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PERONEAL NERVE PALSY DUE TO SUPERIOR DISLOCATION OF THE HEAD OF THE FIBULA AND SHORTENING OF THE TIBIA

(Monteggia-like Fracture Dislocation of the Calf)

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This article describes a case of peroneal nerve palsy due to proximal dislocation of the head of the right fibula. The dislocation occurred as a result of a long spiral fracture of the tibia with resultant shortening of the tibia of approximately 2 cm and consequent proximal dislocation of the upper tibio-fibular joint.

Isolated dislocation of the head of the fibula with no further traumatic injury to the tibia has been described many times in the literature. Particularly common is the antero-lateral dislocation, while the proximal dislocation is extremely rare. In Ogden's review of 43 cases (1974) there is only one similar case, and that too was discovered about 7 years after the injury. To the best of our knowledge no case with the above characteristics has yet been described in the English literature, i.e. long spiral fracture of the tibia causing shortening of that bone and proximal movement of the head of the fibula with no other fracture. The resultant pressure on the peroneal nerve caused its paralysis.

This type of fracture is reminiscent of the one carrying Monteggia's name and, in view of the great similarity between the two, it is very tempting to call it Monteggia-like fracture dislocation of the calf.

CASE REPORT

A 34-year-old man was admitted to hospital after having injured his right calf when, during a riding accident, both he and the horse fell and the patient's right foot was caught beneath the horse's belly. At hospital a long spiral fracture of the right tibia (Figure 1) was diagnosed and,

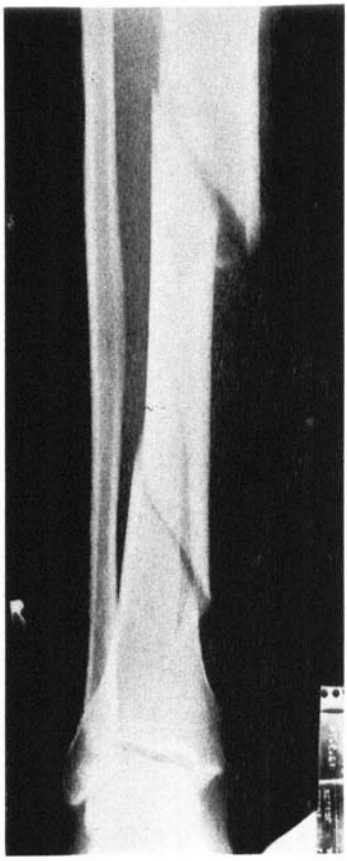

Figure 1. Long spiral fracture of the tibia with a shortening of about 2 cm, without fracture of the fibula.

in addition, a peroneal nerve palsy. The fracture was fixed in plaster and after 3 weeks the patient was transferred to us for continued ambulatory treatment. Examination revealed that there had been no improvement in nerve function, the nerve still being fully paralysed. The position of the tibial fracture was stable, but because the tibia had shortened while the fibula had remained whole, it was decided to take further x-rays of the knee in the hope that a fracture of the fibula had been overlooked. The x-ray disclosed superior and lateral dislocation of the head of the fibula in such a way that the proximal part of the head was on a level with the right knee joint space (Figure 2 a, b). Following this finding, the patient was admitted to our Department for operation.

At operation, the head of the fibula was seen to exert direct pressure on the peroneal nerve, causing it to bend distinctly. The colour of the nerve was bluish for a few centimetres and remained so even after its

