

Evaluation of posterolateral tibial plateau fracture fixation with two direct lateral and posterolateral approaches

Abstract

Background: The knee joint is one of the three main weight-bearing joints in the lower limb, and damage to this joint can cause instability and pain, causing disability and dysfunction of the patient. One of the most important traumatic injuries in the knee joint is intra-articular fractures of the proximal tibia with a posterolateral fragment. The selective approach for this type of fracture is an orthopedic challenge.

Aim: The purpose of this study was to introduce a safe method to fix posterolateral tibial fractures, which are one of the challenges of neurovascular injuries using existing methods, and to compare this method with the posterolateral approach.

Materials and Methods: The research method was a case series, the sample size consisted of a group of 54 people, who were divided into two groups of 27 people, one group was operated with the direct-lateral approach and the other group was subjected to the posterolateral approach, and in terms of determining the preference of the approach used and the amount of neurovascular damage, also the need to leave The means of fixation and determination of fixation capability and type of joint reduction were compared.

Results: The results obtained from the data analysis showed that the IKDC score in the lateral group was 92 ± 2.4 , but in the posterolateral group it was 90 ± 1.3 , which was significantly higher in the lateral group ($p < 0.001$). The Lysholm score in the lateral group was 96 ± 2.4 , but in the posterolateral group it was 88 ± 1.5 , which was significantly higher in the lateral group ($p < 0.001$). The average knee range of motion was 130 degrees (range 110 degrees to 135 degrees) in the

lateral group and 125 degrees (range 90 degrees to 130 degrees) in the posterolateral group ($p < 0.001$)

Conclusion: The modified direct lateral method through a limited skin incision without exposure of the common peroneal nerve can help to develop the surgical options for the optimal treatment of this fracture type without injury to the peroneal nerve and with direct reduction of depressed tibial plateau fractures with a posterolateral fragment. It led to the restoration and preservation of the anatomical reduction. This approach requires a detailed knowledge of the anatomical structures of this region.

Key words: Tibial plateau fracture, posterolateral corner, tricortical graft