

Quadrilateral plating with Magic and Posterior Column Screw in acetabular fracture – A Case Report

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INTRODUCTION:

Quadrilateral plate fixation uses a specially designed plate. We describe a case of acetabular fixation using minimal invasive technique combination of different techniques all together creatively to achieve stable fixation.

MATERIALS & METHODS:

A 23 years old gentleman, who suffered a motor vehicle accident, sustained pain over right hip post trauma. Further evaluation radiologically, he had right anterior column with posterior hemi-transverse acetabular fracture. Operation was scheduled to fixate the injury.

RESULTS:

During surgery, modified stoppa approach lateral window was used to reach quadrilateral plate and anterior column. Asymmetrical clamp was used to reduce anterior column. Anterior column screw was applied percutaneously to maintain the reduction of anterior column with fluoroscopic guidance. This was followed by application of Quadrilateral Surface Plate (QSP) Synthes with asymmetrical clamp. In stead of applying a 3.5mm screws from the superior screw slot to medial serrated teeth screw slot, Superior screw slot was used to apply a 3.5mm posterior column screw. A magic screw was applied percutaneously under fluoroscopic guidance to reach the medial serrated teeth screw slot of QSP, which allow locking mechanism and maintain quadrilateral plate reduction. The asymmetrical clamp was removed carefully under fluoroscopic checking to ensure reduction was maintained. Wound was closed in usual manner.

4 months postoperatively, radiologically fracture united, patient achieved normal hip function, with ability to perform deep squat, normal gait with no pain.

DISCUSSIONS:

The QSP is fixated with magic screw and posterior column screw, with an additional anterior column screw. It is minimal invasive and provides good clinical outcome. It is however technically demanding as it is highly dependent on proper understanding of anatomical and fluoroscopic views.



Figure 1: Anterior column and posterior hemi-transverse pattern acetabular fracture

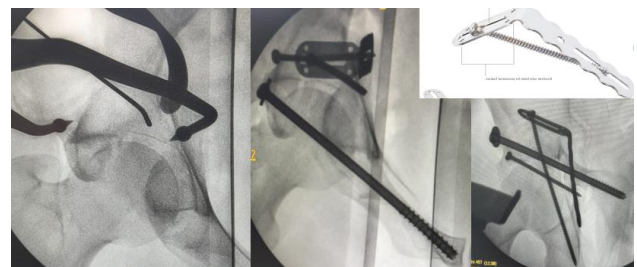


Figure 2: Reduction is achieved with asymmetrical clamp, application of anterior column screw. Note that the posterior column screw and magic screw are through the plate superior and medial slots respectively. Original purpose of the plate is as right upper picture.

REFERENCES:

1. Zhou XF et al. Quadrilateral plate fractures of the acetabulum: Classification, approach, implant therapy and related research progress. World J Clin Cases. 2022 Jan 14;10(2):412-425