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## Case report

## Unilateral non-occlusion secondary to a ganglionic cyst of the temporomandibular joint (TMJ)

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## ABSTRACT

Ganglionic and synovial cysts of articular joints are the most common benign soft tissue tumours in the hand and the wrist. Although used synonymously, the histology and pathogenesis are different. In the temporomandibular joint (TMJ), ganglionic and synovial cysts are very rare. We describe a case and present a review of the literature.

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## 1. Introduction

The differential diagnosis of unilateral pre-auricular swellings includes pathology of the temporomandibular joint (TMJ). The diagnostic work-up of such swellings, which persist or increase in size over a period of 2 weeks routinely includes the use of the MRI-scan. Congenital, inflammatory and tumorous processes of the TMJ feature only very rarely, in this case the occlusal derangement was a helpful indicator of the location of the disease.

## 2. Case report

A 30-year old patient was referred with swelling and pain in the left preauricular region that had been noted for over 5 years with varying size. Blunt trauma to the left condyle had been sustained 10 years previously. The mass was firm and tender on palpation, and did not change in position, size or shape with mouth-opening (Fig. 1).

The patient had a normal maximal mouth-opening of 39 mm, protrusion of 6 mm, a lateral movement to the left of 4 mm and to the right of 5 mm. During mouth-opening the patient showed a deviation to the right. There was no joint crepitus. Intercuspatation revealed non-occlusion on the left side (Fig. 2). The panoramic radiograph showed regular positioning of the condyle within the glenoid fossa and demonstrated no pathological processes.

Magnetic resonance imaging (MRI) revealed a globular, multi-ocular mass with a signal-intense liquid content adjacent to the



Fig. 1. The patient presented with preauricular swelling of varying intensity over 5 years.

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left TMJ, which extended superiorly onto the base of the skull and medially into the pterygopalatine fossa (Fig. 3). The mass showed no invasion of the parotid gland. The articular disc was shown to be fixed anteriorly without repositioning. The left joint space showed a little distraction in the coronal projection of the MRI. The horizontal ramus of the left lower jaw was displaced inferiorly. Aspiration yielded 5 ml yellowish liquid, containing few granulocytes and no pathogenic bacteria.



Fig. 2. Premature occlusion on the right was accompanied by non-occlusion on the left.

A combined preauricular and retroauricular (facelift) approach was used. The cystic lesion was removed by blunt dissection through the parotid gland after dissection and preservation of the trunk and in particular the temporal branches of the facial nerve. Postoperatively there was no limitation of mouth-opening and no sensory loss around the ear and scalp, but there was significant hypoaesthesia of the left side of the tongue and partial weakness of the temporal branch of the facial nerve, both of which resolved spontaneously. Histological investigation revealed the characteristic features of a ganglion cyst, with mucinous content and dense connective-tissue lining.

3. Discussion

The differential diagnosis of a parotid mass is extensive (e.g. primary parotid gland diseases, hypertrophy of the masseter muscle, chondromatosis and type 1 branchial cysts). CT and MRI are the most frequently used diagnostic tools for the TMJ region, MRI remains the gold standard for the diagnosis of parotid gland and intracapsular pathology (Thornburg, 1999). Ultrasound may be an alternative, especially in pregnant women, although the information is limited (Lopes et al., 1994).

The terms ganglion cyst and synovial cyst are often used interchangeably in spite of their differing nature (Bonacci et al., 1996, Chang et al., 1997; Goudot et al., 1999). Synovial cysts are true cysts filled by synovial fluid and lined with endothelial cells. They may or may not communicate with the intraarticular space, and likely arise from displacement and herniation of synovial lining secondary to increased intraarticular pressure (Bonacci et al., 1996; Warner et al., 2000). They

