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COMPRESSION OF THE SUPRASCAPULAR NERVE AFTER FRACTURE OF THE SCAPULAR NOTCH

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A 32-year-old man with a fracture of the scapular notch associated with a lesion of the suprascapular nerve is reported. A nerve decompression operation was performed 20 months after the injury with relief of pain. The possibility that residual disability following a fracture of the scapula can be due to a lesion of the suprascapular nerve is underlined. The value of X-ray examination with projections visualizing the notch and diagnostic local anaesthetic block of the nerve passing through the notch are emphasized. Primary wide resection of the scapular notch is a preferable procedure preventing recurrence of nerve compression symptoms.

Key words: scapula fracture; suprascapular nerve compression; nerve decompression operation

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Fracture of the scapula is uncommon and when it occurs it is often one among multiple injuries caused by a serious trauma (Müller-Färber 1976, Rowe 1963, Zdravkovic & Damholt 1974). The scapular notch may be involved in fractures through the superior lateral angle of the scapula (DeCoulx et al. 1956, Edeland & Zachrisson 1975), and is sometimes associated with a lesion of the suprascapular nerve. This mixed sensory and motor nerve originates from the fourth, fifth and sixth cervical nerves, runs through the scapular notch and ramifies to the supraspinatus and infraspinatus muscles, parts of the humeroscapular and acromioscapular joints and to the scapula itself.

CASE REPORT

A 32-year-old man injured his left shoulder in a traffic accident. X-ray examination showed a comminuted scapula fracture (Figure 1) which healed with immobilization of the shoulder. During the next 20 months he was treated for residual shoulder girdle symptoms with various forms of physical therapy and injections but without improvement.

Arthrography and electromyographic examination (EMG) 15 months after the injury were negative.

Examination 5 months later revealed painful and restricted mobility of the shoulder together with weakness of the shoulder girdle muscles and tenderness in the region of the scapular notch. Local anaesthetic block of the suprascapular nerve in the notch relieved the pain.

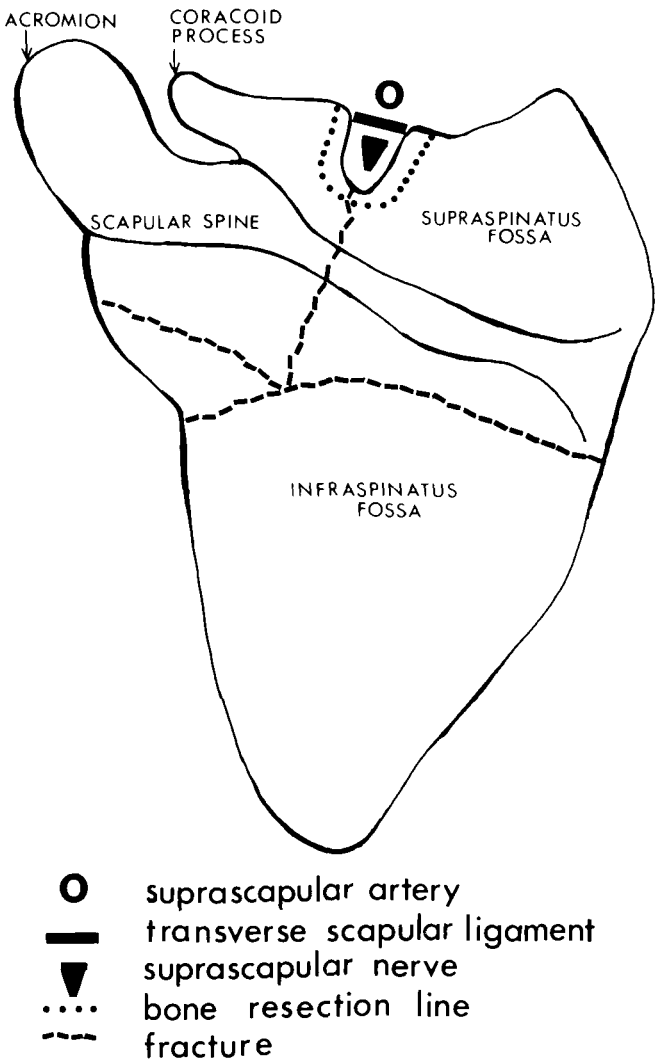

Figure 1. Dorsal view of the left scapula shows the comminuted fracture and the scapular notch with the wide resection of bone.

An operation was performed 20 months after the injury through an incision along the upper border of the scapular spine extending the dissection beneath the supraspinatus muscle to the notch, where the suprascapular nerve was seen to be surrounded by a mass of callus. The nerve appeared to be taut and swollen in the proximal direction but thin and atrophic distal to the notch. The transverse scapular ligament was sectioned and removed, the nerve released and using a small laminectomy rongeur the notch was widely resected (Figure 1).

The considerable pain in the shoulder was relieved by the operation, but some tenderness of the muscles lasted for several months.

DISCUSSION

Suprascapular nerve entrapment occurs after overstretching of the nerve in the scapular notch with resultant swelling of the nerve which leads to a pain-swelling cycle.

Severe forward flexion injury of the shoulder, especially protraction and forward rotatory movement of the scapula, tether the nerve in the fibro-osseous tunnel of the notch (Rask 1977). Isolated mechanical compression of the suprascapular nerve may give shoulder pain without an obvious cause (Komar 1976).

Edeland & Zachrisson (1975) found, among 18 fractures of the scapula, involvement of the scapular notch in two patients, and in one of these there was injury to the suprascapular nerve. They recommended that a simple antero-posterior projection, with the tube angled 15–30° caudally visualizing the scapular notch, should be included as a routine in the X-ray examination of patients with fractures through the superior lateral angle of the scapula. By conventional X-ray techniques with antero-posterior and lateral projections the notch is not clearly visualized.

Suprascapular nerve lesion in our patient was not suspected until the primary roentgenograms were compared with those from the re-examination. Diagnostic suprascapular nerve block by infiltrating local anaesthetics at the scapular notch (Gordh 1969, Edeland & Stefánsson 1973) relieved the shoulder pain. TV-monitored positioning was used to facilitate both the X-ray examination and the nerve block.

Electromyographic examination of the supraspinatus muscle may show obvious signs of suprascapular nerve involvement (Edeland & Zachrisson 1975). In our patient EMG performed 5 months before the operation showed no pathological findings, but the physical examination, the X-ray findings and the effect of the nerve block suggested involvement. The operation confirmed the diagnosis of nerve compression.

In this nerve decompression operation usually only the transverse scapular ligament is sectioned. However, we agree with Rask (1977) that primary wide notch resection is a preferable procedure preventing recurrence of nerve compression symptoms.

This case draws attention to the possibility that residual disability following a fracture of the scapula can be due to a lesion of the suprascapular nerve where it passes through the scapular notch.

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