

Synovial cyst of the temporomandibular joint: A case report and literature review

A. Spinzia¹, D. Panetta¹, D. Russo², L. Califano¹

¹Department of Maxillofacial Surgery, University "Federico II", Via Pansini n°5, 80131 Napoli, Italy; ²Department of Biomorphological and Functional Sciences, Section of Anatomic Pathology and Cytopathology, University "Federico II", Napoli, Italy

A. Spinzia, D. Panetta, D. Russo, L. Califano: *Synovial cyst of the temporomandibular joint: A case report and literature review. Int. J. Oral Maxillofac. Surg. 2011; 40: 874–877.* © 2011 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Abstract. Synovial cysts are lesions that usually occur on the wrist, foot and knee. They are rarely involved in the region of the temporomandibular joint (TMJ), with only 10 cases reported from 1978 to 2007. The authors report a case of a synovial cyst of the TMJ in a 45-year-old woman. The patient presented with a right preauricular swelling, 1 cm anterior to the tragus. A computed tomography (CT) scan showed a small oval hypodense mass of soft tissue in the right temporomandibular region with no relation to the condyle. Fine needle aspiration reported a synovial cyst of the TMJ. The patient was taken to the operating room and a preauricular approach extending to the temporal region was carried out resulting in surgical excision of the mass. The histological findings were consistent with the diagnosis of a synovial cyst. The long term clinical and radiological follow-up (after 18 months) showed no sign of recurrence. The authors suggest, in accordance with the literature, that a surgical approach should be the treatment of choice in the case of a synovial cyst of the TMJ.

Accepted for publication 22 February 2011
Available online 5 April 2011

Synovial cysts rarely occur in the region of the temporomandibular joint (TMJ)⁴. They are usually present on the extensor surface of the wrist and to a lesser extent on the dorsal surface of the foot and lateral aspect of the knee¹. Only 10 synovial cysts in the region of the TMJ have been reported^{2–10}.

In the literature, the therapy most frequently suggested is surgical excision of the synovial cyst^{2–10}. A high success rate has been reported⁸. The authors present a case of a synovial cyst of the TMJ treated successfully with a surgical approach.

Case report

A 45-year-old woman presented with a right preauricular swelling situated 1 cm anterior

to the tragus (Fig. 1). She reported that it had been growing slowly and had been present for approximately 1 year. Her medical history was unremarkable. She had no history of TMJ dysfunction and she denied any recent trauma to the ear or mandible. Her physical examination showed a soft, tender, non-erythematous swelling, 2 cm in size, in the right preauricular area lateral to the TMJ. It was fixed to the underlying structures and was painless.

The patient had normal mouth opening, without deviation, and the mandibular range of motion was normal in all directions. There was no sound and pain in the TMJ during mandibular motion in any direction. There was no facial nerve paralysis or paresis. The rest of the head and neck examination was unremarkable.

A fine needle aspiration was performed. The picture showed cytological amorphous proteinaceous material in which epithelial cells without atypia were observed compatible with a synovial origin. The results were compatible with a synovial cyst of the TMJ.

A sonogram of the area showed a hypoechoic cystic formation of about 13 mm × 8.5 mm × 10 mm, adjacent to the right TMJ. The parotid and submandibular glands were regular, without ectasia of the salivary ducts, with no evidence of lateral lymph node swellings. A computed tomography (CT) scan was obtained, which showed a small oval hypodense mass of soft tissue in the right temporomandibular region with no relation to the condyle (Fig. 2).



Fig. 1. Right preauricular swelling at clinical examination.

The patient was taken to the operating theatre and a preauricular approach extending to the temporal region was carried out to gain access to the right TMJ. The incision was made through the skin and subcutaneous tissues (including the temporoparietal fascia) as far as the temporal fascia (superficial layer). An incision of the superficial layer of the temporal fascia was performed and dissections were subsequently taken at the level of the zygomatic arch, as far as the lateral surface of the capsule of the TMJ. A 2 cm × 2 cm mass in and connected to the posterior lateral part of the joint cap-

sule was found. The mass was isolated carefully from the lateral surface of the capsule, excised and sent for histological examination. The wound was sutured in layers and a pressure bandage was applied, which remained in place for 3 days.

The histological examination of the excised mass showed a cystic space lined by synovial cells with a cartilaginous nucleus for diagnosis of the site. The histological findings were consistent with the diagnosis of a synovial cyst (Fig. 3).

