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Case Report

Pleomorphic Adenoma of the Nasal Septum: MR Features

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Summary: We report the MR imaging features of a pleomorphic adenoma of the nasal septum. To our knowledge, whereas the CT findings of pleomorphic adenomas of the nasal septum have been reported, the MR features of this rare entity have not been reported in the English-language literature.

Pleomorphic adenoma is a common, benign tumor of the major salivary glands, but rarely occurs in the nasal cavity. We present an unusual case of an intranasal pleomorphic adenoma.

Case Report

A 43-year-old man, complaining of increasing left nasal cavity obstruction and epistaxis, was admitted to our hospital. Seven years earlier he had been treated for a polyp in the left nasal cavity, which was histologically diagnosed as a pleomorphic adenoma. There was no nasal septum in the resected material.

Upon examination, the patient's vital signs were found to be normal. Anterior rhinoscopy and endoscopy revealed a hemorrhagic, friable, polypoid mass, obstructing both the left and right nasal cavities. CT and MR imaging revealed a lobular mass, measuring 35 × 35 × 25 mm, in the nasal cavity. Contrast-enhanced CT images revealed the main part of the tumor was in the left nasal cavity (Fig 1); it also involved the nasal septum and extended into the right nasal cavity. Some calcified foci were detected, and the tumor showed irregular enhancement. The medial wall of the left maxillary sinus was displaced, but not destroyed. The skull base and infratemporal fossa were also intact.

MR images showed the tumor was multilobular. It was isointense to brain on T1-weighted spin-echo images (Fig 2A), and had heterogeneous, high signal intensity on fast short-inversion-time inversion recovery (fast-STIR) images (Fig 2B and C). The tumor had destroyed the nasal septum. Fat-suppressed contrast-enhanced T1-weighted spin-echo images showed marked curvilinear enhancement with small, unenhanced foci (Fig 2D).

The tumor was treated by total, wide surgical excision in the form of a septectomy by means of a lateral rhinotomy. Light microscopy of the hematoxylin-eosin-stained sections revealed a lobular architecture consisting of fibrocellular areas with chondromyxoid stroma and some squamous metaplasia. The destroyed nasal septum was detected. The pathologic diagnosis was pleomorphic adenoma with myxoid change of the nasal septum.

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Discussion

Pleomorphic adenoma, a mixed tumor, occurs commonly in the major salivary glands, but rarely in the nasal cavity, pharynx, larynx, trachea, or lacrimal glands. Several authors have reported cases of pleomorphic adenomas arising within the nasal cavity (1–3). The majority of intranasal pleomorphic adenomas occur between the third and sixth decades of life, and are seen more frequently in women. Most patients present with a painless, unilateral nasal obstruction, a mass within the nasal cavity, and epistaxis. The typical clinical description is of a polypoid, smooth, lobular, firm, gray mass or nodule with a well-defined capsule.

Histologically, pleomorphic adenomas of the nasal cavity contain both mesenchymal and epithelial components. Although similar to tumors commonly seen in the major salivary glands, the histopathologic features of mixed tumors of the nasal cavity differ in certain characteristics. Cellularity is usually greater in nasal cavity tumors than in mixed tumors of the major salivary glands, so the epithelial elements rather than the stromal elements predominate. Occasionally, small acini or ductlike structures filled with secretions are present along

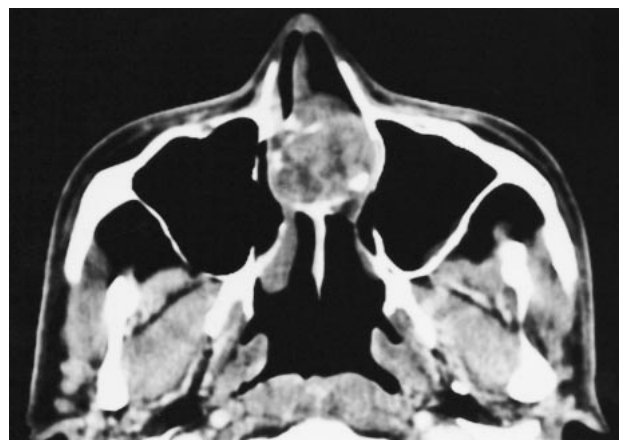

FIG 1. Contrast-enhanced axial CT image shows the intranasal mass. The tumor has destroyed the nasal septum and occupies both nasal cavities. The maxillary sinuses are intact. The tumor shows heterogeneous enhancement and contains small calcified foci.

