ANTERIOR INTEROSSEOUS NERVE PALSY
AS A COMPLICATION OF FOREARM FRACTURES

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Two cases of palsy of the anterior interosseous nerve were recently observed, each complicating a closed forearm fracture. A detailed description of this nerve lesion in association with a fracture has not, to my knowledge, been reported previously.

The object of this paper is to record the findings and prognosis of the discrete nerve lesion observed in these two cases, and in addition to suggest why the anterior interosseous nerve is involved.

ANATOMY

The anterior interosseous nerve is a motor nerve. It supplies the flexor pollicis longus, the index and often the middle finger segments of the flexor digitorum profundus, and the pronator quadratus. The supply to the flexor pollicis longus and the index finger segment of the flexor digitorum profundus is constant (Seddon 1954, Mangini 1960).

The anterior interosseous nerve branches from the median nerve just distal to the neck of the radius and passes in company with the anterior interosseous vessels to the interosseous membrane. It then courses down the forearm on the anterior surface of the membrane between the bellies of flexor pollicis longus and flexor digitorum profundus.

It ends in the substance of the pronator quadratus muscle and the capsule of the wrist joint (Grant 1948). Because of the proximity of the nerve to the radius it is liable to injury in a displaced forearm fracture (Fig. 1).

CASE REPORTS

Case 1—A man of twenty was admitted with multiple fractures including a closed left forearm fracture (Fig. 2). Examination revealed complete loss of active flexion of the interphalangeal joint of the left thumb and of the distal interphalangeal joint of the left index finger. The hand was otherwise normal. The diagnosis made at the time was an incomplete median nerve lesion with paralysis of flexor pollicis longus and part of flexor digitorum profundus.

Return of active flexion at these joints occurred spontaneously after about four weeks, and the power was full after five months. A final diagnosis of anterior interosseous nerve lesion was made.

Case 2—A woman of sixty-nine sustained a closed Galeazzi fracture-dislocation (Fig. 3). The findings in the hand were the same as those in Case 1. The diagnosis of anterior interosseous nerve lesion was made. Active flexion returned after six weeks and progressed to full recovery after seven months.
In both cases a closed forearm fracture was accompanied by complete, but temporary, paralysis of flexor pollicis longus and the index finger segment of flexor digitorum profundus. Isolated paralysis of these two muscles indicates an anterior interosseous nerve lesion. The function of pronator quadratus cannot accurately be tested.

The susceptibility of the anterior interosseous nerve to injury and its constant pattern of supply, combine to make this an interesting example of a partial lesion of the median nerve.

I wish to thank Mr G. J. Lillie and Mr M. H. Salz for their assistance in the preparation of this paper and for allowing me to report on their patients. I am also grateful to Mr N. Capener for his helpful criticism.

REFERENCES

