

Abstract #480.docx

SAFETY AND EFFICACY OF POSTERIOR RECONSTRUCTION USING CERVICAL PEDICLE SCREWS IN RA

Introduction

It is reported that perforation rate of the cervical pedicle screws (PSs) in RA is considerably higher compared to other spinal disorders. The authors have attempted to improve the safety of PSs by careful preoperative assessments and intraoperative assistance of CT-cutout. The purpose of this study is to evaluate the clinical outcomes of our procedure in RA patients.

Materials and Methods

74 RA patients underwent posterior fusion using cervical PSs. There were 14 male and 60 female patients. Mean age was 65.3 years and follow-up period averaged 66 months. According to preoperative CTs, MRAs, and CTAs, other fixation anchors were substituted for PSs at the locations which met the following criteria: (1) pedicle diameter < 3.0mm, (2) pedicle angle >45°, (3) no cancellous channel, and (4) on the side of dominant VA if bilateral posterior communicating arteries of the circle of Willis are missing. Insertion point and angle of the PS were preoperatively determined for each pedicle by reconstruction CTs. And they were intraoperatively confirmed by CT-cutout and lateral fluoroscopy. Screw perforation was defined as: Glade 0 < 0.5 mm, Glade I < half of the screw diameter, and Glade II > half of the screw diameter.

Results

39% of the patients had one or more risky pedicles. With substitute anchors with PSs, however, fusion levels were not extended in any cases and intact segments were preserved. 4 of 153 PSs (2.6 %) were assessed as Glade I perforation. There were no screws presenting Glade II perforation. No case presented neurovascular complications. Surgical site infection was observed in one case (1.4%) and metal removal was required. No other reoperation was performed. One patient died at postoperative 3 weeks due to unknown reason and was excluded from following assessments. Loss of correction over 3 mm or 5 degrees was observed in 3 cases (4.1%). Bony fusion was obtained 71 of 73 cases (97%).

Conclusion

Perforation rate of cervical PSs in RA was improved by careful preoperative assessments and intraoperative CT-cutout. Posterior reconstruction using PS and substitute anchors at the risky locations provided sufficient stability, limited-segment fusion, and high fusion rate.