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## Bilateral Temporomandibular Joint Ganglion Cysts: CT and MR Characteristics

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A rare case of bilateral temporomandibular joint ganglion cysts is presented. To date, only nine cases have been reported in the literature, and all nine of these were unilateral, not bilateral [1–9]. Our case is the first report of bilateral temporomandibular joint ganglion cysts. In addition, this is the first study to include CT, CT-arthrography, and MR imaging.

### Case Report

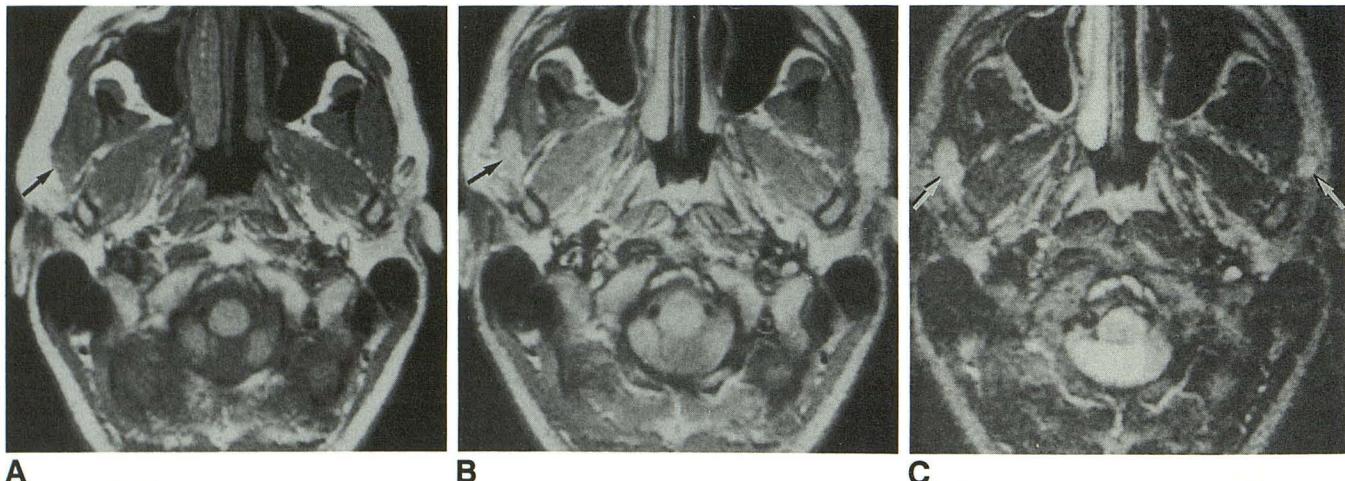
A 22-year-old man had experienced right temporomandibular joint pain for several months. The pain was most pronounced when he opened his mouth widely. His medical history was unremarkable.

Physical examination revealed a 2-cm fluctuant mass in the right preauricular region. This mass was nontender and became pro-

nounced during Valsalva. There was no evidence of adenopathy or bruit, nor was there evidence of paresthesia or motor deficit. Oral examination was normal.

MR imaging demonstrated bilateral cystic structures just anterior and lateral to the mandibular condyles (Figs. 1 and 2). CT before and after right temporomandibular joint arthrography revealed opacification of a cystic structure anterior to the right temporomandibular joint (Fig. 3). Postsialogram CT of the right parotid region revealed no intrinsic parotid abnormalities and no evidence of opacification of the previously described cystic structure (Fig. 4).

During surgical exploration a cystic structure was dissected and excised. The right parotid gland was not dissected, as this cystic structure was anatomically separate from the gland. The patient's postoperative course was uneventful, and he was discharged 2 days after this procedure. The final pathologic report was consistent with a ganglion cyst of the right temporomandibular joint.



**Fig. 1.—Axial MR images at level of mandibular condyles.**  
**A**, T1-weighted image (600/20) reveals a 2-cm structure isointense with muscle just anterior and lateral to right mandibular condyle (arrow).  
**B** and **C**, Spin-density-weighted (2400/20) (**B**) and T2-weighted (2400/80) (**C**) images reveal bilateral high-signal abnormalities anterior and lateral to both mandibular condyles (arrows).

