

Atlanto-odontoid pyogenic arthritis revealing a Jugular Vein Thrombosis

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Abstract

We report here the case of a 51-year-old man presented with inflammatory neck pain and fever. Inflammatory biomarkers were increased. The magnetic resonance imaging showed synovitis of atlanto-odontoid joint, anterior epidural collection, and cerebral vein thrombosis affecting sigmoid sinus and internal jugular venous.

Introduction

Septic arthritis of the atlantoaxial joint is rare. Several complications may occur such as spinal cord compression and cerebral vein thrombosis

We report a case of a patient with septic arthritis of the atlantoaxial joint associated with epidural abscess and cerebral vein thrombosis.

Case presentation

A 51-year-old man, with no significant medical history, presented with a twenty-day history of inflammatory neck pain. Physical examination revealed a paravertebral muscle contracture and restricted neck movement. His body temperature was 38.7°C. Cardiac and neurological examinations were unremarkable. Laboratory examinations showed a white blood cell count of 13,700/mm³.

He had an elevated erythrocyte sedimentation rate and C-reactive protein level of 80 mm/h and 185 mg/L respectively. Urine analysis, blood cultures, and tuberculosis skin test were negative.

Spine MRI showed synovitis of atlanto-odontoid joint and an anterior epidural collection (**figure 1**). There was thrombosis of the right sigmoid sinus and the internal jugular venous (**figure 2**). Transthoracic echocardiography was unremarkable.

CT-guided percutaneous drainage of the epidural collection was unsuccessful.

The patient underwent a twelve-week course of probabilistic anti-staphylococcal antibiotic treatment associated with immobilization of the cervical spine. Vitamin K antagonist was also prescribed for 6 months. MRI performed one month after the start of treatment showed a disappearance of the epidural collection (**figure 3**). Inflammatory markers have decreased and remained within normal limits.

Discussion

The atlantoaxial joint is compounded of three synovial joints: the median joint (atlanto-odontoid joint) and two lateral joints (facet joints).

Atlantoaxial septic arthritis is scarce. To our knowledge, only 2 cases of atlanto-odontoid arthritis have been reported in the literature [1,2].

Clinical presentation can include neck pain, fever, paravertebral muscle contracture, and restricted neck movement. Inflammatory markers are often increased. Nevertheless, they were within the normal limit in a case of septic arthritis of the facet joint [3].

MRI allows an early diagnosis of synovitis of atlanto-odontoid joint. In this stage, different diagnoses may be discussed such as cervical spine crystal deposition, rheumatic inflammatory diseases especially rheumatoid arthritis, and infectious atlanto-odontoid arthritis. At a late stage, MRI can show epidural collection, abscess, and spinal compression. In our case, the presence of epidural collection led to the diagnosis of a septic atlanto-odontoid joint.

The identification of the bacterial agent is sometimes difficult. *Staphylococcus aureus* is the most causative agent in septic cervical arthritis [1].

Although the presence of epidural collection in our case, the conservative treatment led to clinical and imaging improvement of the septic atlanto-odontoid joint. Septic arthritis C1-C2 can be responsible for serious complications such as neurological compression and cerebral thrombosis. [4] In our case, internal venous thrombosis was due to neck abscess. Signs and symptoms of internal venous thrombosis can associate swelling and sensitivity along the front edge of the sternocleidomastoid muscle [5].

Conclusion

The diagnosis of septic arthritis of the atlantoaxial joint should be considered in a patient with inflammatory neck pain and paravertebral muscle contracture. We highlight the importance of MRI findings in making the diagnosis of a septic atlanto-odontoid joint.

We suggest that the conservative treatment including antibiotic and neck immobilization are sufficient for the treatment of septic arthritis of the atlantoaxial joint. Cerebral vein thrombosis is a rare complication due to septic arthritis of the atlantoaxial joint.

Authors' contributions

- Dr. Maroua SLOUMA has substantively revised the work
- Dr. Abir DGHAIES has drafted the work
- Dr. Rim DHAHRI contributed to the interpretation of the figure
- Dr. Imen GHARSALLAH has made substantial contributions to the conception of the work.
- Dr. Leila METOUI and Dr. Riadh BATTIKH contributed to the bibliographic research

Pr Bassem LOUZIR approved the final version

Figure's legend

Figure 1 : Spine MRI showing synovitis of atlanto-odontoid joint and an anterior epidural collection at C1-C2 level narrowing the foramen magnum and upper cervical spinal canal. There was a compression of the cervical medullary junction with diffuse soft tissue enhancement around the C1-C2 joint.

Figure 2: Cerebral MRI showing thrombosis of the right sigmoid sinus and the internal jugular venous.

Figure 3: Spine MRI performed after one month of treatment showing total regression of the anterior epidural collection at C1-C2 level with persistent synovitis of atlanto-odontoid joint.

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