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Closed Reduction and Percutaneous Pinning for Treatment of Proximal Interphalangeal Joint Pilon Fractures

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Abstract

Background: Proximal interphalangeal (PIP) joint pilon fractures are among the challenging hand injuries, which are often associated with a wide range of complications. This study aimed to report the clinical and radiological outcomes of closed reduction and percutaneous Kirschner wire (KW) insertion with or without bone cement application (for the fabrication of an external fixator) in the treatment of PIP joint pilon fractures.

Methods: Twenty pilon fractures underwent closed reduction and percutaneous KW fixation through a modified technique. At the end of the follow-up period, 3 questionnaires-Quick Disabilities of the Arm, Shoulder, and Hand (Quick DASH), Visual Analogue Scale for pain, and Patient-Rated Wrist Evaluation-were completed. The radiological outcome was assessed by radiography. Range of motion, and grip and pinch strength were measured.

Results: The mean follow-up period was 14.57 ± 4.03 months (range, 12-20 months). The mean range of motion of PIP at the end of the follow-up period was 89.64° ± 10.82° (range, 65°-100°). The mean difference in the range of motion in the contralateral side was 21.4° ± 13°. The mean of the Quick DASH score was 13.50 ± 2.92 (range, 11-21). Two patients had residual articular malalignment, and 3 patients had angular or rotational malunion.

Conclusion: By treating pilon fractures with the proposed technique, we achieved a satisfactory outcome. The acceptable articular and axial alignment was achieved in 75% of patients, and complications were low. The flexibility of percutaneous KW insertion and handmade external fixators makes these approaches convenient for treating PIP joint pilon fractures.

Keywords: PIP fracture; close reduction; external fixation; middle phalanx; pilon.

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