The follow-up examination at 18 months revealed no sign of recurrence

following clinical and radiological investigations.

Discussion

A synovial cyst of the TMJ is rare with only 10 cases reported in the literature^{2–10} (Table 1). There is a male to female predominance of approximately 7–2. Including the present case, the average age of the patients was 42.8 years (range 22–65 years). The aetiology is unknown⁵. Synovial cysts seem to be caused by an increase in intra-articular pressure due to trauma^{3,6,7,10} or to an inflammatory process (rheumatoid arthritis, osteoarthritis or synovitis²), which causes a capsular herniation of the TMJ into the surrounding tissues. A displacement of synovial tissue during embryogenesis⁵ and an abnormal force on the joint resulting from a dysfunction of the TMJ have also been reported as possible causes⁴.

In about half of the reported cases, the lesions have been associated with pain and swelling of the parotid region, limitation of jaw movement (a decrease in mouth opening), sound in the TMJ, and chewing discomfort.

A clear distinction between synovial and ganglion cysts is not often made, so both terms are used interchangeably, with the result that the two lesions are considered erroneously to be the same. Although both occur near joints, their histological profiles and origins are different. The synovial cyst is a true cyst lined with synovial cells (synoviocytes) with gelatinous fluid that may or may not communicate with the joint cavity¹. The ganglion cyst is a pseudocyst lined with fibrous connective tissue³ with viscid fluid or gelatinous material and does not connect with the joint cavity. It seems to arise from myxoid degeneration and cystic softening of the collagenous tissue of the capsule of the joint. Although both ganglion and synovial cysts may arise as a result of trauma, only synovial cysts are caused by a primary inflammatory process.

Because of its anatomical location, a synovial cyst of the TMJ is often confused with a parotid mass. Its distinguishing features are that it has a para-articular location, it tends to be located at the superior border of the parotid gland (high preauricular area) and often decreases in size when the mouth is opened, owing to a retraction of the lesion into the masseter muscle. It usually leads to TMJ disorders (limitation of jaw movement, sound in the TMJ and chewing discomfort).

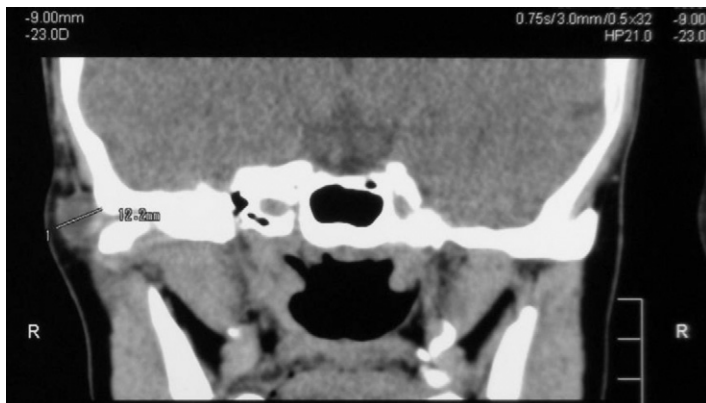


Fig. 2. Coronal CT scan shows a right preauricular lesion not involving the parotid gland.

Table 1. Reported cases of synovial cyst of the TMJ in the literature.

First author	Published time (year)	Cases	Age (years)	Gender (F/M)	Treatment	Follow-up (months)	Recurrences
JANECA and CONLEY ⁷	1978	1	50	M	Surgical	Not stated	Not stated
REYCHLER et al. ¹⁰	1983	1	30	F	Surgical	Not stated	Not stated
FAROLE and JOHNSON ⁵	1991	2	22	M	Surgical	12	No
BONACCI et al. ²	1996	1	46	M	Arthroscopic	12	No
CHANG et al. ³	1997	1	38	M	Surgical	18	No
CHEN et al. ⁴	1998	1	58	M	Surgical	Not stated	Not stated
GOUDOT et al. ⁶	1999	1	65	M	Surgical	Not stated	Not stated
LOMEO et al. ⁸	2000	1	47	F	Surgical	6	No
MOATEMRI et al. ⁹	2007	1	30	M	Surgical	6	No

