ENTRAPMENT OF THE PROXIMAL FRAGMENT
OF SUPRACONDYLAR FRACTURES

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Supracondylar fracture of the humerus in children may be associated with nerve and vessel injury (Thomas and Alpar 1987). Sometimes attempts at manipulative reduction are unsuccessful. Recent papers have discussed treatment of displaced fractures by traction (Worlock and Colton 1984; Piggot, Graham and McCoy 1986).

We report four cases in whom the neurovascular bundle and the biceps tendon came to lie behind the flared distal end of the proximal fragment and hence between it and the distal fragment.

Case 1. A nine-year-old boy sustained a grossly displaced supracondylar fracture of the left humerus. The proximal fragment tethered the overlying skin, beneath which it was palpable. The distal pulses were impalpable.

Manipulative reduction was unsuccessful. Exploration through an anterior lazy S incision revealed the proximal flared fragment of the humerus to have cut through brachialis and then passed between the median nerve and the biceps tendon, impaling the brachial artery. The proximal fragment was now gripped by the median nerve and intermuscular septum medially and the biceps tendon laterally. Traction tightened the grip. With the gripping structures held aside, the proximal fragment was reduced into line with the distal fragment and secured with Kirschner wires. A vein patch was applied to the damaged artery and a fasciectomy of the forearm compartments carried out. One year later he had full functional recovery and symmetrical carrying angles, but has required a Z-plasty for the anterior scar.

Case 2. A five-year-old boy sustained a grossly displaced supracondylar fracture of the left humerus. The proximal fragment tethered the skin of the antecubital fossa, beneath which it was palpable. Manipulation of the fracture caused temporary obliteration of the radial pulse, as traction was applied. Exploration revealed the same anatomical disarrangement as in the first case, except that the brachial artery lay with the median nerve behind and medial to the proximal fragment (Fig. 1). By holding the gripping structures aside, reduction was achieved and was secured with Kirschner wires. After six months the appearance and function were normal.

Case 3. An eight-year-old boy who sustained a grossly displaced supracondylar fracture was in every particular similar to the second case. Five years later his elbow and arm were normal.

Case 4. A nine-year-old girl sustained a grossly displaced supracondylar fracture of the right humerus. The distal pulses were absent but the fingers were well perfused. Manipulative reduction was not satisfactory and Dunlop traction (Dunlop 1939) was applied. After two weeks a collar and cuff sling was applied, but pain continued. Twenty-one days after the injury, the fracture was explored. The median nerve and brachial artery were between the fracture fragments on the medial side. They were retracted and reduction was achieved. There was immediate relief of pain but the median nerve injury took six months to recover. One year after the injury there was a 5° loss of carrying angle and a 35° reduction in the arc of elbow movement.

Discussion. Where the brachial artery and median nerve
lie medial to a supracondylar fracture and the biceps tendon lateral to it, traction applied to distract the fragments causes the gap between neurovascular bundle and tendon to narrow, effectively gripping the flared end of the proximal fragment (Fig. 1). In these four cases this seems to have happened. The fractures all involved gross posterior displacement of the distal fragment. The distal end of the proximal fragment lay just beneath the skin and in three cases was palpable where it tethered the overlying skin. The radial pulse was absent in two cases and manipulation did not achieve reduction nor restore the circulation. In the two cases where the radial pulse was present, manipulation caused its temporary obliteration.

An anterior exploration allowed good exposure of the fracture and soft tissues. The proximal fragment, which had cut through brachialis muscle, lay close beneath the skin. Care was needed to avoid damaging the nerve or vessel.

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REFERENCES


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EFFECT OF WEIGHT LOSS ON MUSCULOSKELETAL PAIN IN THE MORBIDLY OBESE

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A relationship between obesity and the development of degenerative arthritis has been shown (Hartz et al 1986), but we are not aware of any prospective study to see if weight loss relieves musculoskeletal pain. We therefore undertook a study to determine the incidence of such chronic pain in an obese population and the effect of weight loss.

Patients. We studied 105 consecutive patients undergoing vertical banded gastroplasty. In this operation, the stomach is converted from a large reservoir to a narrow conduit by lines of staples, with a non-expandable mesh collar at the lower end of the gastric tube (Deitel et al 1986). This makes it possible to eat only tiny, well-chewed meals, and weight loss is accomplished by limited intake.

All patients were at least 45 kg (100 lb) overweight, based on the 1983 Metropolitan Life Foundation height and weight tables; their ages ranged from 18 to 58 years (average 33.4). Before operation all the patients completed a standardised questionnaire, were interviewed and examined by an orthopaedic surgeon and had radiographs taken of any symptomatic joints. Follow-up was obtained on 104 of the 105 patients at an average of 22.5 months (minimum 11 months). At follow-up, each patient was weighed and again completed the standardised questionnaire.

Results. The average weight pre-operatively was 125 kg (277 lb). Of the 105 patients 88% had, on most days of the month, chronic musculoskeletal pain which was severe enough to interfere with the activities of daily living. The areas involved were low back (62%), the hips.