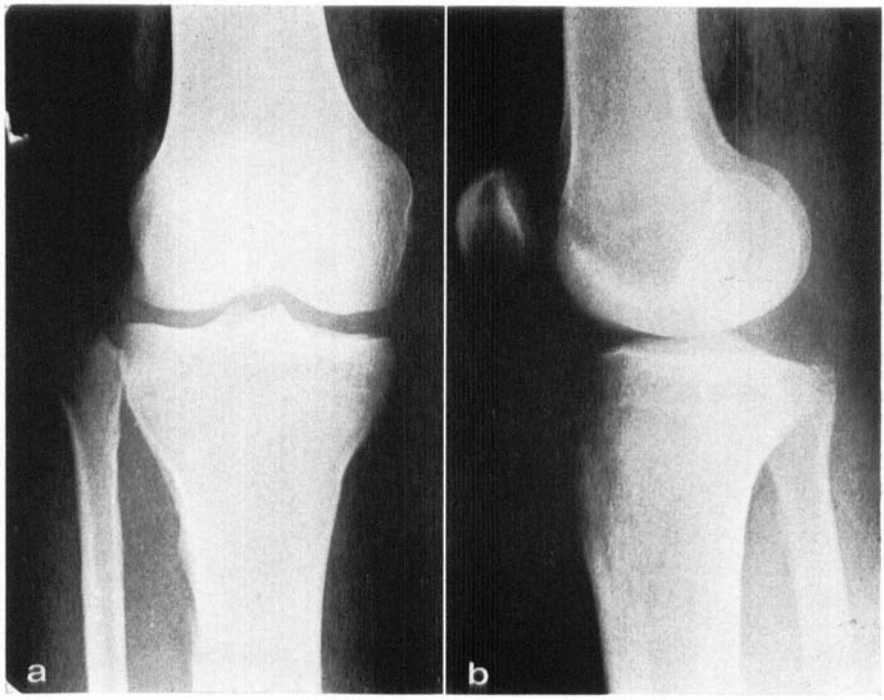

Figure 2 a, b. Proximal and posterior dislocation of the head of the fibula.

dissection from surrounding scar tissue (Figures 3 and 4). Because reduction was impossible by this time, the head of the fibula was excised.

The tibial fracture healed with resultant shortening of more than 2 cm. The nerve recovered partially, enabling satisfactory function of the peroneus longus and brevis, tibialis anterior and extensor digitorum longus.

DISCUSSION

Acute isolated dislocation of the proximal tibio-fibular joint is a rare injury, but one that has already been described by the following: Lyle 1925, Vitt 1948, Dennis et al. 1958, Christensen 1966, Clews 1968, Parkes et al. 1973, Crothers 1973, and Ogden 1974.

One common cause of this injury is parachute jumping (Vitt 1948, Dennis & Rutledge 1958, Crothers & Johnson 1973, Ogden 1974).

Lyle (1925), in a review of 36 cases, described three types of dis-

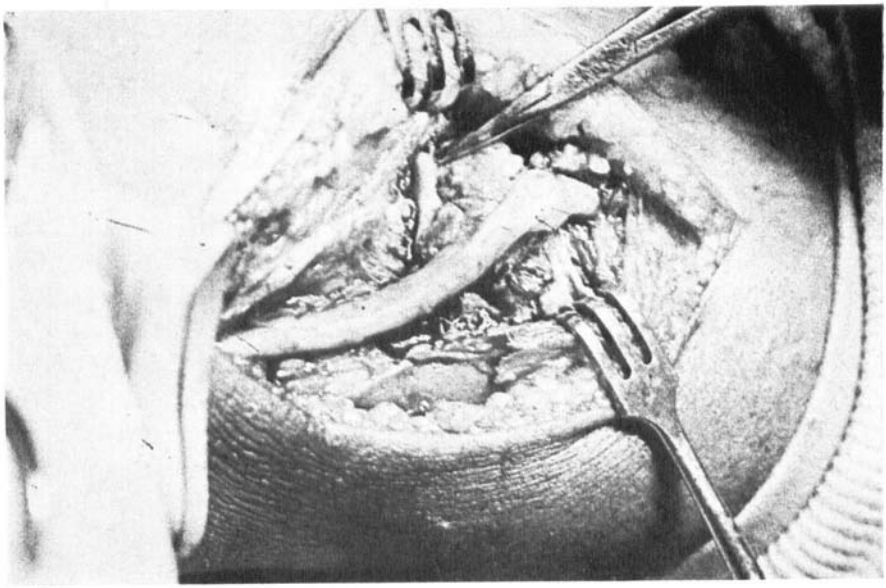

Figure 3. The peroneal nerve was found compressed and displaced proximally by the head of the fibula. The tip of the surgical shears points to the cartilaginous surface of the head of the fibula.