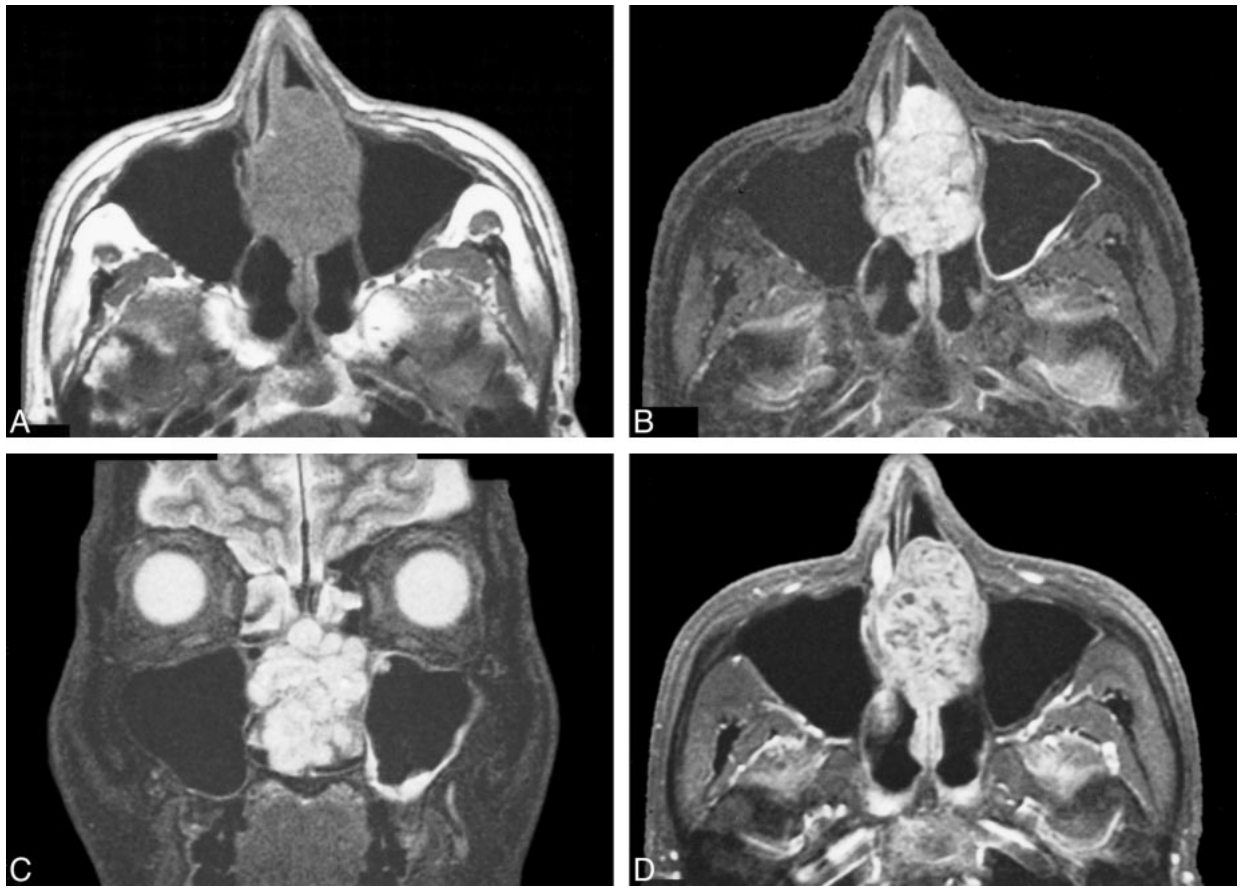

FIG 2. MR images of the intranasal mass.

A, Axial T1-weighted image (500/14/2 [TR/TE/excitations]) shows the tumor has destroyed the nasal septum and occupies both nasal cavities. The tumor is isointense to brain.

B, Axial fast-STIR image (4000/30/2) shows a lobular, high signal intensity tumor. The tumor abuts the nasal septum to the right and has destroyed it. The left maxillary sinus is intact.

C, Coronal fast-STIR image (4000/30/2) also shows a well-marginated, lobular, high-signal-intensity mass occupying the midline nasal cavity. The skull base is intact.

D, Axial contrast-enhanced fat-suppressed T1-weighted spin-echo image (400/20/2) shows marked enhancement with foci of unenhanced lower signal intensity within the body of the tumor.

the perimeters of the more cellular foci. Infrequently, the chondroid, myxoid, or collagenous stroma predominate locally, causing a resemblance to the traditional mixed tumors of the major salivary glands (2).

