

Injury To The Acetabular Triradiate Physeal Cartilage: An Unusual Case

Tan CS, Amaleswaran A, Zulkiflee O

Department of Orthopaedic and Traumatology, Hospital Pulau Pinang, Malaysia.

INTRODUCTION:

Acetabular fractures constitute only 9.8% of pediatric pelvic fractures, making them very uncommon¹. Most pediatric acetabular injuries are the result of a high energy trauma, whereas injury to the triradiate cartilage is most often due to direct injury². Trauma to the triradiate cartilage or its blood supply can lead to premature fusion of the triradiate cartilage resulting in secondary acetabular dysplasia³.

CASE:

A 15 year old boy presented with left acetabular triradiate cartilage injury following a motor vehicle accident. The mechanism of injury was direct impact toward his knee by an incoming vehicle. Besides that he also sustained deep laceration wound over left knee with patella tendon cut, left frontal subdural hematoma and basal skull fracture.

X-ray of the pelvis showed a fracture of the left acetabulum triradiate cartilage (Fig 1). CT scan noted Type V Salter Harris fracture of the triradiate cartilage (Fig 2 and 3).

Open reduction and internal fixation using buttress principle (recon plate) via anterior ilioinguinal approach (Fig 4) was performed. Intraoperative fluoroscopic evaluation revealed congruent and stable fixation without intra articular breach of hardware.

Post-operatively, neurovascularity of left lower limb intact and started on skate board exercise. After that, he was discharged with non-weight bearing ambulation with crutches

DISCUSSION:

The acetabular triradiate cartilage is the composite growth-plate of the iliac, ischial and pubic bones. Premature closure of this physis is an infrequent complication of pelvic injury. Anatomic alignment of the triradiate cartilage should be obtained in children. Linear growth of the acetabulum occurs by interstitial growth in the triradiate part of the cartilage complex, causing the pubis, ischium, and ilium to enlarge. The depth of concavity of the acetabulum is in response to the presence of a spherical femoral head and increases during development as a result of interstitial growth

in the acetabular cartilage. Cessation of growth of all or part of the triradiate cartilage occurring secondary to fracture may result in a dysplastic acetabulum.

Previous literature review showed conservative management of unstable acetabular fractures can result in significant long-term morbidity^{4,5}.

In view of all these considerations, operative treatment was decided for this patient to improve his hip functional outcome.



Fig. 1

Fig. 2



Fig. 3

Fig. 4

CONCLUSION:

Anatomical restoration of triradiate cartilage in unstable acetabulum fracture is important to prevent devastating complication in children

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