(Deshpande et al 1976; Jayakumar et al 1987). An association with other diseases causing skeletal hyperostosis is now recognised, including diffuse idiopathic skeletal hyperostosis (DISH). Resnick et al (1978) observed OPLL in 50% of cases of DISH, and Tsuyama (1984) in 24%. Fluorosis causes extensive narrowing of the spinal canal and the root exit foramina; OPLL may cause further spinal stenosis. Probably because fluorosis produces more diffuse changes, our results of surgery in patients with fluorosis have been disappointing.

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Fig. 2

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SUPRASCAPULAR NERVE ENTRAPMENT IN AN ARTHRODESED SHOULDER

LENNART SJÖSTRÖM, BENGT MJÖBERG

Suprascapular nerve entrapment is rarely considered as a cause of shoulder pain. We report relief of pain in an arthrodesed shoulder by decompression of the nerve.

Case report. An epileptic man in his 20s developed painful post-traumatic arthritis after delayed diagnosis of a posterior dislocation of his left shoulder. Four years later he had a successful arthrodesis and his pain was relieved.

One year after the operation he complained of aching pain in the scapular region radiating down the lateral side of the arm to the elbow. The pain was constant but aggravated by use of the arm and the patient had been unemployed for two years. Repeated radiographs confirmed that the arthrodesis was sound.

The diagnosis of entrapment of the suprascapular nerve was considered, because tenderness was maximal over the suprascapular notch. Injections of local anaesthetic and steroid gave prompt pain relief for one to two

weeks. Electromyography showed denervation potentials in the supraspinatus but not in the infraspinatus.

At operation, through an incision just above the spine of the scapula, the transverse ligament was excised and the notch widened with a rongeur (Rask 1977). The nerve appeared normal. The pain was immediately and completely relieved: three weeks later the patient returned to heavy manual work in a timber yard and was still painfree after one year.

Discussion. The most common cause of suprascapular nerve entrapment in the suprascapular notch is direct trauma to the shoulder (Kopell and Thompson 1976; Laulund et al 1984; Hadley, Sonntag and Pittman 1986). The nerve has no cutaneous afferent fibres and the pain is therefore a deep, dull ache which may be made worse by shoulder movements, particularly adduction of the extended arm across the body. There is often wasting of the spinati muscles and local tenderness over the notch. The diagnosis may be confirmed by a suprascapular nerve block and by electromyography. Repeated nerve blocks with or without steroids may be curative but operative decompression usually gives permanent relief (Laulund et al 1984; Hadley et al 1986).

Another rare cause is frozen shoulder, which necessitates increased scapulothoracic movement which can produce a neuropathy in individuals with a narrow suprascapular notch (Kopell and Thompson 1976).

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Most shoulders are arthrodesed in 20° to 50° of abduction, so that the suprascapular nerve is stretched when the arm is hanging by the side and may be more vulnerable to acute or chronic trauma. The arthrodesed shoulder is not always pain free even if there is radiographic evidence of bone fusion; Cofield and Briggs (1979) reported moderate or severe pain in 17 of 66 arthrodesed shoulders, and Vastamäki (1987) in eight of 23. Entrapment of the suprascapular nerve should be considered as the cause of pain in these cases.

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ULTRASOUND DIAGNOSIS OF NEONATAL FRACTURE SEPARATION OF THE UPPER HUMERAL EPIPHYSIS

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Injury to the upper limb during a difficult birth may produce swelling, reluctance to move the arm and discomfort on passive movement. Possible causes include brachial plexus injury, shoulder dislocation, fracture of the clavicle, fracture separation of the upper humeral epiphysis, fracture of the humeral shaft, septic arthritis and even osteomyelitis. Plain radiographs may show a fracture, but are of limited value in diagnosing separation of the unossified epiphysis of the neonatal head of the humerus. We present a case in which ultrasound showed a Salter type-I injury (Salter and Harris 1963) despite a normal radiograph.

Case report. A 33-week mature girl was delivered by

Caesarean section, at which considerable difficulty was encountered during delivery of the shoulders, upper limbs and trunk. Her birth-weight was only 1870 g and she was seen not to move her left arm. The upper part of the arm became swollen, and movement caused her to cry.

Plain radiographs were normal, but examination using a Sonoline SL 1 with a 7.5 MHz linear transducer showed some periosteal elevation at the junction of the cartilaginous humeral head and the metaphysis. Abduction of the arm demonstrated movement between the humeral head and the metaphysis. In Figure 1 both humeri are shown. On the left, the fractured humerus is abducted, the shaft is in a valgus position, with elevation

Fig. 1

Fig. 2

Fig. 3

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of the upper part of the periosteum (small arrow), and the deltoid (large arrow) is displaced laterally. The unaffected right arm is shown for comparison. In Figure 2 the left arm is imaged in adduction and the shaft is now seen to be reduced. Treatment by immobilisation underneath clothing relieved all symptoms within three days. Plain radiographs at three weeks confirmed the diagnosis (Fig. 3).