The differential diagnosis of the intranasal tumor included benign and malignant tumors, such as cartilaginous tumor from the nasal septum, squamous cell carcinoma, adenocarcinoma, inverted papilloma, schwannoma, sinonasal melanoma, or benign minor salivary gland tumor. CT images revealed that the lobular tumor involved the nasal septum, existed on both sides of the septum, and had small calcifications. The presence of eroded bone and calcification suggests an aggressive malignant neoplasm rather than a slow-growing benign tumor. MR imaging showed a homogeneous mass lesion that was isointense on T1-weighted images and had heterogeneous, high signal intensity on fast-STIR images. These findings could not exclude a diagnosis of malignant tumors such as chondrosarcomas (4, 5), although the calcifications on CT images were not suggestive of chondrosarcomas. In this case, the prior history of polypectomy for pleomorphic adenoma of the nasal septum was helpful. Local recurrence of a pleomorphic adenoma within the nasal cavity has been reported (2). There has been no report of a pleomorphic adenoma destroying the nasal septum, however. The tumor in this case showed irregular high signal intensity on fast-STIR images, and had curvilinear enhancement with unenhanced small foci on fat-suppressed contrast-enhanced T1-weighted spin-echo images. These findings suggest that the tumor had cystic or myxoid components.

Most small pleomorphic adenomas of the major salivary glands are smoothly marginated, spherical tumors (6). On MR images, these small tumors have a fairly homogeneous, low T1 and high T2 signal intensity (6). Larger tumors of the major salivary glands, however, tend to develop a lobular contour, and occasionally have dystrophic calcification or ossification (6). On MR images, these larger tumors have a nonhomogeneous, low-to-in-

termediate signal intensity on T1-weighted images, and an intermediate-to-high signal intensity on T2-weighted images (6). Regions of necrosis may also be present, and usually have low T1 and high T2 signal intensity (6). A low-signal-intensity capsule is often seen on T2-weighted scans and on fat-suppressed contrast-enhanced T1-weighted images (6).

According to Krolls and Boyers (7), the histopathologic characteristic most frequently associated with recurrent pleomorphic adenoma is a myxoid stroma, which the authors suggested could be easily spilled into the surgical field, providing a focus for recurrence. It is of interest that the pleomorphic adenoma in this case had a cellular pattern with many areas of myxoid stromal predominance, which may have contributed to its recurrence.

Cellularity is usually greater in pleomorphic adenomas of the nasal cavity than in those arising in the major salivary glands (2). Clark et al reported a CT finding of pleomorphic adenoma of the nasal septum that was nonspecific and solid in nature (8). Pathologically, large pleomorphic adenomas of the nasal septum are usually multilobular lesions (9). Occasionally, small acini or ductlike structures filled with secretions are present along the perimeters of the more cellular foci (2). The chondroid, myxoid, or collagenous stroma may predominate locally (2), causing the structure to resemble that of the traditional mixed tumor of the major salivary glands. The pleomorphic adenoma in this case resembles a typical adenoma of the parotid gland more closely than one of the nasal septum.

Conclusion

A large pleomorphic adenoma of the nasal septum may show characteristic CT and MR findings. Thus, when a multilobular tumor of the nasal septum exhibiting curvilinear enhancement and small, unenhanced foci is encountered, pleomorphic adenoma should be included in the differential diagnosis.

References

1. Spiro RH, Koss LG, Hajdu SI, et al. **Tumors of minor salivary origin. A clinicopathologic study of 492 cases.** *Cancer* 1973;31: 117–129
2. Compagno J, Wong RT. **Intranasal mixed tumors (pleomorphic adenomas): a clinicopathologic study of 40 cases.** *Am J Clin Pathol* 1977;68:213–218
3. Suzuki K, Moribe K, Baba S. **A rare case of pleomorphic adenoma of lateral wall of nasal cavity with special reference of statistical observation of pleomorphic adenoma of nasal cavity in Japan.** *Nippon Jibiinkoka Gakkai Kaiho* 1990;93:740–745
4. Kaufman JK, Pritz MB, Righi PD, Bizal JC. **Craniofacial resection of a nasoseptal chondrosarcoma: case report and review of the literature.** *Surg Neurol* 1999;52:265–268
5. Rassekh CH, Nuss DW, Kapadia SB, Curtin HD, Weissman JL, Janecka IP. **Chondrosarcoma of the nasal septum: skull base imaging and clinicopathologic correlation.** *Otolaryngol Head Neck Surg* 1996;115:29–37
6. Som PM, Brandwein M. **Salivary glands.** In: Som PM, Curtin HD, eds. *Head and Neck Imaging* 3rd ed. St. Louis, Mo: Mosby; 1996;879–882
7. Krolls SO, Boyers RC. **Mixed tumors of salivary glands. Long-term follow-up.** *Cancer* 1972;30:276–281
8. Clark M, Fatterpekar GM, Mukherji SK, Buenting J. **CT of intranasal pleomorphic adenoma.** *Neuroradiology* 1999;41:591–593
9. Jassar P, Stafford ND, MacDonald AW. **Pleomorphic adenoma of the nasal septum. Pathology in focus.** *J Laryngol Otol* 1999; 113:483–485