

Case Report TMJ Disorders

Septic arthritis of the temporomandibular joint caused by rare bacteria *Raoultella ornithinolytica*

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J. Levorova, V. Machon, A. Guha, R. Foltan: Septic arthritis of the temporomandibular joint caused by rare bacteria Raoultella ornithinolytica. Int. J. Oral Maxillofac. Surg. 2017; 46: 111–115. © 2016 Published by Elsevier Ltd on behalf of International Association of Oral and Maxillofacial Surgeons.

Abstract. Septic arthritis of the temporomandibular joint (TMJ) is an unusual disease in adults. Inoculation of the pathogen may occur through traumatic or iatrogenic injuries, or more often by haematogenous spread from a distant focus. The cause of infection is unknown in most cases. A case of ostensibly mild septic arthritis of the TMJ with a good response to antibiotic therapy and lavage, but that finally led to fatal destruction of the joint structures in a 38-year-old female patient, is reported herein. The infection was caused by *Raoultella ornithinolytica* – a rare bacterial species in humans, which has not been reported previously in any patients with joint problems. The arthritis manifested 5 weeks after an arthroscopy procedure, so the cause was not clear.

Key words: rare infection; temporomandibular joint; septic arthritis; total alloplastic replacement.

Accepted for publication 9 September 2016
Available online 7 October 2016

Septic arthritis of the temporomandibular joint (TMJ) is an unusual disease in adults. The aetiology is of infectious origin, and it is usually caused by bacteria (*Staphylococcus*, *Streptococcus*, *Haemophilus*, *Neisseria*, *Mycobacterium*) or fungi (*Candida*).^{1,2} The infection can penetrate into the joint through an open traumatic or iatrogenic wound. More often it is disseminated by haematogenous spread from some distant infectious focus in the body.^{2,3}

Case report

A 38-year-old woman was referred to the department of oral and maxillofacial

surgery of a university hospital in Prague, Czech Republic by her dentist for pain in the left pre-auricular region associated with limited mouth opening and restricted jaw movement (28 mm), lasting a week. Clinical and radiological findings led to the diagnosis of disc displacement without reduction of the left TMJ (Fig. 1 shows a panoramic radiograph; Fig. 2 shows magnetic resonance imaging findings).

The patient underwent conservative treatment, namely thermotherapy, occlusal splint therapy, stretching, and physiotherapy. This was continued for 6 months with minimal effect; consequently an arthrocentesis was done. The arthrocentesis

was performed with the use of two 19-gauge needles, in accordance with the procedure of Nitzan et al.⁴; 120 ml of lactated Ringer's solution was used for irrigation, and consequently hyaluronic acid was injected slowly into the upper joint space (Hyalgan; molecular weight 500–730 kDa, 1 ml). There was no improvement after the arthrocentesis. Therefore, the patient was indicated for arthroscopic lavage. Seven months after the diagnosis, an arthroscopy of the upper joint space of the left TMJ was performed. Arthroscopic findings showed an adhesion type column in the lateral and medial portions of the posterior recess, chronic inflammation of

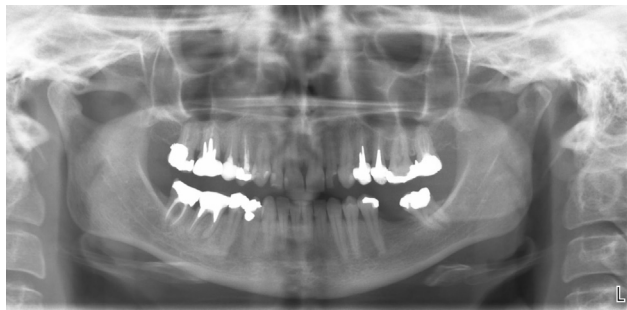


Fig. 1. Panoramic radiograph of the patient, who had pain in the left pre-auricular region and limited mouth opening. The radiograph shows no degenerative changes of the left mandibular condyle.

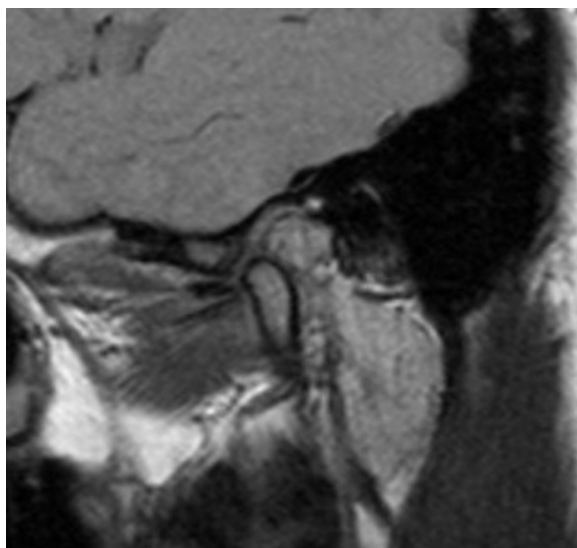


Fig. 2. Magnetic resonance imaging showing anterior disc displacement without reduction and even contours of the condylar head.

the retrodiscal tissue, and incipient fibrillation of the cartilage in the intermediate zone. Visualization of the anterior recess was difficult due to strong adhesions. The articular disc was found to be anteriorly displaced without reduction during movement. No degenerative changes of the disc and cartilage were noted. Lavage and lysis of the adhesions were done during the arthroscopic procedure.

One week postoperatively, the patient was completely without pain, and mouth opening had improved to 42 mm (from the initial 28 mm). However, on day 43 after the arthroscopy, she suddenly presented with a complaint of swelling lasting 2 days, pain in her left pre-auricular area, and limited mouth opening. A clinical examination revealed swelling without fluctuation and redness of the left pre-auricular region. Mouth opening was limited to 32 mm, with deviation to the left. Her occlusion was normal, without discrepancies. The patient's overall condition was normal: she was afebrile and

inflammatory markers were not increased. The wound from the previous arthroscopy was healing without any dehiscence.

A differential diagnosis of a septic complication from the previous procedure was considered, so arthroscopic lavage of the TMJ was recommended to the patient. She refused a repeat arthroscopy and general anaesthesia at that time, but agreed to arthrocentesis as a lesser invasive procedure. Arthrocentesis with two 19-gauge needles inserted in the sites of the previous insertions was performed. A translucent light yellow fluid was aspirated and it was presumed that pus was present (Fig. 3). The fluid was sent for microbiological analysis. Empirical oral antibiotics were administered (amoxicillin 500 mg, three times daily), and cultures subsequently showed the presence of *Raoultella ornithinolytica*.

The bacterial culture was susceptible to amoxicillin–clavulanic acid, ampicillin–sulbactam, sulbactam, ciprofloxacin, cotrimoxazole, and cefuroxime, but was resistant to ampicillin. The treatment was changed to oral amoxicillin combined with clavulanic acid (the dose remained unchanged) and this was continued for 13 days. After 2 weeks, the patient was without swelling and the pre-auricular region was pain-free. No signs of inflammation were present, and the patient's overall condition had improved considerably. Furthermore, her laboratory values had normalized. Despite the improvement, her mouth opening was still limited to 32 mm.

The patient was followed up regularly and underwent rehabilitation of her mouth opening. Mouth opening improved to 41 mm with symmetrical movement of both condylar heads. Subjectively, the patient was without any complaints.

Eleven months after her diagnosis, she began to complain of mild pain in the left



Fig. 3. Arthrocentesis of the left temporomandibular joint; swelling is seen in the pre-auricular region. The syringe contained a translucent yellow liquid, aspirated from the joint.

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