

Minimally invasive lateral occipitocervical fixation – case series and technique description

Abstract

Purpose: Occipitocervical junction (OCJ) instability is commonly treated with fixation via open posterior approach. The use of intraoperative navigation allows us to perform occipitocervical fixation via minimally invasive approach. We report a series of patients treated with percutaneous occipitocervical fixation, describing the surgical procedure in detail and discussing the technique.

Methods: We prospectively enrolled 8 patients affected by OCJ instability secondary to trauma and rheumatoid arthritis. Traumatic patients were preoperatively evaluated with CT scan and MRI scan if needed. Rheumatoid arthritis group was evaluated with both CT and MR. Patients underwent percutaneous occipitocervical fixation with the assist of intraoperative 3D imaging and navigation. All patients were functionally and radiologically evaluated pre- , at 6 weeks and at 1 year postoperatively.

Results: Percutaneous occipitocervical fixation was successfully performed in all of the patients. 33 screws were placed. 29 (87,88%) were placed without any pedicle breach. In 3 (9,09%) screws we observed a minor; and in 1 (3,03%) screw we observed a major pedicle breach. We did not have any postoperative complications.

Conclusions: Described method of occipitocervical fixation is a minimally invasive method that has a similar outcome to the open technique. It requires the experience in open techniques and the assist of intraoperative 3D imaging and navigation to be performed efficiently.

Keywords: Craniocervical junction; Occipitocervical junction instability; Occipitocervical fixation; Minimally invasive spine surgery; Spinal trauma