



# POSNA

The Pediatric Orthopaedic Society of North America

## Fractures of the Pelvis

### Objectives

1. Describe methods of classifying fractures of the pelvis
2. Describe factors influencing prognosis for children with fractures of the pelvis
3. Describe sites of and treatment for avulsion fractures of the pelvis
4. Discuss factors increasing the incidence of genitourinary injuries accompanying fractures of the pelvis in children
5. Discuss operative indications for fractures of the pelvis in children

### Discussion point

1. Can pelvic fractures be a result of child abuse?

### Discussion

Pelvic fractures are not rare in children, as reported series regularly appear in the literature. Because of innate differences in patient populations, methods of treatment and evaluation, and special interests of the authors; treatment concepts are still evolving. A large number of classification systems have been proposed and used in publications. One of the most often used at present, if not the most often used, is the classification of Tile. Type A fractures are avulsion fractures or minor undisplaced ring fractures. Type B are rotationally unstable but vertically stable; these can include symphysis pubis disruptions, anterior fractures with SI joint displacement, etc. Type C fractures are vertically and rotationally unstable. Weightbearing displaces Type C injuries. In addition, acetabular fractures are Type C injuries. The prognosis for children with pelvic fractures is, in general, good. Serious hemorrhage complicating pelvic

fracture is less common in the child than the adult. Classification systems used by pediatric surgeons emphasize the relationship of the pelvic fractures to morbidity and mortality more than mechanical stability. Evaluation is essentially the same as done in the adult patient, with inlet and outlet views, Judet views, and possibly CT scan if there is any question about instability or acetabular integrity. As with almost every other part of the body, pelvic fractures secondary to child abuse have been documented.

Avulsion fractures usually involve the anterior superior iliac spine, or the ischium. The secondary center of ossification of the ischium appears at about age 15 and fuses at age 25. Treatment is symptomatic. Exuberant callus near the ischium has been reported, delayed excision has been reported as effective. Isolated or stable pubic rami fractures are also Type A fractures, and also need only symptomatic treatment. Significant GU injury can accompany innocent appearing fractures.

Fractures of the ring have been managed operatively and nonoperatively. There seems to be a trend over the past 10 years to treat these more aggressively, especially in older children. Good results have also followed traction for reduction of vertically unstable fractures. Remodeling can improve the final alignment of extra-articular fractures, and allow the consideration of less interventive measures for younger children. Residual vertical displacement, however, is associated with long-term symptoms. Traumatic arrest of the triradiate cartilage has been reported, but is rare. Acetabular fractures need the same quality of reduction as in the adult. External fixation for treatment of adult fractures is less popular than 10 years ago, being replaced by internal fixation.

There is still a variable but considerable mortality of pelvic fractures in children in some series. Head injury is the most serious accompanying injury in terms of prognosis, multiple pelvic fractures are a sign of more extensive injuring forces and are accompanied by a higher rate of visceral injuries to the GI and GU systems.

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