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A UNIQUE CASE OF PERONEAL NERVE PALSY FOLLOWING TIBIAL CONDYLE FRACTURE

Orthopaedics

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ABSTRACT

Very many causes have been described on the cause of lateral popliteal nerve injury in the fractures of the tibial condyle . This kind of lateral popliteal nerve injury usually follows tight bandages , native splint application and surgeries on the tibial condyle and tumour surgeries of upper end of tibia and fibula . In this report we would like to share that primary foot drop in minimally depressed tibial condyle fracture h been encountered.

KEYWORDS

INTRODUCTION

Lateral popliteal nerve due to its close relationship with the head of fibula has a tendency to get injured iatrogenically while performing surgeries requiring placement of an implant in the proximal tibia. The lateral popliteal nerve is frequently injured in implant surgeries of tibial condyle and tumour surgeries of upper end of tibia and fibula mainly due to its precarious position. Direct trauma to the fibula causing a neck of fibula fracture also is a reason of a peroneal nerve palsy along with forceful manipulation of knee , tight bandages via inexperienced hands are other commonly noted factors causing a peroneal nerve injury.

CASE REPORT

35years old male reported to our emergency at Sree Balaji Medical college - Chennai with a history of slip and fall following which he had pain and difficulty in walking and bending the knee forward while attempting to sit. Following trauma patient only had analgesics and symptoms did not subside following the same. No other history could be elicited suggecting a lateral popliteal nerve injury On examination patient had minimal effusion in the knee and had tenderness over lateral aspect of his left knee. Patient had no tenderness elsewhere , no external wounds . Neurological status evaluation revealed patient was unable to dorsiflex the left foot and also had impaired sensation over the 1st web space over the dorsum of the left foot.

There was no features suggestive of spinal injury , the other limb and hip joints are clinically normal.

Routine radiological investigations showed post traumatic closed Type C depression fracture of the left leg (c Schatzker lassification) . 41-B2 – (AO classification).

CT-LEFT KNEE showed a Communited and depressed fracture involving the articular surface of the lateral tibial condyle extending to tibial plateau with superior displacement of the fragment – type 2 Schatzker classification.A tiny ossified bony fragment in the posterior aspect of lateral condyle in the lower end of left femu rwas also noted MRI-LEFT KNEE revealed a depressed communited intraarticular fracture of the proximal lateral tibial plateau and marrow contusion Buckling of anterior horn of lateral meniscus with disruption of meniscotibial ligament. ACL and the other ligaments are intact. Contusion of lateral head of gastercnemious muscle .

Patient was then investigated thoroughly for anesthetic assessment including cardiac status. Under spinal anesthesia with tourniquet control, by anterolateral approach fracture of tibial condyle was identified , elevated and the gap was filled with synthetic bone graft. Fracture site was then fixed with titanium 3 hole plate with cancellous screw. Surgery was done under imaging control and post operative x-ray and imaging were found satisfactory.

DISCUSSION

Primary foot drop following a closed type c fracture lateral tibial condyle is a rare entity.

The lateral popliteal nerve injury is most commonly associated with tumour and surgery on the upper end of fibula and also following assault and road traffic accidents .

In closed injury of the lateral tibial condyle without involvement of head and neck of fibula is of rare entity and hence reported.

The common peroneal nerve may be injured at the knee with a fracture of the tibia or fibula, especially at the proximal fibula. There is an approximately 1% incidence of peroneal nerve injury with tibial plateau fracture. Also, this can occur with knee arthrodesis and is a rare complication of total knee arthroplasty, realignment of the knee extensor mechanism, and arthroscopic meniscal repair. Stretch injury of the peroneal nerve can occur after treatment of knee flexion contracture. Utilizing a posterolateral incision and placing a retractor to protect the nerve from traction can help to prevent common peroneal nerve injury during arthroscopic knee surgery [1].

Peroneal neuropathy at the knee has been reported with ligamentous knee injury. In a series of 31 lower extremity sports injuries, 17 were peroneal nerve injuries. Eight of these traumatic injuries were associated with ligamentous injury of the knee. Most of these involved anterior cruciate ligament rupture. This often occurred in conjunction with injury to the lateral, collateral, or posterior cruciate ligament. Of note, three of the peroneal neuropathies in this series were associated with ankle injuries [2].

Ligamentous or bony injury of the ankle may cause peroneal neuropathy. However, nerve damage results more often from treatment of ankle fracture than from the fracture itself. Treatment of ankle injuries with a below-knee splint or cast can damage the peroneal nerve by pressure over the fibular head. Associated lower extremity edema can worsen this complication. This can be avoided by padding the cast or splint in the area of the fibular head and avoiding prolonged pressure on the lateral knee (as can occur during bed rest with lateral rotation of the leg). To follow the patient clinically, the inferior trim lines of the cast can be moved proximally toward the ankle to allow for visualization of active toe extension as documentation of deep peroneal nerve function. In the ankle, iatrogenic injury to the superficial peroneal nerve may occur in surgical incisions placed at the anterior border of the fibula to approach the distal fibula or the anterior tibiofibular joint [1]. Ankle sprain is a common cause of morbidity in the general population, and the ankle is the most commonly injured joint complex among athletes [3]. The mechanism of injury in ankle sprain involves inversion of a plantar flexed ankle. This position applies traction to the peroneal nerve at the fibular head due to stretching of the peroneal muscles [4]. Peroneal nerve injury after

ankle sprain was first described by Hyslop in 1941 in a case series of three patients. The mechanism of injury was proposed as a traction injury of the nerve in the posterolateral knee from a sudden force with the patient's foot in plantarflexion and inversion. Although the site of injury is at the fibular head, the symptomatic area is the lateral foot [5]. Concurrent ankle sprain and peroneal neuropathy at the fibular head may be uncommon, but easily misdiagnosed. Patients with ankle sprain often experience lateral ankle pain and eversion weakness from the primary ligamentous injury.

If there has been an injury to the peroneal nerve at the knee during lateral ankle sprain, this could be detected within 2 weeks after injury on electromyographic examination. A series of 66 patients with ankle sprain underwent this evaluation. Eighty-six percent of patients with grade III sprains and seventeen percent of patients with grade II sprains had electrodiagnostic evidence of peroneal nerve injury on needle examination. Nerve conduction studies were normal in most patients with ankle sprain. Three of the patients (10%) with grade II injury had abnormal sensory studies, and one of the patients with grade III ankle sprain had abnormal motor studies [6].

CONCLUSION

The current case were the type C fracture of lateral tibial condyle with immediate foot drop has not been discussed and reported in the literature .

The recovery of the nerve will have to be observed for further attention.

Ethical approval – not required
Finding – no sources
Conflict of interst – not declared.

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