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Case Report

# A rare case of pleomorphic adenoma of the nasal cavity

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ABSTRACT

One of the most prevalent benign tumors of the main salivary glands is pleomorphic adenoma. They may also develop in the smaller salivary glands, which are common in the nasal cavity. The aim is to present this rare case which was diagnosed with tissue sampling and histopathological examination in conjunction with radiological findings.

A 36-year-old woman's right nasal cavity was found to have a soft tissue mass that was seen protruding from the nasal septum. A detailed histological analysis led to the conclusion that the nasal cavity was home to a pleomorphic adenoma.

In conclusion, pleomorphic adenomas in minor salivary glands are extremely uncommon, and they are much more uncommon in the nasal cavity, where they typically develop from the nasal septum. Due to the presence of lower stromal and higher epithelial components, it may be misdiagnosed at early stages. Resultant delayed detection leads to aggressive treatment.



## 1. Introduction

The most frequent benign tumor found in large salivary glands is a mixed tumor of the salivary gland, also known as a pleomorphic adenoma. However, similar tumors very rarely also appear in minor salivary glands, which are distributed throughout the body. Rare cases have been documented in the external auditory canal, lacrimal gland, soft & hard palate, and lip[1–4], although respiratory system cases are incredibly uncommon[5,6]. Most of the adenomas in the nasal cavity arise from the glands present in the mucosa of the nasal septum. Therefore, being very unusual at this site it is very prone to misdiagnosis.

Hence, we report this case with an uncommon diagnosis at a rare site presenting with nasal obstruction in a young female.

## 2. Case Report

A 36-year-old female presented to the Otorhinolaryngology Department of SMMH Medical College, Saharanpur (Uttar Pradesh), with a history of nasal mass for 4 years which was increasing in size and causing nasal obstruction and difficulty in breathing for 6 months. Using a simple Thudicum's speculum, anterior rhinoscopy was done and a mass was found to be arising from the nasal septum.

CT scan reported a soft tissue mass in the right nasal cavity arising from the septum. The mass was localized with no destruction of the surrounding tissues (Figure 1A).

It was eventually excised under local anesthesia and sent to our department of pathology for histopathological examination.

We received a greyish-white piece of firm tissue measuring 2.5cm x 1.5cm x 1cm in size. Cut surface showed shiny white homogenous areas (Figure 1B).

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Following standard processing, 3–4 mm thick paraffin slices were cut and histopathological examined using eosin and hematoxylin (H & E).

On microscopy, a mass lined by pseudostratified ciliated epithelium was seen. The underlying zone showed epithelial cells forming well-formed tubules and at places in sheets along with spindle-shaped myoepithelial cellsin the outer layer of these tubules as well as in the stroma. Areas of myxoid and chondromyxoid stroma were seen along with myoepithelial cells melting into this stroma. Frequent areas showed squamous metaplasia accompanied by numerous keratin plugs. A dense inflammatory infiltrate comprising plasma cells and lymphocytes was also seen at places. Mitosis was infrequent (Figures 2 and 3).

After reviewing it with two independent pathologists, it was finally diagnosed as a Pleomorphic Adenoma of the nasal cavity emerging from the nasal septum.

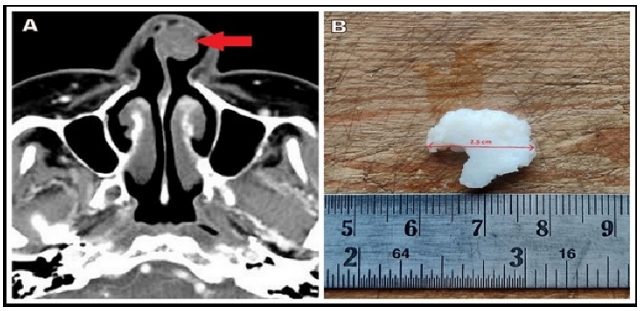


**Fig. 1: A:** CT scan showing a soft tissue mass in the right nasal cavity arising from the nasal septum; **B:** Gross specimen of 2.5cm x 1.5cm x 1cm showing a firm cartilaginous grey-white mass with cut surface showing shiny smooth homogenous white areas.

