
**EDITORIAL DISCUSSION**

**ORTHOPEDICS**: What would be the expected risks to the patient if a contralateral THR would be performed in the face of possible joint sepsis?

**Kelman et al**: The risk of performing a contralateral THR, in the face of possible joint sepsis, would be hematogenous pathogenic inoculation of the fresh arthroplasty. Regardless of the focus of distant sepsis, any condition predisposing to recurrent bacteremia increases the likelihood of an infected total joint replacement. In cases of benign prostatic hypertrophy and expected postoperative urinary tract retention and possibly infection, surgery to correct the problem is done prophylactically prior to the total joint replacement to avoid any condition that might predispose to sepsis. All efforts should be made as part of preoperative planning to uncover and eradicate potential distant sources of infection.

In the case report above, a bone scan 1 year following the index arthroplasty revealed no suggestion of infection. Prior to considering a contralateral joint replacement, repeat bone or indium scanning would be in order to re-evaluate the operative right total hip replacement, as well as rule out distant subclinical foci of infection. Furthermore, an aspiration of the right hip would also be in order for the same reasons. As mentioned previously, the patient should receive tobramycin prophylaxis, both intravenously as well as internixed with the methacyrlate.

**ORTHOPEDICS**: What is the present dosage of the oral ciprofloxacin?

**Kelman et al**: The patient is on a dosage of ciprofloxacin 500 mg po bid. There has been no recent clinical or laboratory indices of recurrent sepsis to date.

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**CHRONIC POSTEROLATERAL DISLOCATION OF THE ELBOW IN A CHILD**

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Acute elbow dislocation in the child is readily diagnosed and treated. Chronic dislocation, how-
even, is rarely seen and may require surgical intervention. The following case report illustrates the indications for surgery, likely surgical findings, and method of repair. Complications and postoperative care will also be outlined.

CASE REPORT

A 13-year-old Afghan boy fell on his outstretched arm and sustained a dislocation of his right dominant elbow approximately 1 year prior to examination. He had been treated by the local bone setter with a splint in full extension for 2 months. His residual range of motion was from 0° of extension to 45° of flexion (Fig 1). He had a normal neurovascular examination. The brachial artery, biceps tendon, and median nerve could be palpated in the anterior aspect of the elbow. The medial epicondyle was prominent, and the triceps tendon was intact. Radiographs showed a posterolateral dislocation with heterotopic bone formation (Fig 2). Surgery was elected to change his arc of motion to a more functional range so he could reach his mouth.

A medial approach was made to the elbow and the ulnar nerve was identified. The median nerve and brachial artery were then isolated. The flexor-pronator origin had been avulsed and was retracted distally. There was abundant heterotopic bone formation. An arthroscopy was performed, and fibrous tissue and heterotopic bone was found in the olecranon fossa and posterior to the humerus. This tissue was excised, but the elbow still could not be reduced. A Kocher incision was made on the lateral aspect of the elbow. There was a large mass of heterotopic bone articulating with the radial head. Once tissue was removed the elbow could be reduced. The passive range of motion was 30° to 120°. The lateral collateral ligament was repaired through drill holes in the bone. In a similar fashion, the medial collateral ligament was repaired and the flexor-pronator origin was advanced to its attachment. A long arm splint with the elbow at 90° of flexion was applied after wound closure.

The arm was immobilized for 6 weeks in 90° of flexion and neutral forearm rotation. Physical therapy for active and passive range of motion was instituted the sixth week. Fourteen weeks postoperatively, the patient had a painless range of motion from 70° of extension to 110° of flexion and he could reach his mouth and the top of his head. He had normal neurologic function in his hand (Fig 3). Radiographs showed the elbow to be in a reduced position (Fig 4).

DISCUSSION

Chronic dislocation of the elbow in a child is exceedingly rare in the United States. Fowles et al1 reported 15 cases in Tunisia, 12 of which required open reduction between 3 weeks and 3 years after injury. Complications included transient paralysis in one and myositis ossificans in another patient. All patients returned to a functional range of motion 1 to 6 years later. Fowles et al1 had recommended the use of a posterior incision as described by Speed.2 We feel that a two incision technique allows better exposure medially and laterally for reconstruction of soft tissues.

Fig 1: Chronic elbow dislocation in a 13-year-old boy. A range of motion from 0° (A) to 45° (B) is demonstrated.

Fig 1A.

Fig 1B.

Fig 2: Preoperative AP (A) and lateral (B) radiographs show a posterolateral dislocation with heterotopic bone formation.

Fig 2A.

Fig 2B.
Vangorder\textsuperscript{1} recognized the difficulty of closed reduction of the elbow more than 3 months after injury. An interval of conservative treatment for children who are seen 3 weeks to 2 months after injury has been recommended.\textsuperscript{1}

Stability can be maintained after proper reduction and repair of collateral ligaments. Immobilization with a cast was sufficient, although Kirschner wire fixation has been recommended.\textsuperscript{1} Complications of surgery include: nerve injury, most commonly the ulnar nerve; myositis ossificans; and, superficial/deep infections.

