MEDIAN NERVE DECOMPRESSION AFTER COLLES’S FRACTURE

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Compression of the median nerve is a rare complication of Colles’s fracture, and treatment, in general, produces poor results. A previously unreported cause of compression is presented and four cases used to illustrate its significance. Ignorance of this complication may well account for the poor results of decompression.

Compression of the median nerve after Colles’s fracture has been well documented. The causes of compression that have been identified include haematoma within the carpal tunnel (Seddon 1975; Watson-Jones 1976), hyperextension at the time of the injury with direct nerve damage (Kirchman 1910; Sterling and Habermann 1973), and healing with excessive callus formation and malunion (Zachary 1945).

The purpose of this paper is to draw attention to a previously unreported cause of compression: namely, haematoma and subsequent fibrosis beneath the deep fascia at the level of the fracture site, well away from the carpal tunnel. The investigation began when a patient presented with the condition and this led to the clinical review of three other patients who had undergone carpal tunnel decompression for this complication during 1976; nerve conduction studies were undertaken by an independent neurologist. A second exploration was necessary in one case.

CASE REPORTS

Case 1. A woman aged sixty-six fell and sustained a Colles’s fracture of the right forearm. Closed reduction was performed, with a good anatomical result. Immediately after immobilisation in plaster of Paris there was no neurological deficit but within twenty-four hours the patient complained of numbness and paraesthesia in the distribution of the median nerve; the bandage was divided along the length of the forearm with no improvement. Surgical decompression was performed forty-eight hours after the initial injury.

At operation the carpal tunnel was normal. The incision was therefore extended proximally and the nerve found to be compressed by a haematoma beneath the deep fascia of the proximal forearm. The deep fascia was divided, the haematoma evacuated and the skin closed loosely with silk sutures. Conduction studies on the nerve performed three weeks after the operation confirmed that there was damage to the proximal median nerve at the level of the haematoma. After three months the patient was free of symptoms.

Case 2. A woman aged sixty-four fell and sustained a Colles’s fracture of the right forearm. As in Case 1, there was a closed reduction with a good anatomical result and immobilisation in plaster of Paris. Twelve hours later the patient complained bitterly of median nerve symptoms in the hand; no improvement occurred on splitting the bandage and the wound was explored within seventy-two hours of injury. The nerve was found compressed beneath the palmar ligament by a tense haematoma; the ligament was divided completely and the haematoma evacuated. At six weeks she still complained of median nerve symptoms and signs of thenar wasting were apparent. Nerve conduction studies were carried out and the report read: "These results are in keeping with quite a severe median nerve injury due to extensive proximal damage of the nerve."

At a further operation the carpal tunnel was found to be normal apart from some fibrous adhesions. On exploring the nerve proximally, however, it was found to be narrowed by fibrosis some three inches proximal to the skin crease of the wrist (Fig. 1). A nerve stimulator placed below the constricted area caused abduction of the thumb, but no response occurred when placed above this lesion. The fibrous tissue was divided and a neurolysis performed. Recovery was uneventful, and the operation resulted in marked improvement in both the symptoms and signs of median nerve compression.

Cases 3 and 4. Two other patients with Colles’s fractures and median nerve symptoms have attended this department for surgical treatment in the past twelve months. One had a poor result and the
emtomographic studies suggested similar “proximal nerve damage”. He is awaiting further exploration. The fourth patient had minimal symptoms after decompression of the carpal tunnel alone, and the nerve study was reported as normal.

**DISCUSSION**

Undoubtedly median nerve compression after a Colles’s fracture can be due to compression within the carpal tunnel by a haematoma. However, these cases illustrate that compression may be due to a haematoma beneath the deep fascia at the level of the fracture site. This condition can occur alone or simultaneously with haemorrhagic compression in the carpal tunnel. In three of the four cases that required exploration there was proximal median nerve damage at the level of the fracture site. Two of these required surgical intervention for full recovery of the nerve to take place; the third awaits a second operation. It is suggested, therefore, that if the symptoms of median nerve compression are severe enough to warrant surgical intervention then if the carpal tunnel appears normal the dissection should be extended to include at least four inches of the proximal forearm. It may not be enough to explore the carpal tunnel alone even if compression is found at this site.

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**REFERENCES**


