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# Septic arthritis of the temporomandibular joint successfully treated with arthroscopic lysis and lavage: case report and review of the literature

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Septic arthritis of the temporomandibular joint (TMJ) is infrequently reported. We present a case of septic arthritis of the TMJ following the extraction of the left upper second molar that occurred 1 week before beginning of symptoms. No evident predisposing factors were detected. Arthroscopic diagnosis of septic arthritis, lysis and lavage, and capsular stretch were performed. Cultures taken from the TMJ space grew *Streptococcus* sp. After 1 month of antimicrobial therapy the patient was asymptomatic and mandibular function was normal. Literature related to septic arthritis of TMJ and its treatment was reviewed. Different surgical procedures are available to treat this condition. Arthroscopy should be preferred as initial treatment on account of the possibility of drainage and accurate lavage under direct visualization of joint space, at the same time allowing confirmation of diagnostic hypotheses. Improving joint mobility with lysis of adhesions and capsular stretch in an early stage of disease may be helpful in stopping the fibrosis process. (*Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2007;103:e1-e6)

Septic arthritis of the temporomandibular joint (TMJ) is a rare disease that has been reported infrequently. This condition is usually associated with local or general predisposing factors. Local factors include blunt trauma,<sup>1,2</sup> burn wounds,<sup>3</sup> and iatrogenic causes<sup>4</sup>; while general factors include systemic and autoimmune disease (i.e., rheumatoid arthritis,<sup>5</sup> diabetes, immunosuppression, hypogammaglobulinemia<sup>6</sup>), prolonged use of systemic steroids,<sup>7</sup> and sexually transmitted diseases.

The pathogenesis of the infection is either local spread or hematogenous dissemination from a distant site secondary to a systemic process. The most common causal organisms are *Staphylococcus*, *Neisseria gonococcus*, *Haemophilus influenzae*, and *Streptococcus*.<sup>5,8-11</sup> Preauricular edema, pain, and trismus are the common presenting features. Imaging studies could show joint space widening and anterior/inferior displacement of the condylar head in early cases.<sup>12</sup> In

longer-standing infections the articular surfaces may become more closely related because of the destruction of bone or disc and CT imaging can demonstrate bony changes.<sup>13</sup> Timely diagnosis and treatment are essential to avoid possible sequelae and complications such as dissemination of infection, joint dysfunction, growth disturbances, fibrosis, and ankylosis.<sup>14,15</sup>

This article describes a case of streptococcal arthritis of the TMJ that was successfully treated with arthroscopic lysis and lavage and capsular stretch. A review of the literature related to this topic is also presented.

## CASE REPORT

A 52-year-old woman presented to the Department of Maxillofacial Surgery of the University of Udine complaining of left preauricular pain and swelling and trismus of 10 days' duration. According to the patient, her symptoms started 7 days after the extraction of the left upper second molar.

Clinical examination revealed left facial flushing, mild preauricular swelling (Fig. 1), and tenderness; there was tenderness in the adjacent mandible too. Mandibular movement was painful and markedly restricted (Fig. 1), with maximum mouth opening limited to 15 mm shifted toward the nonaffected side (Fig. 2). There was an open bite malocclusion on the left side. The lower dental midline was shifted 4 mm to the right. The gingiva, tongue, and oral mucous membrane showed no pathology. The patient presented a low-grade pyrexia of 37.4°C and her vital signs were normal. Hematological values were as follows: hematocrit, 36.6%; hemoglobin, 12.10 g/100 mL; red blood cell

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Received for publication Feb 9, 2006; returned for revision Aug 18, 2006; accepted for publication Aug 30, 2006.

1079-2104/\$ - see front matter

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doi:10.1016/j.tripleo.2006.08.028



Fig. 1. Mild preauricular swelling on the left side with restricted mandibular movement.

count,  $419 \times 10^4/\text{mm}^3$ ; white blood cell count,  $8360/\text{mm}^3$  with 85% polymorphonuclear cells.

Imaging studies were performed. Orthopantomography and lateral tomogram of the TMJ including mouth open and closed views showed anterior displacement of the left mandibular condylar head and a marked widening of the posterior joint space of the left TMJ (Figs. 3 and 4). A presumptive diagnosis of joint effusion was made.

A computed tomography (CT) scan was required to get more diagnostic knowledge of the pathological entity and its relation with the adjacent structures. The CT scan showed a diffuse soft-tissue swelling involving the preauricular region and a well-circumscribed, 1-cm intracapsular fluid collection into the left TMJ and condylar displacement (Fig. 5). A septic arthritis of the left TMJ was suspected.

The surgical plan was to perform an arthroscopy of the left TMJ so as to drain and simultaneously inspect the joint to confirm the diagnostic hypothesis. Arthroscopic examination, lysis and lavage, and capsular stretch were performed under general anesthesia. A single dose of amoxicillin 2.2 g was given preoperatively as antibiotic coverage. A 19-gauge needle was inserted percutaneously into the superior joint compartment at the maximum concavity of the glenoid fossa<sup>16</sup> and aspiration of the left TMJ was performed.



Fig. 2. Maximum mouth opening of 15 mm with right deviation of the mandible.

A large quantity of purulent material was drained and sent for culture and sensitivities. The superior space was then entered with a cannula and corresponding trocar. A 1.9-mm arthroscope was introduced through this cannula after the removal of the trocar. Another 19-gauge needle was then inserted into the superior joint compartment at a distance of 5 mm anterior and 5 mm inferior to the first puncture site to enable a free flow of saline solution through the superior compartment during the procedure. The arthroscopic view was difficult owing to pathological cloudy intra-articular liquid. The arthroscopic examination showed important hyperemia of the synovial membrane bleeding in some parts and a degenerative-appearing articular cartilage. Proliferation of the synovial villi and adhesions were also seen (Fig. 6).

Lysis of the superior joint compartment adhesions, copious lavage of saline solution, lateral eminence release, and a capsular stretch procedure were performed.



Fig. 3. Orthopantomography of the TMJ showing anterior/inferior displacement of the condylar head and joint space widening on the left side.

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