A novel technique of plate positioning for fixation of posterior column acetabular fractures by modified Kocher-Langenbeck technique: A case series

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Abstract

Introduction: Modified kocher-langenbeck technique aims at achieving osteosynthesis by creating two windows: between the gluteus medius and piriformis superiorly and between external rotators and ischial tuberosity inferiorly. The reconstruction plate can be slid under the piriformis and the short external rotators, we propose an easy way for the placement of the reconstruction plate Case report: We present a series of three cases with acetabular fractures posterior column fixed with reconstruction plates by modified kocher-langenbeck approach with a minimum follow up of 2 years.

Case 1: 37yr male patient with right posterior column fracture left anterior and posterior column fracture, right posterior column and left anterior column are fixed with percutaneous screws, left posterior column fracture fixed with reconstruction plate and screws.

Case 2: 45yr male patient with left posterior column fracture fixed with reconstruction plate and screws.

Case 3: 41yr male patient with right posterior column fracture anterior column fracture fixed with reconstruction plate and screws. All the patients posterior column was fixed using modified kocher-langenbeck approach, all patients were followed for a period of 2 years, all patients had excellent outcome, there is no incidence of avascular necrosis of head in any case. Discussion: Modified kocher-langenbeck approach is tissue preserving and prevents damage to the vascularity of the head, in all the cases after reduction of fracture, an umbilical tape was tied to the end of the reconstruction plate using a long artery forceps the umbilical tape is pulled under the submuscular tunnel thus positioning the reconstruction plate under the intact short external rotators, the plate is fixed with appropriate screws. Use of this technique provides an easy positioning of reconstruction plate.

Keywords: Acetabular fractures, posterior column, reconstruction plate, kocher-langenbeck

Introduction

Displaced fractures of the acetabulum are best treated with anatomical reduction and rigid internal fixation. Superior outcomes are associated with anatomic reduction of the weight bearing dome of the acetabulum. Most of the acetabular fractures (98%) can be managed by a single appropriate operative approach. Modified kocher-langenbeck technique aims at achieving osteosynthesis by creating two windows: between the gluteus medius and piriformis superiorly and between external rotators and ischial tuberosity inferiorly. The approach spares the division of external rotators and of the abductors of the hip, thus preventing iatrogenic damage to the vascularity of the head and of the fracture fragments. The reconstruction plate can be slid under the piriformis and the short external rotators, we propose an easy way for the placement of the reconstruction plate

Materials and methods

Case report: We present a series of three cases with acetabular fractures posterior column fixed with reconstruction plates by modified kocher-langenbeck approach with a minimum follow up of 2 years.

Case 1: 37yr male patient sustained road traffic accident 4 wheeler vs 4 wheeler diagnosed to have with right posterior column fracture left anterior and posterior column fracture, right
posterior column and left anterior column are fixed with percutaneous screws, left posterior column fracture fixed with reconstruction plate and screws. (Figure 1, 2, 3). 2 year follow up patient resumed activities with no complications.

![Fig 1: Preoperative CT scan](image1)

![Fig 2: intra operative fracture reduction and sliding of plate under the intact short external rotators.](image2)

![Fig 3: Post operative xray and clinical picture at follow up](image3)

Case 2: 45yr male patient sustained injury by fall from height. Diagnosed with left posterior column fracture fixed with reconstruction plate and screws. Patients had good results with no complications. (Fig 4, 5, 6)

![Fig 4: PreOp xrays](image4)
Case 3: 41yr male patient with right posterior column fracture anterior column fracture fixed with reconstruction plate and screws. Had good results (fig 7, 8, 9).

All the patients posterior column was fixed using modified kocher-langenbeck approach, all patients were followed for a period of 2 years, all patients had excellent outcome, there is no incidence of avascular necrosis of head in any case.
Discussion
Modified kocher-langenbeck approach is tissue preserving and prevents damage to the vascularity of the head, in all the cases after reduction of fracture, reconstruction plate was prebent according to the anatomy, a submuscular tunnel was made using a cobb's elevator persevering the short external rotators. An umbilical tape was tied to the end of the reconstruction plate using a long artery forceps the umbilical tape is pulled under the submuscular tunnel thus positioning the reconstruction plate under the intact short external rotators, the plate is fixed with appropriate screws. Use of this technique provides an easy positioning of reconstruction plate.

Conclusion
We believe that modified kocher-langenbeck approach makes the procedure less invasive, shortens the operative time, minimises blood loss.

References