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Case Report

Combined Odontoid fracture in a young patient: A Case Report

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Abstract:

Odontoid fractures are 10% of all cervical fractures, among which Type II is estimated to be 66. Usually presentation is between age of 30 and 50.(4) Most common cause is hyper flexion, followed by hyper xtension, and anterior displacement of C1 on C2 is more common. We report a combined odontoid fracture in a young male patient. The major treatment based on surgery but without clinical symptoms such as pain, signs such as weakness or radiological evidence of instability despite bony nonunion, fibrous non-union should be considered an acceptable outcome and could be followed conservatively. Surgical treatment proved to have a higher rate of fusion and shorter bone healing times than conservative treatment but without clinical symptoms such as pain, signs such as weakness or radiological evidence of instability despite bony nonunion, fibrous non-union should be considered an acceptable outcome and could be followed conservatively.

Keywords:

Odontoid Process, Computed Tomography, Surgical Treatment, Cervical Spine.

Background:

Odontoid fractures are 10% of all cervical fractures, among which Type II is estimated to be 66%.(1,2,3,) Usually presentation is between age of 30 and 50.(4) Most common cause is hyper flexion, followed by hyper extension, and anterior displacement of C1 on C2 is more common(5).

The classification of odontoid fractures advocated by Anderson and D'Alonzo(5), has been widely accepted(2). This identifies three main types of the fracture. In that classification, type I is an oblique fracture of the tip of the dens, type II is a fracture of the junction of the dens with the central body of the axis, and type III is a fracture in which the fracture line extends downward into the cancellous portion of the body of the axis. Difficulties, however, have been encountered with some odontoid fractures that could not be classified using this system.(6) Among all cervical fractures, type II odontoid fractures are 66% that are mainly due to high energy trauma, for example motorbike accidents. For surgery, there are two acceptable methods; anterior odontoid screw fixation (AOSF) and posterior cervical instrumented fusion (PCIF) (7).

However, there are significant differences in their indications and outcomes for odontoid fractures but no clear standard guidelines has been given for choosing the patients for surgery(8). And we decide to report a combined odontoid fracture in a young male patient.

The importance of this case is the approach to the patient with multiple trauma and focus specific after rescue guidelines on collar fixation in patient with cervical trauma.

Case Presentation:

Our case was a 19 years old man with car accident and neck pain that immediately fixed cervical collar for him . At first his GCS was15 ,cxray was normal and FAST was negative. We focus on his pain in neck and performed a CT scan and saw this pattern:

Figure 1: Odontoid Fracture

Figure 2: Mixed and Combined Odontoid Fracture

Figure 3: Mixed and Combined Odontoid Fracture

We consult neurosurgeons for him and operation for fixation was planned. Our patient discharged healthy and with no co morbidities.

Conclusion:

Anderson and D'Alonzo classified odontoid fractures into 3 types based on the localization of the fracture line passed through(1). Type I fractures are oblique fractures through the upper portion of the odontoid process; type II fractures cross the base of the odontoid process at the junction with the axis body; and type III fractures extend deep through the cancellous portion of the body of axis at the base of the dens. In elderly individuals, odontoid fractures are not uncommon(1,9). Odontoid fractures are mostly induced by no physiological flexion, extension, or rotation force of the upper cervical spine; however exact mechanism is not fully determined(10,11) Standard radiographs are routinely used as a screening tool for evaluating cervical spine injuries, however they could not always detect them(10) Thus, several authors have advocated CT screening for the evaluation of cervical spine fracture in high-risk patients(12). Surgical treatment proved to have a higher rate of fusion and shorter bone healing times than conservative treatment(13) but Without clinical symptoms such as pain, signs such as weakness or radiological evidence of instability despite bony nonunion, fibrous non-union should be considered an acceptable outcome and could be followed conservatively(14).

Declarations:

Ethical Approval and Consent to participate:

The content of this manuscript are in accordance with the declaration of Helsinki for Ethics. No committee approval was required. Oral and written consent to participate was granted by the parents.

Consent for publication:

"Written informed consent was obtained from the patient's legal guardian for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal."

Availability of supporting data

It is available

Competing interests:

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Authors' contributions:

Ahmad Reza Shahraki was the first lines admit of patient and writes this paper.

Ahmad Reza Shahraki is the surgeon of patient and writes this paper. Reza Abaee collected Data's and Elham Shahraki reviews paper.

The Authors declare that they have no competing financial interests and nothing to disclose.

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Only in uncommon circumstances of unclear imaging findings or deterioration in the patient's conditions, a diagnostic laparoscopy as a minimal invasive approach may settle the diagnosis and can be extended to a therapeutic maneuver.

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