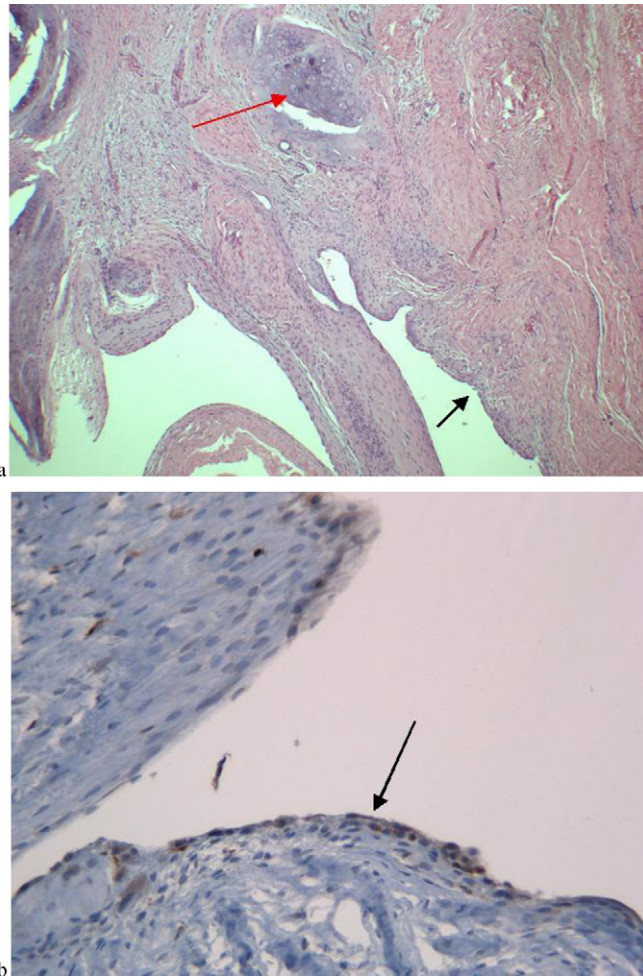


Fig. 3. (a) Macroscopic image of cystic wall. The black arrow shows epithelial cells and the red arrow shows the cartilaginous nucleus for diagnosis of the site (E/E 400× magnification). (b) Positive immunohistochemistry for anti calretinin (400× magnification).

Other lesions include primary and metastatic tumours of the condyle, chondromatosis and crystal arthropathies, the symptoms of which may be similar to those of TMJ cysts (articular pain, preauricular swelling, a limitation of jaw movement, or jaw noise). All of these conditions should be taken into account in the differential diagnosis⁶. Additional entities such as cutaneous and subcutaneous tumours

(sebaceous cyst), benign cervical lymphoepithelial cyst and benign vascular or neural mass should also be considered.

The literature supports, in decreasing order of significance, a CT scan, an ultrasound of the mass (a hypoechoic joint lesion is highly suggestive of a synovial cyst, an anechoic joint lesion suggests a ganglion cyst²) and fine-needle aspiration⁸ for diagnosis of TMJ cysts. The use of

magnetic resonance imaging (MRI)^{2,4,6} and an arthroscopy, which allow direct visualization of the intracapsular pathology and obtaining biopsy specimens² have also been reported. Examination of the correctly excised specimens is mandatory for a confirmed diagnosis of synovial cyst of the TMJ.

Treatment of synovial cysts generally consists of surgical excision of the TMJ herniated capsule using a preauricular approach^{3–10}. A conservative arthroscopic surgical technique, which limits disruption of the TMJ capsule and identifies and treats the causative disease (it performs joint lavage and injects anti-inflammatory medications) has also been suggested². No postoperative recurrence has been described^{2,3,5,8,9}.

In conclusion, the authors report a case of a synovial cyst of the right TMJ in a 45-year-old woman. A preauricular approach was carried out and a surgical excision of the cyst from the lateral surface of the TMJ capsule was completed. The long term clinical and radiological follow-up (after 18 months) showed no sign of recurrence. The authors suggest, in accordance with the literature, that a surgical approach should be the treatment of choice in the case of a synovial cyst of the TMJ.

Funding

None.

Competing interests

None declared.

Ethical approval

Not required.

