

Introduction

Certain unstable odontoid fractures (anterior oblique fracture, displaced distal fragment, disrupted alar ligament) are usually offered posterior C1-C2 fixation by Goel-Harms technique. Anterior submandibular extrapharyngeal approach offers a simple safe and biomechanically correct option to treat these fractures. Fracture manipulation, reduction and repositioning is feasible along with fixation in compression mode with a VSP plate and screws. Additional instability of the atlantoaxial joints, if present, can be treated with anterior transarticular screws.

Methods

The right sided submandibular extrapharyngeal approach was used to expose the fractured odontoid. Open manipulation to reduce displaced fracture fragments followed by fixation with a VSP plate (Titanium customized from Jayon Inc Pallakad India) using 3.5 mm thick titanium screws. If fracture was associated with disruption of alar ligament then additional bilateral transarticular screws were passed to fix the joints in neutral position after abrading the opposing endplates and corticocancellous bone grafts into the joints.

Results

Since February 2011 – January 2017 45 patients with unstable odontoid fractures have been offered this procedure. No transfusion was required in any case and no case required additional procedure. All patients showed bone union across fracture site at 3 months.

Five elderly patients (70 yrs and 76 yrs) complained of dysphagia for 2-3 days after surgery, 4 patients (including the ones with dysphagia) had mild hypoglossal weakness which recovered in a week. Neck pain persisted in 9 patients for 4 weeks which responded to analgesics.

Long-term follow-up imaging has been at 3 years in 8 patients, without implant failure and 100% bone fusion.

Conclusions

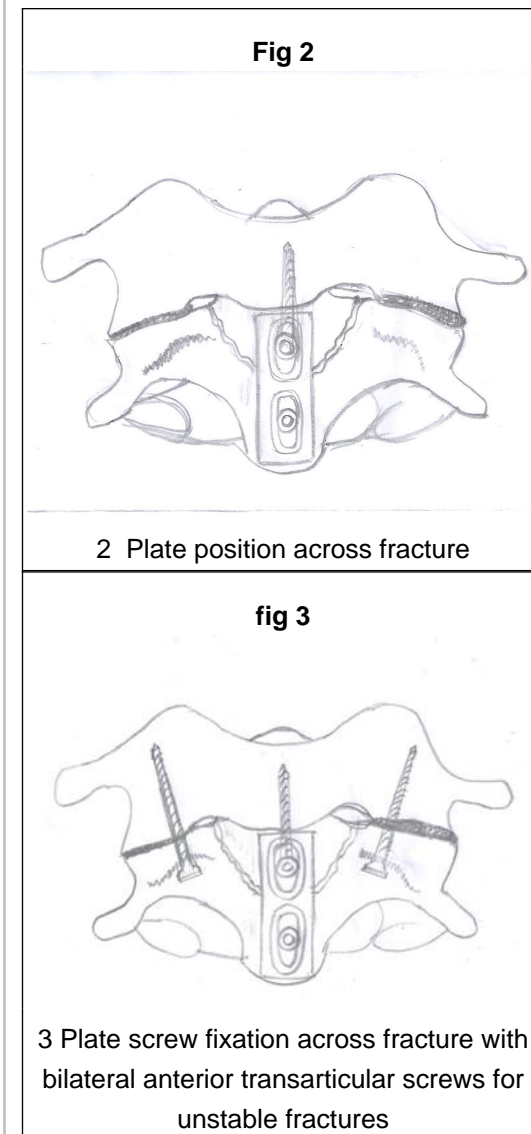
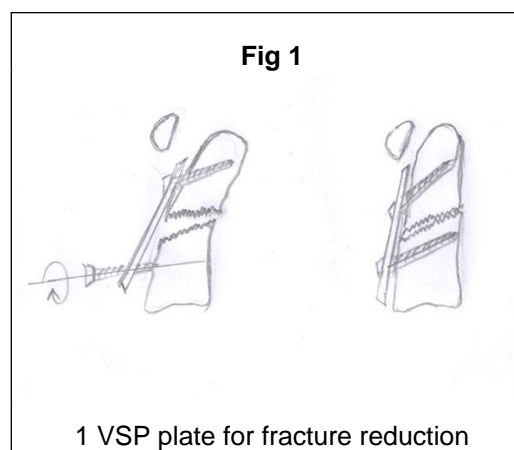
Anterior submandibular extrapharyngeal approach offers a simple safe and biomechanically correct option to treat these fractures.

Learning Objectives

- 1 exposing the fractured odontoid process from an unilateral submandibular extrapharyngeal approach.
- 2 reducing fracture fragments into normal alignment
- 3 VSP plate fixation across fracture in compression mode.
- 4 passing bilateral anterior transarticular screws to fix the atlantoaxial joints.

References

Patkar S. Anterior Extra Pharyngeal Approach and Fixation of the Atlantoaxial Joint with Screw Plate Construct or Anterior Transarticular Screws: and Review of Literature. Spinal Surgery 27 2013 (3) 230-237, (Japan).



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