Case 607

Schwannoma of the infratemporal fossa
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Section: Head & neck imaging
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Imaging Technique: MR
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Case Type: Clinical Cases
Authors: El Khoury M., Abella-Franchi S., de Bazelaire C, Gaucher S, Sigal R
Patient: 30 years, male

Clinical History:

A thirty year old man with tumefaction of the left parotid region.

Imaging Findings:

A thirty year old man was addressed to our hospital for a tumefaction of the left parotid region. His medical history started two years ago by the progressive appearance of a mass on the buccal surface of his left cheek which became recently perceptible clinically as an external tumefaction associated with intermittent pain. CT scan revealed the presence of a mass in the masticator space and a biopsy performed was consistent with the histologic diagnosis of a benign schwannoma. MR was also performed before surgical treatment. A surgical resection was performed with no complementary treatment with a good result at one year follow up.

Discussion:

Schwannomas are benign, slow-growing tumors of the nerve that may arise on cranial, spinal as well as peripheral nerves. Although relatively common intra-cranially accounting for 8% of all intra-cranial tumors, they seldom arise primarily within the infra-temporal fossa. This location is one of the least common anatomical sites for extra-cranial schwannommas whereas the pharyngeal area is the most frequent one (1). When they are located in the infratemporal fossa they usually extend intra-cranially (1) Schwannomas of the infra-temporal fossa can occur at any age with a peak incidence between the 2nd and the 4th decades with no sex prevalence (1,4). Infratemporal location of schwannoma should incite to look for neurofibromatosis type II (NF-2)(1,3) Pathologically, they are S-100 protein positive on immunohistochemical studies and they show two distinct areas unlike neurofibromas called Antoni A type and Antoni B type. The former is highly cellular and the latter is hypocellular, rich in myxoid tissue and water content (5). Malignant transformation is exceedingly rare (5) Because they are slow-growing tumors, they remain silent for a long period accounting for the delay of diagnosis and the large size of the lesion upon diagnosis therefore complicating the surgical resection (1,2,4). The symptomatology depends on the size and the localization of the tumor and consists mainly of non-specific signs or symptoms of compression of the adjacent structures. Common symptoms include facial pain, swelling in the buccal region as in our case or in tonsillar fossa (1) or with more specific symptoms according to the extension of the tumor such as proptosis, diplopia and reduced visual acuity in case of orbital extension or nasal congestion and anosmia if extension into nasal cavity or sinuses (2,4). Treatment is surgical (1,2,3,5). Surgical approaches may vary depending on the anatomical location and extent of the tumor. Although complete excision is the treatment of choice (1,5), recurrence is unusual even after incomplete
This lack of specific clinical features as well as the need for analysis of the precise extension and connection of the tumor give radiology an important role in diagnosis as in the evaluation of the tumor thus contributing in the choice of surgical approach. On CT scan, schwannomas are well limited but may be associated with bone resorption despite the benign characteristics of the tumor (2). An heterogeneous appearance may be encountered due to necrotic, cystic or hemorrhagic components which, when present allow distinction with neurofibromas. These latter do not show cystic degeneration nor hemorrhage (2,3). At MR imaging, they are of isosignal intensity or slightly lower than gray matter (3); their appearance on T2-weighted depends on their size and on the presence of hemorrhage so that small or intermediate size schwannomas show a low signal intensity due to their high cellularity whereas large schwannomas have areas of high signal intensity on T2-weighted images because of myxoid cystic degeneration with isointense or slightly low-signal cellular portions. All schwannomas enhance with contrast medium with a sharp demarcation from adjacent structures due to their surrounding capsule (3).

**Differential Diagnosis List:** Schwannoma of the infratemporal fossa

**Final Diagnosis:** Schwannoma of the infratemporal fossa

**References:**

Description: On this unenhanced CT, the mass cannot be separated from adjacent tissues and is only suspected because of the osseous deformation of the posterior wall of the maxillary sinus (with no resorption), of the left mandibular condyle (due to its slow-growing characteristic). There is no deformity of the left nasopharyngeal wall. Origin:
**Description:** At an inferior level, there is a mass effect on the maxilla **Origin:**
Description: The tumor is seen as an homogenous mass with isosignal intensity relative to the muscles. The fatty tissues which is still visible on the contralateral side is not seen. The deformation of the postero-lateral border of the maxillary sinus is also depicted (arrow). Origin:
Description: On the axial view (same level as Fig 2a), the tumor is displayed with high signal intensity, compared to surrounding muscles. Note central necrotic components presenting as higher signal intensity. Origin:
**Description:** An axial view obtained 2 cm below fig 3a shows the mass effect on the maxilla and masseter muscle laterally and pterygoid muscles medially. **Origin:**
Description: The coronal view shows the mass effect on the orbit. Origin:
Description: On the axial view (same level as Fig 2a and 3a), the tumor strongly enhances after gadolinium injection. Origin:
**Description:** The axial view obtained 2 cm below fig 4a (same level as Fig 3b) shows a central, hypointense, necrotic portion of the lesion. **Origin:**
Description: The same necrotic portion is seen on the coronal planer (same level as Fig 3c). Origin:
Description: The sagittal view shows the mass effect on the middle cranial fossa, without intracranial and intracerebral extension. Origin: