

Iatrogenic Nerve Injury in Acetabular Fracture Surgery: A Comparison of Monitored & Unmonitored Procedures

Content

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OBJECTIVES: To review our experience with iatrogenic nerve injuries and to evaluate the efficacy of intraoperative monitoring in a large consecutive series of operatively treated acetabular fractures.

DESIGN: Retrospective, nonrandomized.

SETTING: Level I Trauma Center, January 1, 1992 through December 31, 1998.

PATIENTS/PARTICIPANTS: A total of 256 consecutive acetabular fractures were operatively treated at our institution; 140 unmonitored procedures and 112 monitored procedures were available for review. The decision to use monitoring was at the discretion of the treating surgeon.

INTERVENTION: Open reduction and internal fixation of the acetabular fracture.

MAIN OUTCOME MEASUREMENT: Preoperative and postoperative neurologic examinations, fracture type, use of traction, dislocation, operative approach, and complications were analyzed. Motor strength, sensation, the need for gait aids, orthoses, and extent of recovery were evaluated.

RESULTS: Traumatic nerve palsies were present in eleven of 140 (7.9 percent) unmonitored and thirteen of 112 (11.6 percent) monitored fractures ($p = 0.314$). There were fourteen iatrogenic sciatic nerve palsies in 252 cases (5.6 percent). There were four iatrogenic sciatic palsies (2.9 percent) in the unmonitored group and ten iatrogenic palsies (8.9 percent) in the monitored group ($p = 0.037$). In the unmonitored group one of eighty-one Kocher-Langenbeck approaches (1.2 percent), two of fifty-two ilioinguinal (3.9 percent), and one of three extended iliofemoral approaches developed a sciatic palsy. In the monitored group six of seventy-seven Kocher-Langenbeck approaches (7.8 percent), three of twenty-five ilioinguinal (12 percent), and one of six combined approaches (16.7 percent) developed a sciatic palsy. In seven of the ten iatrogenic palsies in the monitored group, the intraoperative monitoring was normal. Seventy-six patients were monitored with somatosensory evoked potential alone, and nine had iatrogenic injuries (11.8 percent). Thirty-six patients were monitored with somatosensory evoked potential and electromyography, and one had an iatrogenic injury (2.8 percent) ($p = 0.164$). Clinical follow-up was available for three of the four patients with iatrogenic injuries in the unmonitored group, with a mean follow-up of twenty-seven months (range 8 to 60 months). Two patients had full motor recovery at a mean of six months, and one had no recovery at fourteen months.

CONCLUSIONS: The use of intraoperative monitoring did not decrease the rate of iatrogenic sciatic palsy. Further study involving larger prospective, randomized methodology appears warranted. Sciatic nerve injury was more common in ilioinguinal approaches in both groups, likely due to reduction techniques for the posterior column performed with the hip flexed, placing the sciatic nerve under tension.

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