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SINONASAL INVERTED PAPILLOMA: A CASE REPORT

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ABSTRACT Inverted papilloma is a benign epithelial neoplasm that arises within underlying stroma of the nasal cavity and less commonly paranasal sinuses. Ward first documented the occurrence of inverted papilloma in the sinonasal cavity.[3] It is relatively uncommon, accounting for less than 4% of mucosal tumors in this region. The tumor is well known for its invasiveness, tendency to recur and association with malignancy. Reingertz histologically described the nature of the tumor and noted its classic inverted nature in underlying connective tissue stroma.[4]The tumor is characterized by a high recurrence rate, associated epithelial malignant tumors (5-8%), and bone destruction. The CT appearance of inverted papilloma is variable and non-specific. Nonetheless, inverted papilloma is the most likely diagnosis when a unilateral mass in the nasal vault, producing benign bony changes, extends centrifugally into the maxillary and ethmoidal sinuses and through the nasal choana into the nasopharynx in an elderly patient with chronic nasal obstruction. Recurrence rates of inverted papilloma are highly unacceptable, which actually represents residual disease in most cases. In this study, we have presented a case report and reviewed the histological features of sinonasal inverted papilloma.

KEYWORDS :

CASE REPORT

A 54-year-old female patient reported in E.N.T opd with a chief complaint of a mass in the right nasal cavity since 3 years. The patient also gave history of right nasal blockage and nasal discharge since 3 years. she also gives the history of headache,snoring, right ear blocking sensation. It was a slow growing growth since onset. On anterior rhinoscopy, a solitary, pinkish, pedunculated, irregular, firm mass was located in right nasal cavity. On probing, mass was attached to lateral wall of right nasal cavity and mass did not bleed on touch.

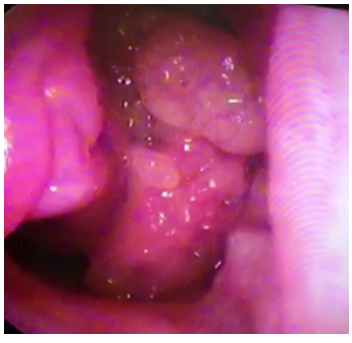

FIG 1. Mass Seen In The Right Nasal Cavity.

Computed tomography (CT) scan was advised and it revealed that soft tissue attenuating(50HU) content noted filling right maxillary sinus causing widening of the maxillary ostium and extending into right nasal cavity and choana (fig1,2,4) .

CT SCAN OF INVERTED PAPILLOMA

Mass filling the right nasal cavity

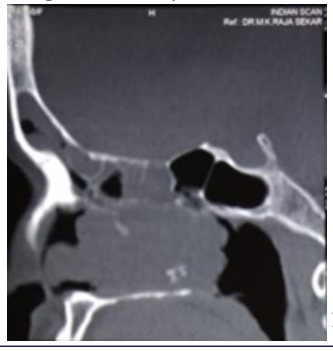

FIG1

Mass seen the right paranasal sinuses

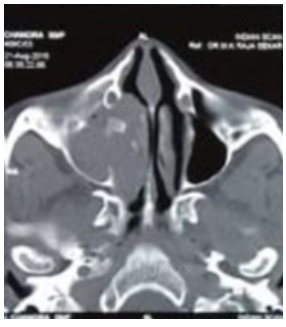

FIG2.

Based on the clinical features and radiographic findings, a provisional diagnosis was given as ac polyp and inverted papilloma. The mass was surgically excised by Endonasal endoscopic surgery and the excised tissue was sent for histopathological examination. Postoperative period is uneventful.

