A Retrospective Cohort Study of Holosight Robot-Assisted Percutaneous Minimally Invasive Surgery in the Treatment of Pelvic Fractures

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Purpose: Our objective was to compare the curative effects of Holosight robot-assisted percutaneous minimally invasive surgery and traditional closed reduction and fixation surgery for pelvic fractures.

Methods: This retrospective cohort study includes 31 cases of Holosight robot-assisted percutaneous minimally invasive surgery and 21 cases of traditional closed reduction and fixation surgery for pelvic fractures at the department of traumatic orthopaedics in Jinan Third People's Hospital. The patients were divided into two groups: the robot group and the traditional group. Follow up was conducted from February to December 2023. The Majeed score, a quantitative evaluation system for fractures, was used to compare postoperative functions in pain, sitting, standing, walking, and daily life between the two groups.

Results: The differences in operation time, intraoperative bleeding, the number of guide pin implantations, and the number of fluoroscopies between the two groups were statistically significant ($P<0.01$). However, there was no statistically significant difference in fracture healing time and Majeed scores at the last follow up.

Conclusion: Holosight robot-assisted percutaneous minimally invasive fixation surgery can independently plan the surgical path. Compared to the traditional method, it requires fewer adjustments of the guide pin, has a shorter operation time, and results in less intraoperative bleeding. There is no significant difference in postoperative functional recovery and fracture healing time, indicating a satisfactory clinical effect.