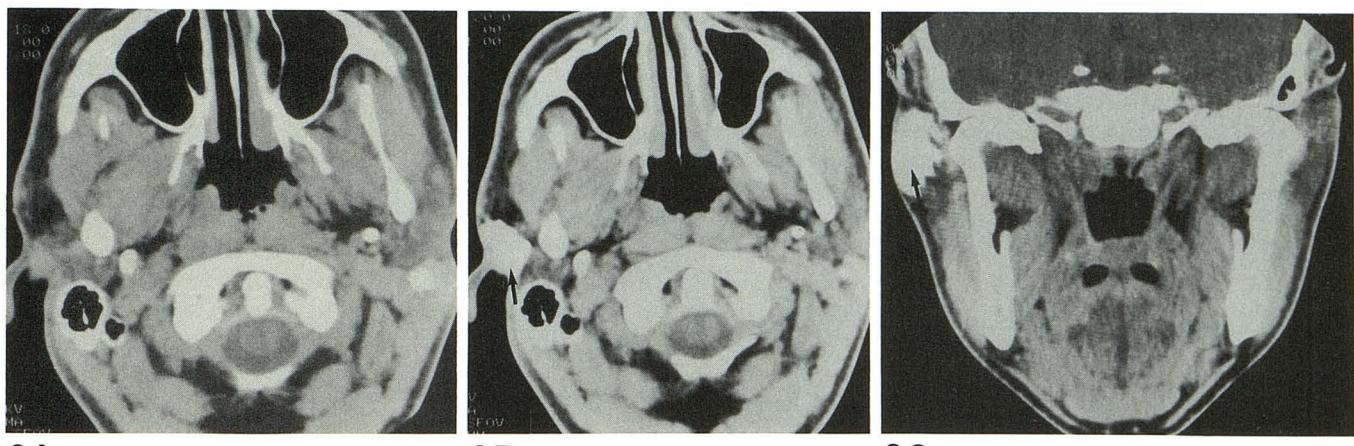
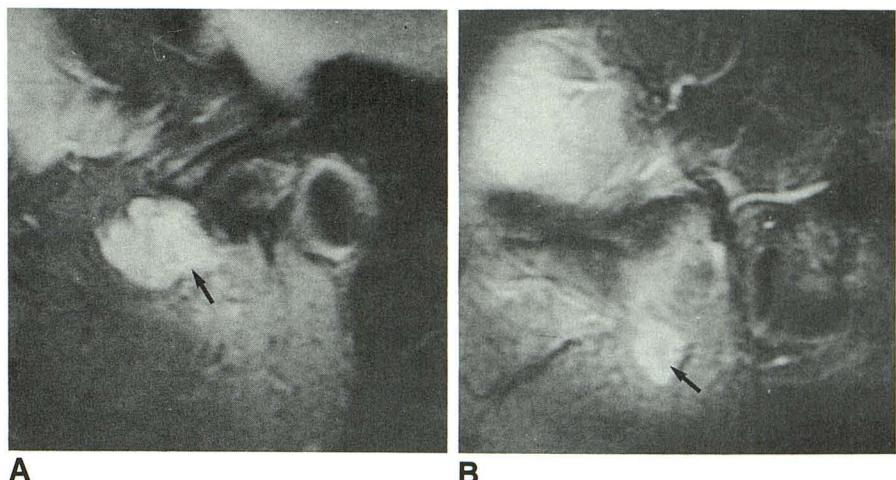
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**Fig. 2.**—T2-weighted sagittal MR images (2400/80) of temporomandibular joints utilizing a dual surface coil, a 12-cm field of view, and 1.3 magnification factor.

*A*, Right temporomandibular joint with high-signal ganglion cyst (arrow) just anterior to mandibular condyle and inferior to articular eminence.

*B*, Left temporomandibular joint with a smaller high-signal ganglion cyst in a similar location (arrow).



3A

3B

3C

**Fig. 3.**—*A*, Axial prearthrogram CT scan with needle localizer indicating level of right preauricular palpable mass.

*B* and *C*, Axial (*B*) and coronal (*C*) postarthrogram CT scans show opacification of right temporomandibular joint ganglion (arrows) and its relationship to right temporomandibular joint and right parotid gland.

**Fig. 4.**—Postsialogram CT scan shows nonopacification of previously described cyst and no intrinsic parotid mass effect. This suggested an extraparotid origin of the right preauricular mass and was supportive of a right temporomandibular joint ganglion cyst.



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## Discussion

Ganglion cysts occur subcutaneously, usually along the extensor surface of a joint. The more frequently involved joints include the wrist, knee, and ankle [10]. The temporomandibular joint is rarely involved, with only nine previously

reported cases. Histologically, a ganglion is a fibrocystic structure that contains mucinous fluid often rich in hyaluronic acid. Ganglions develop as a result of either herniation of the synovium into the surrounding tissues, ectopic placement of synovial tissue during embryogenesis, or posttraumatic degeneration of connective tissues [10].

A ganglion cyst of the temporomandibular joint is extremely rare. Because of their anatomic location, temporomandibular joint ganglion cysts have been confused with parotid gland masses. Cysts occurring in the parotid region account for approximately 5% of all parotid masses [11, 12]. The most common cystic lesion occurring in the parotid region is a retention cyst of the gland. Branchial cleft cysts are responsible for the bulk of the remaining cystic masses occurring in this region [12, 13].

In the case reported here, preoperative imaging by CT and MR was crucial in determining the diagnosis and therefore the surgical approach. MR imaging revealed the masses to be cystic; CT with contrast within the salivary ductal system revealed it to be separate from the parotid glands; and CT-arthrography confirmed its connection with the joint space.

This case demonstrates the utility of CT, CT-arthrography, and MR imaging in the detection of temporomandibular joint cysts. Although extremely rare, the treatment of temporomandibular joint cysts is accomplished relatively easily by surgical dissection and excision with no involvement of the parotid gland. Preoperative diagnosis is, therefore, useful in the surgical management of patients with this disorder.

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