Due to the magnitude of dissection required to reduce a chronic dislocation of the elbow, early motion is usually not possible. The large dissection required to reduce the joint often leaves the joint inherently unstable, requiring ligament reconstruction and tight soft tissue repair. If surgery is to be successful, it must provide stability and a concentric reduction. The joint should be painless at rest, as well as throughout its range of motion. Finally, although an increase in range of motion is not expected, the elbow and hand can be restored to a functional arc of motion, restoring a useful extremity.

The ideal arc of motion is one that provides adequate motion to perform routine activities of personal care and hygiene. The ROM required to perform most activities of daily living is from 30° to 100° of flexion. In a situation in which full motion cannot be restored, one must attempt to place the arc of motion so that the patient can reach his hand to his mouth.

REFERENCES

EDITORIAL DISCUSSION
ORTHOPEDICS: Is heterotopic ossification a relative contraindication to surgery with chronic
elbow dislocation?

Ainsworth and Aulicino: Heterotopic ossification is not a relative contraindication to surgery in chronic elbow dislocation. Most reported cases, including our case, present with heterotopic ossification. The heterotopic ossification must be mature prior to being removed and the joint being reduced.

ORTHOPEDICS: What are the indications for continuous passive motion (CPM) with chronic elbow dislocation surgery?

Ainsworth and Aulicino: To our knowledge, there are no cases of CPM utilized to treat chronic elbow dislocations reported in the literature. The amount of dissection required to reduce a chronic dislocation makes the use of CPM highly unlikely. Perhaps the utilization of a flexor hinge splint, with a limited repair and CPM, may be utilized.

ORTHOPEDICS: What is the ideal location of an arc of 50° ROM at the elbow?

Ainsworth and Aulicino: When only 50° arc of motion is obtainable, one must place the arc of motion so that the individual can reach his mouth. Therefore, we would place the arc of motion from approximately 70° to 120°, if possible.

ORTHOPEDICS: Is any particular postoperative therapy indicated to prevent heterotopic ossification?

Ainsworth and Aulicino: Chronic elbow dislocations are extremely rare. There have been no reports in the literature regarding the use of modalities to prevent heterotopic ossification. The surgery in our reported case was carried out in a child. The use of low dose radiation carries the concern of malignant transformation when utilized in a young individual, and possibly should not be used. The use of Indocin is not indicated in children. Diphenylphosphonite have been used in children, but the safety and effectiveness has not been established. Rachitic syndrome has been reported when using diphenylphosphonite in doses of 10 mg/kg per day and more, for prolonged periods approaching or exceeding a year. The epiphysial radiologic changes associated with retarded mineralization of new osteoid in cartilage, and occasional symptoms reported, have been reversible when the medication is discontinued. Therefore, it seems that medications or radiation therapy in children should be used cautiously, if at all.

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**Bilateral Fracture Dislocation of the Sacrum Without Injury to the Anterior Pelvis**

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Bilateral fracture dislocation of the sacroiliac joints, without anterior disruption of the pelvic ring, is extremely rare. Only two cases have been reported previously.1,2 We present a case in which reduction was partially achieved and maintained by traction, followed by mobilization and graduated weight bearing.

**CASE REPORT**

A 20-year-old woman fell from the pillion seat of a motor scooter and landed squarely on her buttocks. She was unable to stand or turn to the side due to severe pain.

Initial examination showed no head injury or appendicular injury. There was no neurological deficit in the lower limbs, but the patient was in shock. Radiographs revealed bilateral fracture dislocation of the sacroiliac joints (Fig 1) with intrapelvic protrusion of the sacrum (Fig 2). There was an associated fracture of the transverse process and body of the fifth lumbar vertebra. The rest of the pelvic ring was intact. She was given 6 units of blood and her condition stabilized. Longitudinal skeletal traction through both tibial tubercles was applied and 80% reduction of the dislocated joints was noted by 2 weeks. Further progression was minimal despite increased traction weight. Mobilization was started at 8 weeks while the patient was bedridden, and traction was discontinued.

By 12 weeks she could walk painlessly with crutches. Physical examination revealed no instability. A year later, she was fully ambulatory with adequate movements of the hips and spine (Fig 3). There was a 2 cm height loss, but sacroiliac joints were stable in a partially displaced position (Fig 4).

**DISCUSSION**

Bilateral sacroiliac fracture dislocation, with intrapelvic protrusion of the sacrum as an isolated injury of the pelvic ring, has been reported only twice.1,2 The symphyseal ligament anteriorly and the sacroiliac ligament posteriorly are extremely strong. In cases that have associated anterior pelvic ring disruption, the sacroiliac ligaments no longer have the ability to prevent backward and upward pelvic displacement.3-5 In the event that the pelvic ring is intact anteriorly, an upwardly and anteriorly directed force ap-