References

1. ALI ZA, BUSAIDY KF, WILSON J. Unusual presentation of a ganglion cyst of the temporomandibular joint: case report and distinction from synovial cyst. *J Oral*

- Maxillofac Surg 2006; **64**: 1300–1302. 10.1016/j.joms.2006.04.013.
2. BONACCI CE, LAMBERT BJ, PULSE CL, ISRAEL HA. Inflammatory synovial cyst of the temporomandibular joint: a case report and review of the literature. J Oral Maxillofac Surg 1996; **54**: 769–773.
 3. CHANG YM, CHAN CP, KUNG WU SF, HAO SP, CHANG LC. Ganglion cyst and synovial cyst of the temporomandibular joint. Two case reports. Int J Oral Maxillofac Surg 1997; **26**: 179–182.
 4. CHEN Y, SUZUKI M, SIRAKI S, KAYANO T, AMAGASA T, TAKAGI M. Synovial Cyst of the temporomandibular joint: report of a case. Oral Med Pathol 1998; **3**: 97–99.
 5. FAROLE A, JOHNSON MW. Bilateral synovial cysts of the temporomandibular joint. J Oral Maxillofac Surg 1991; **49**: 305–307. 10.1016/0278-2391(91)90228-E.
 6. GOUDOT P, JAQUINET AR, RICHTER M. Cysts of the temporomandibular joint. Report of two cases. Int J Oral Maxillofac Surg 1999; **28**: 338–340.
 7. JANECA IP, CONLEY JJ. Synovial cyst of temporomandibular joint imitating a parotid tumour (a case report). J Maxillofac Surg 1978; **6**: 154–156.
 8. LOMEPE PE, McDONALD JE, FINNEMAN J. Temporomandibular joint cyst as a preauricular mass. Am J Otolaryngol 2000; **21**: 331–332. 10.1035/ajot.2000.16168.
 9. MOATEMRI R, FARROUKH O, BELAJOUZA H, TRABELSI A, AYACHE A, KHOCHTALI H, BAKIR A. Synovial cyst of the temporomandibular joint. Rev Stomatol Chir Maxillofac 2007; **108**: 241–242. 10.1016/j.stomax.2006.09.005.
 10. REYCHLER H, FIEVEZ C, MARBALX E. Synovial cyst of the temporomandibular joint. J Maxillofac Surg 1983; **11**: 284–286.

Corresponding author
Tel.: +39 0817462175/3336124477.
E-mail: alessia.spinzia@gmail.com

doi:10.1016/j.ijom.2011.02.027

Case Report TMJ Disorders

'Inverse' temporomandibular joint dislocation

R. M. Alemán Navas¹,
M. G. Martínez Mendoza²

¹Department of Oral and Maxillofacial Surgery, Zacamil's Nacional Hospital, Evangelic University of El Salvador, El Salvador; ²Latin American University of Mexico City, Mexico

R. M. Alemán Navas, M. G. Martínez Mendoza: 'Inverse' temporomandibular joint dislocation. *Int. J. Oral Maxillofac. Surg.* 2011; **40**: 877–879. © 2011 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Abstract. Temporomandibular joint (TMJ) dislocation can be classified into four groups (anterior, posterior, lateral, and superior) depending on the direction of displacement and the location of the condylar head. All the groups are rare except for anterior dislocation. 'Inverse' TMJ dislocation is a bilateral anterior and superior dislocation with impaction of the mandible over the maxilla; to the authors' knowledge only two cases have previously been reported in the literature. Inverse TMJ dislocation has unique clinical and radiographic findings, which are described for this case.

Accepted for publication 9 February 2011
Available online 17 March 2011

Dislocation of the temporomandibular joint (TMJ) represents 3% of all reported dislocated joints in the body. Typical dislocation of the TMJ occurs when the mandibular condyle is displaced anteriorly beyond the articular eminence. TMJ dislocation has been classified in different ways, in 1832, Sir Astley Cooper proposed principles for the diagnosis and treatment of dislocation of the lower jaw. He introduced the terms complete dislocation (luxation) and imperfect dislocation (subluxation). Subluxation is

defined as a displacement of the condyle out of the glenoid fossa and anterosuperior to the articular eminence, which can be reduced by the patient (self-reduced). It has been estimated that 70% of the population can subluxate the TMJ. In contrast, luxation is a similar displacement of the condyle that cannot be self-reduced⁷.

Some authors base their classification on the direction of displacement and the location of the condylar head, defining four groups: anterior, posterior, lateral

and superior dislocation. All the groups, except anterior dislocation, are rare, and one or both mandibular condyles can be affected¹. TMJ dislocations can also be classified into acute, chronic (prolonged) and recurrent⁹.

The authors report a case of an 'inverse' TMJ dislocation in which the mandibular condyles were displaced bilateral, anterior and superior with impaction of the mandible over the maxilla. This rare TMJ dislocation has unique clinical and radiographic characteristics.