remnant was removed by use of the burr and nibblers, through the axillary portal. The wound was closed over a suction drain, which was removed after 24 hours.

The patient was discharged after 2 days, by which time she had regained near full motion of the shoulder, which was almost painfree. At 2 weeks, all surgical wounds had healed, and the patient had full motion of the shoulder, which was painfree.

Histology of the lesion confirmed the clinical diagnosis of osteochondroma. The postoperative CT and reconstruction showed complete excision of the mass (Figure 2). The patient was pleased with the length of the scar (Figure 3).

Discussion

Snapping scapula syndrome is a well-defined entity characterized by painful, audible and/or palpable abnormal scapulothoracic motion (Carlson et al. 1997). Scapular bony lesions represent one of several possible causes. Exostosis (osteochondroma) or bony spurs are those, which are most successfully treated surgically (Carlson et al. 1997). Osteochondromas are the commonest benign tumors affecting the scapula, occurring usually on the costal surface (Morse et al. 1993). Less than 3% of all the osteochondromas occur on the scapula (Wilner 1982). Presentation of this condition may occur with a painful grating in the scapular region making the snapping scapula syndrome (Percy et al. 1988, Carlson et al. 1997) or pseudowinging of scapula (Lynch et al. 1985, Danielson and Haddad 1989, Carlson et al. 1997). Although not highlighted, we feel that traditional surgical treatment has functional (Morse et al. 1993, Carlson et al. 1997) and cosmetic implications.

In approaching the lesion with endoscopic assistance through the lower axilla, we intended to minimize postoperative morbidity and hide the surgical scar. We considered the possibility of injury of the long thoracic nerve (Howard et al. 1995, Ruland et al. 1995); the incision for the endoscopic portal was well away from the nerve.

Unlike most endoscopic procedures in the axilla, the optic space was created by the projection of the lesion on the chest wall, and later recreated by placement of the bone hook. (Ramakrishnan and Southern 1997).

Endoscopic procedures have been used by plastic surgeons to harvest latissimus dorsi muscle for various free muscle graft procedures (Cho et al. 1997, Ramakrishnan and Southern 1997) and lipoma excision in the region of the shoulder girdle and upper back (Sakai et al. 1996). Endoscopic removal has previously been used in excision of three equine distal radial metaphyseal osteochondromata (Southwood et al. 1997). The endoscopic approach has been suggested for treating scapular-related pathologies in the past (Ruland et al. 1995).

Our case illustrates the benefits of realistic, sensible endoscopic assistance reducing wound size and dissection in an area of difficult access.

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