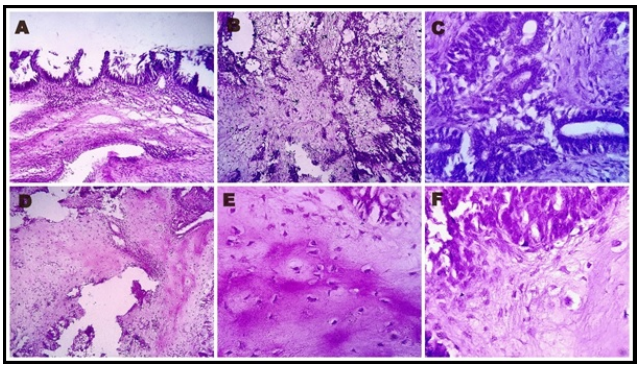


**Fig. 2: A:** A mass lined by pseudostratified ciliated epithelium. (H&E; 100x); **B** and **C:** Underlying zone showing epithelial cells forming well-formed tubules and sheets alone with spindle-shaped myoepithelial cells in the outer layer. (H&E; 100x; 400x); **D** and **E:** Areas of myxoid and chondromyxoid stroma. (H&E; 100x; 400X); **F:** Myoepiythelial cells melting into the chondromyxoid stroma. (H&E; 400x)

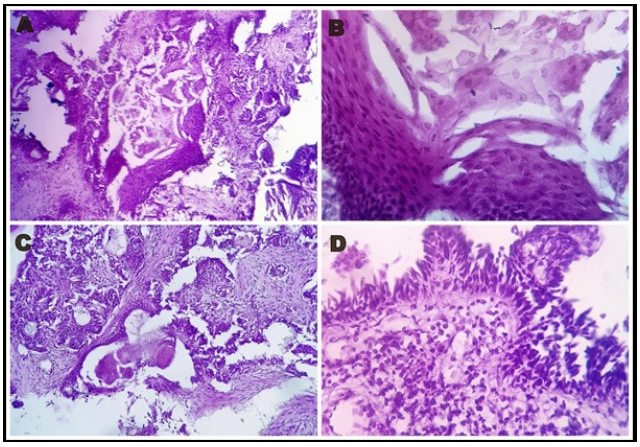


**Fig. 3: A** and **B:** Areas showing squamous metaplasia (H&E; 100x; 400x); **C:** Photomicrograph showing keratin plugs (H&E; 100x); **D:** Inflammatory infiltrate comprising of plasma cell and lymphocytes. (H&E; 400x)

## 3. Discussion

A relatively uncommon benign tumor known as pleomorphic adenoma of the nasal cavity is sometimes detected in teenagers and is more common in female patients between the ages of 40 and 60.[7,8]

It is hypothesized that it results from a viral infection, a misplaced ectodermal tissue, or a reminisce of the vomeronasal epithelial duct on the cartilaginous nasal septum. Another requirement is that ectopic embryonic epithelialized cells that move during the migration of nasal buds serve as progenitors for pleomorphic adenomas.[9]

Usually, nasal blockage and possibly epistaxis are the first symptoms to appear. When a tumor is aggressive, external nasal deformity, nasal edema, or pain may also be present. A CT scan is therefore required to detect the involvement and bone loss.

Surgical treatments include excision via endonasal endoscopic surgery or lateral rhinotomy, depending mostly on the size and location of the tumor.

Due to their high cellularity and lack of stroma, pleomorphic adenomas of the aerodigestive tract may histologically resemble aggressive epithelial malignancies. It's significant that this characteristic is inconsistent with the primary salivary glands, which have very low myoepithelial cellularity. Occasionally, pleomorphic adenomas have little to no stroma and are virtually entirely made up of epithelial cells. This often results in a cancer being incorrectly diagnosed.

After surgical excision, recurrence rates range from 0 to 8%, and recurrent recurrences raise the chance of cancerization.[10] Predominantly myxoid stroma, an uneven or invaded capsule, and multinodularity are risk factors for recurrence.

In the absence of resection, the probability of malignant transformation is 6%[8] and is expected to be 1.5% within 5 years.[11] The mechanisms underlying malignant transformation, however, are still poorly understood, and there is currently no agreement on the most reliable histology indicators. According to Röijer et al., genetic determinants underlying the malignant development of PA may include the amplification and overexpression of HMGIC as well as perhaps MDM2.[12] The most frequent variety of a nasal septal neoplasm, carcinoma ex pleomorphic adenoma, which has the capacity to spread, is more likely to be malignant than those from other places in the nose. Although bone is the main metastatic location, the liver, local lymph nodes, and the lungs have also been implicated.

## 4. Conclusion

In conclusion, pleomorphic adenomas in accessory salivary glands are extremely uncommon; they are even more uncommon in the nasal cavity, where they often develop from the nasal septum. When opposed to their major salivary gland counterparts, the ones that develop in the nasal cavity tend to have a higher epithelial and a lower stromal component, and they may be misdiagnosed at an early stage, leading to harsher therapy. Therefore, if a patient present with unilateral nasal obstruction or epistaxis caused by a tumor, this diagnosis should be given careful consideration.

## 5. Ethical Declaration

Ethical clearance was taken from the competent authority for this work.

## 6. Conflict of Interest

The authors declare that they have no conflict of interest.

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