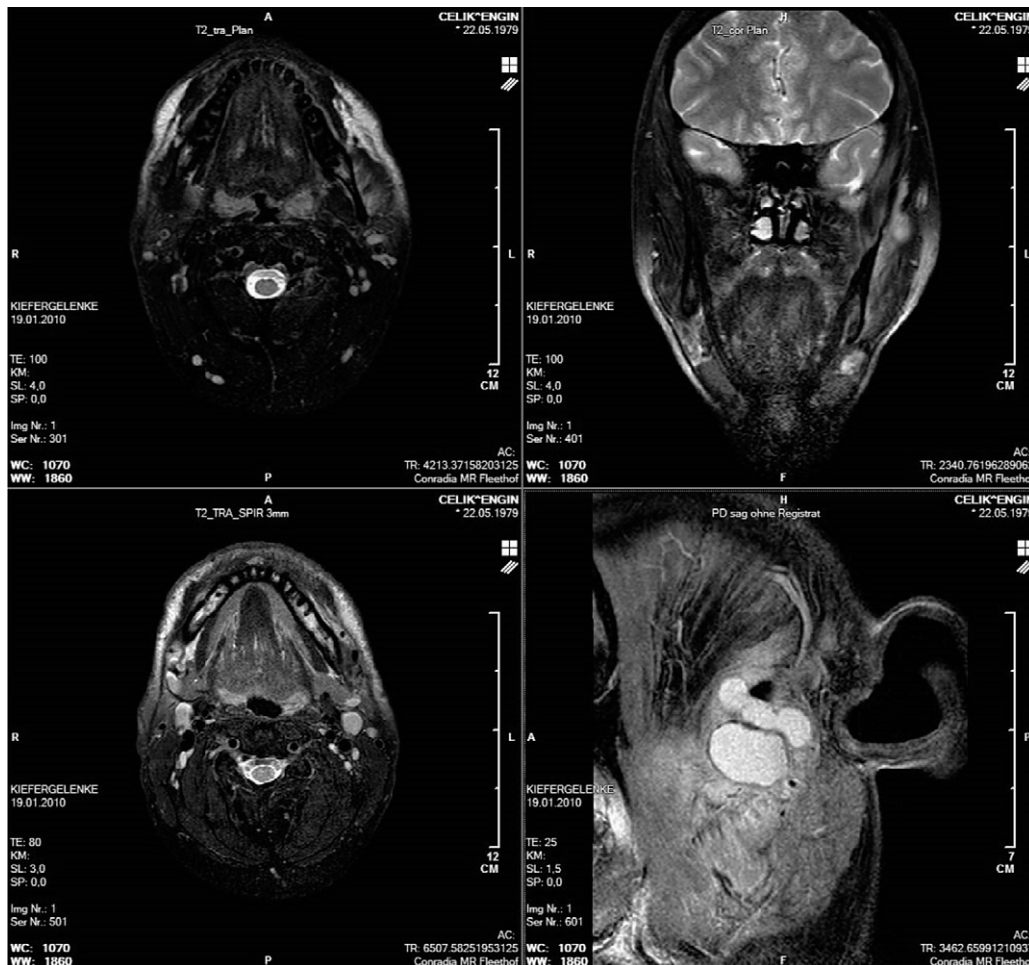


Fig. 3. MRI reveals the lobular nature and extension of the lesion over the sigmoid notch.

have been associated with primary traumatic or inflammatory processes (Bonacci et al., 1996). Ganglion cysts are pseudocysts filled with a viscous substance and are lined by dense connective tissue. By definition they are not lined by epithelium. They do not communicate with the joint cavity. They arise as a result of degeneration of connective tissue and resultant cystic space formation (Soren, 1966). It has been suggested that degeneration of the connective tissue is caused by an irritation or chronic damage, inducing the mesenchymal cells or fibroblasts to produce mucin (Thornburg, 1999).

As described in previous cases of TMJ cysts this patient presented with the usual symptoms of pain and swelling (Bonacci et al., 1996; Chang et al., 1997). The clinical examination revealed a firm preauricular mass, with the noted occlusal disturbance. The nonocclusion on the left side improved significantly after the removal of the cyst. The panoramic radiograph was normal as in most cases in the recent literature (Lopes et al., 1994; Bonacci et al., 1996; Chang et al., 1997). MRI remains the most useful diagnostic imaging technique to assess TMJ pathology (Thornburg, 1999; Bonacci et al., 1996; Chang et al., 1997; Goudot et al., 1999) and the findings are shown in Fig. 3. An aspiration biopsy was performed to exclude an empyema of the joint.

#### 4. Conclusion

This case emphasizes the need for thorough clinical examination and special investigation, particularly in cases where

a preauricular swelling does not respond to conventional therapy or in cases where the patient presents with atypical TMJ dysfunction. A standardised surgical approach to the TMJ, skull base and facial nerve is recommended for each surgical department, in order to maximise overview and minimise morbidity.

#### Conflict of interest

There is no conflict of interest arising out of this publication.

#### References

- Bonacci CE, Lambert BJ, Pulse CL, Israel HA: Inflammatory synovial cyst of the temporomandibular joint: a case report and review of the literature. *Review. J Oral Maxillofac Surg* 54(6): 769–773, 1996
- 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* 26(3): 179–181, 1997
- Goudot P, Jaquinet AR, Richter M: Cysts of the temporomandibular joint. Report of two cases. *Int J Oral Maxillofac Surg* 28(5): 338–340, 1999
- Lopes V, Jones JA, Sloan P, McWilliam L: Temporomandibular ganglion or synovial cyst? A case report and literature review. *Oral Surg Oral Med Oral Pathol* 77(6): 627–630, 1994
- Soren A: Pathogenesis and treatment of ganglion. *Clin Orthop Relat Res.* 48: 173–179, 1966
- Thornburg LE: Ganglions of the hand and wrist. *J Am Acad Orthop Surg* 7(4): 231–238, 1999
- Warner BF, Luna MA, Robert Newland T: Temporomandibular joint neoplasms and pseudotumors. *Adv Anat Pathol* 7(6): 365–381, 2000