

Anterior Screw Fixation For An Odontoid Fracture Using A Headless Compression Screw / Cannulated Partial Threaded Cancellous Screw

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INTRODUCTION

Odontoid fracture constitutes of 10% -15% of traumatic cervical spine injuries⁽¹⁾. Various methods of management were described for addressing odontoid fracture type II which were halo vest, Harm's procedure, anterior transoral screw fixation and extended anterior cervical screw fixation. Non union is a concerning complication and the fracture gap was identified as the most significant risk factor. In our centre, we believe that screw fixation is superior due to the ability to compress the fracture gap and preserve neck rotation movement. We would like to present our experience in managing odontoid fracture type II by using extended anterior cervical approach and fixation with cannulated lag screws and headless compression screws.

CASE SERIES

Two cases: 25 years old and 18 years old, alleged motor vehicle accident, sustained odontoid fracture type II, fixed with cannulated screw and cannulated headless compression screw respectively via extended smith robinson anterior cervical approach.

DISCUSSION

An anterior odontoid screw allows immediate fixation. Headless screw has notable advantages compared to standard lag screw⁽³⁾:

- No need to size the threads as needed for lag screw
- No need to over drill C2 body proximal to fracture as needed in lag technique
- There is bony purchase through the entire length of the screw
- The headless design allows starting point to be more anterior and steeper thus minimizing the need for C2/C3 disk disruption and improving the approach angle which may allow instrumentation in barrel chested and kyphotic patients.

CONCLUSION

Odontoid screw fixation for type II odontoid fractures provides an acceptable rate of fracture healing and preserved C1/C2 motion. In our experience in these 2 cases, headless compression screw appeared to be superior in achieving compression. There was no need to consider for the threaded part of the screw to pass the fracture line in order to achieve compression. However, there is a need for a longer follow up with regards to the union quality and function.

REFERENCES

1. Maak TG, Grauer JN. The contemporary treatment of odontoid injuries. Spine (Phila Pa 1976). 2006;31(11 Suppl) : S53-60