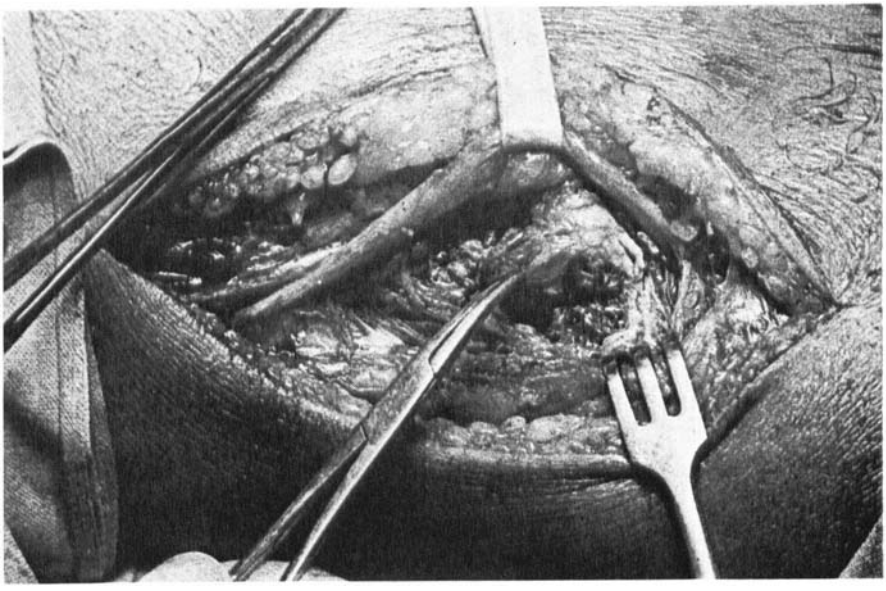

Figure 4. The head of the fibula after release of the peroneal nerve.

location: 20 cases of anterior dislocation, 12 cases of posterior dislocation, of whom two had associated peroneal nerve lesions, and four cases of superior dislocation. According to Lyle, the latter type cannot occur as an isolated injury, but instead occurs in association with fracture of the fibula or dislocation of the entire fibula, and always in conjunction with ankle injuries in which the fibular malleolus is displaced. Lyle did not consider the possibility that shortening of the tibia could be due to fracture and superior dislocation of the head of a non-fractured fibula.

Apart from two cases of peroneal nerve lesion associated with posterior dislocation (Lyle's review), one other case of peroneal nerve palsy in bilateral recurrent posterior dislocation has been described by Dennis (1958). In this case the dislocation was not caused by direct trauma. To the best of our knowledge no case of peroneal nerve palsy in superior dislocation has as yet been described.

In his review of 43 cases, Ogden (1974) pointed out that the most common type of dislocation is the antero-lateral one. A breakdown of his series is as follows: 10 cases of subluxation, 29 cases of antero-lateral dislocation, 3 cases of posterior dislocation, and only 1 case of superior dislocation.

The last case is similar to ours, and was a 1-year-old boy who fractured his tibia. This healed with 1–2 cm of overriding and subsequent shortening. After a lapse of 7 years, he was seen because of a lateral "mass" which proved to be none other than the dislocated fibula head. No treatment was undertaken.

According to Ogden, one-third of his cases had been overlooked initially. Successful treatment of most cases consisted of closed reduction. Only two cases required operation; in one of them excision of the fibular head was performed, and in the second case arthrodesis of the joint was performed. According to Ogden, since Lyle's series in 1925, the literature has contained reports of 75 cases of antero-lateral dislocation, 3 cases of postero-medial dislocation, and 2 cases of superior dislocation.

Despite the relative infrequency of superior dislocation, this possibility must be borne in mind, and particularly so in cases of post-traumatic peroneal nerve palsy.

In our case, the diagnosis was missed, the knee not having been x-rayed. There is no doubt that, if the possibility of superior dislocation had been considered, prompt release of the peroneal nerve could have been effected by skeletal traction. It would also have been possible to

obtain reduction of the head of the fibula and speedier and better recovery of the nerve. Three weeks of constant pressure upon the nerve could well have caused irreversible damage.

The purpose of this article is to record one other possible way of damaging the peroneal nerve, namely by superior dislocation of the proximal tibio-fibular joint.

This form of injury—shortening of the tibia causing proximal dislocation of the fibula—resembles Monteggia's fracture dislocation of the forearm to such an extent that it is indeed tempting to call it Monteggia's fracture of the calf.

SUMMARY

A case of peroneal nerve palsy due to superior dislocation of the proximal tibio-fibular joint is described. Emphasis is placed on the importance of early diagnosis and treatment.

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