

Odontoid Fracture in the Elderly



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Abstract

Odontoid fractures account for about 60% of traumatic C2 lesions and 20% of all cervical spine fractures. The C2 vertebra presents unique characteristics: it is composed of a body and a tip or tooth, with important functions of mobility and stability, and in combination with C1 are of fundamental importance in the stability of the high cervical spine. The most commonly used classification is that of Anderson and D'Alonzo. That divide the fractures into three types: type I with the fracture tract at the tip of the odontoid, type II with the trait at the base and type III with the fracture trait in the body. Surgical indications of type II odontoid fracture include: patients over 50 years, distance between fragments > 2 mm, odontoid dislocation > 5 mm, and non-reduction without fracture alignment after conservative treatment.

We have done a brief review of the possible types of treatments for odontoid fractures in the elderly and their complications.

Keywords: Cervical spine; Trauma; Surgical treatment; Clinical group; Complication; Patients; Injury; Blood loss; Fusion; Complications; Stabilization; Cervical rotary

Introduction

The trauma of the upper cervical spine is common in the elderly, and the injury mechanism is most often of low impact, with little kinetic energy. There is no consensus in the literature regarding optimal treatment, and both the conservative and the surgical are amenable to complications. The use of collar or halo in this age group should be restricted to stable lesions. The surgical treatment presents a better rate of bone consolidation, with a faster return to daily autonomy. The frequency of traumatic lesions in the cervical spine has increased in patients over 65 years. Most occur in the high cervical spine, especially in the odontoid process. The association with osteoporosis and osteoarthritis in the high and low cervical spine, respectively, may be the explanation for this phenomenon we have done a brief review on the most common types of upper cervical fracture in the elderly with their respective treatments and complications.

[1-5], in a recent systematic review of cervical spine trauma in the elderly, demonstrated an average complication rate of 15.4% in all combined treatments, with dysphagia and respiratory problems being more common in surgical treatment and the local complications type inflammatory reaction or infection to the pins of the halo vest and respiratory decompensation in the clinical group.

In this same study, the most common late complication in the odontoid fracture was non-union of the fracture, and no significant difference was found between the surgical and clinical groups (12.8 versus 10.8%, respectively). The mortality rate at three months, with treatments, was 9.1%. There was a higher mortality in three months in the clinical group compared to the surgical group, 21 versus 8.9% respectively.

Odontoid fracture

It is the most common fracture in the elderly. Its incidence has increased progressively over the years in [2] it was 21%, 43% and 76%. It is the most common fracture of the cervical spine in patients over 70 years of age. The treatment for this type of fracture, in this age group, still generates very controversial in the literature. believe that conservative treatment is superior to surgical treatment. evaluated 108 patients with odontoid fractures, of which 68 underwent clinical treatment and 40 underwent surgical treatment, with a mean age of 82.4 and 77.4 years for clinical and surgical treatment, respectively, of which 23 were submitted the anterior screw and nine to the posterior fixation. Mortality was 20.4% for the surgical group and 17.6% for the clinician. The authors concluded that clinical treatment should be recommended [6-11].

[3] found unacceptable results, with high rates of complications with anterior screw use of the odontoid. In contrast, Omeils et al did not find significant difference in relation to the results and complications, using different surgical techniques. In relation to type II odontoid fractures, there is generally no clinical or radiological difference with the use of one or two screws in the surgical treatment of anterior odontoid fractures, but in the elderly, the use of two screws is associated the radiological improvement (Dantas). In a study with 57 patients with a mean age of 81.2 years (70 to 96 years), in 21 of them a screw was used and in 36 two screws, with an average follow-up of 42 months, found 56% fusion with one screw and 96% with two screws. In the same series, the complication rate was high, 35% of dysphagia, 19% of pneumonia and 5% of acute myocardial infarction. However, the authors concluded that anterior screw fixation is effective in selected patients [12,13].

[4] compared the surgical treatment of odontoid fracture with anterior fixation using direct fixation with screw fixation, and concluded that both techniques are acceptable, each approach having its indications and contraindications. Both had success rates in fracture stabilization. However, the posterior pathway presented a higher fusion rate and a lower dysphagia rate, but eliminates the normal C1-2 rotatory motion, which is responsible for approximately 50% of cervical rotary motion and 10% of cervical exion-extension motion. Complications of posterior cervical instrumented fusion may include blood loss, vertebral artery injury, infection, dural tears, and others.

Discussion

Odontoid fracture It is the most common fracture in the elderly. Its incidence has increased progressively over the years in 1971 [4] it was 21%, in 1991 43% and in 2011 76%. It is the most common fracture of the cervical spine in patients over 70 years of age [9]. The treatment for this type of fracture, in this age group, still generates very controversial in the literature. Smith believe that conservative treatment is superior to surgical treatment. Barraco evaluated 108 patients with odontoid fractures, of which 68 underwent clinical treatment and 40 underwent surgical treatment, with a mean age of 82.4 and 77.4 years for clinical and surgical treatment, respectively, of which 23 were submitted the anterior screw and nine to the posterior fixation. Mortality was 20.4% for the surgical group and 17.6% for the clinician. The authors concluded that clinical treatment should be recommended.

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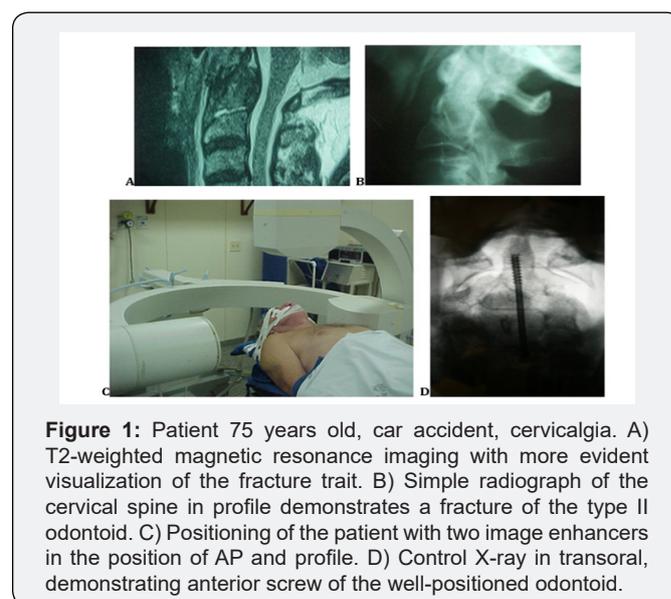


Figure 1: Patient 75 years old, car accident, cervicalgia. A) T2-weighted magnetic resonance imaging with more evident visualization of the fracture trait. B) Simple radiograph of the cervical spine in profile demonstrates a fracture of the type II odontoid. C) Positioning of the patient with two image enhancers in the position of AP and profile. D) Control X-ray in transoral, demonstrating anterior screw of the well-positioned odontoid.

Conclusion

Type II odontoid fracture represents a significant percentage of cervical trauma in the elderly patient. Ideal treatment in this group is still controversial. The isolated age factor is not a contraindication for surgery. Surgical indications are similar to those of the adult. The choice of access route depends on the type of fracture.

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