Gross examination revealed a multiple grey white of soft tissue specimen of size approximately2.5x1.5x1cm, pinkish-white in color, irregular in shape, hard in consistency with rough surface texture. On histological examination, the hematoxylin and eosin stained section showed polypoid tissue covered with pseudostratified columnar ciliated epithelium with admixed mucocytes (goblet cells) and intraepithelial mucous cysts at places, which showed inversion into the underlying connective tissue stroma to form large clefts, ribbon and islands. The connective tissue cores were fibrocellular in nature with chronic inflammatory cells chiefly lymphocytes. Also neutrophilic microabscess within squamous nests.cellular island also surrounds bony spicles. Clinicopathologic correlation was suggestive of final diagnosis of inverted papilloma (Figures 3).

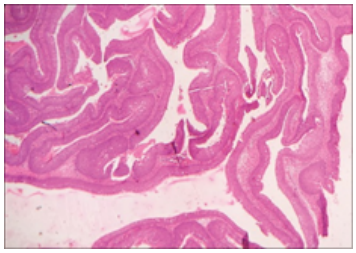

FIG 3: histopathology Of Inverted Growth Pattern.

DISCUSSION

Radiological studies are commonly used to evaluate inverted papilloma with Inverted papilloma also called as Ringertz tumor, trasitional cell papilloma, fungiform papilloma, cylindrical cell papilloma, schneiderian cell papilloma, epithelial papilloma, papillary sinusitis, soft papilloma and sinonasal-type papillomas can be defined as a group of benign neoplasm arising from the sinonasal (Schneiderian) mucosa and is composed of squamous or columnar epithelial proliferation with associated mucous cells.[7].

Morphologically distinct benign papillomas divided into:

- Inverted
- Oncocytic (cylindrical or columnar cells)
- Fungiform (exophytic, septal).

Inverted papillomas represent <5% of all sinonasal tract tumors. The literature indicates that among sinonasal-type papillomas, the septal papilloma is the most common; however, practical experience indicates that the inverted type is the most common subtype and the oncocytic type is the least common.. Inverted papilloma occur along the lateral nasal wall (middle turbinate or ethmoid recesses), with secondary extension into the paranasal sinuses. They may originate in paranasal sinus with/without involving nasal cavity. Typically, the inverted papilloma are unilateral; bilateral papilloma may also occur. Symptoms vary according to the site of occurrence and include airway obstruction, epistaxis, headache and a symptomatic mass or pain. Inverted papilloma may occur simultaneously with nasal inflammatory polyps.

The viral etiology has been suggested in few studies and inverted papilloma are reported to be positive for human papillomavirus (HPV) HPV 6, HPV 11, HPV 16, HPV 18 and Epstein-–Barr virus have been isolated.

TABLE 1. Krouse Classification, From [28].

	Krouse staging system for inverted papilloma
T1	Tumor totally confined to the nasal cavity, without extension into the sinuses. There must be no concurrent malignancy.
T2	Tumor involving the ostiomeatal complex, and ethmoid sinuses, and/or the medial portion of the maxillary sinus, with or without involvement of the nasal cavity. There must be no concurrent malignancy.
T3	Tumor involving the lateral, inferior, superior, anterior, or posterior walls of the maxillary sinus, the sphenoid sinus, and/or the frontal sinus, with or without involvement of the medial portion of the maxillary sinus, the ethmoid sinuses, or the nasal cavity. There must be no concurrent malignancy.
T4	All tumors with any extranasal/extrasinus extension to involve adjacent, contiguous structures such as the orbit, the intracranial compartment or the pterygomaxillary space. All tumors associated with malignancy

CT scan and magnetic resonance imaging (MRI) scan being the most common. Bony changes including bowing of the bones located near the mass are common CT findings. Tumors involving the maxillary sinus may lead to widening of infundibulum on CT scan, making the uncinate process difficult to discern.[8] "Bone-remodeling" may be a better term to describe the changes that occur secondary to the constant pressure and mass effect on surrounding bony structures from inverted papilloma,[19] commonly seen at the medial wall of the maxillary sinus and lamina papyracea.[1,6] It is postulated that the bony skull base may have limited response to pressure caused by inverted papilloma, leading to more erosive changes rather than remodeling.[1,9,10] In addition, contrast CT scan may demonstrate slight enhancement and calcification.[9]

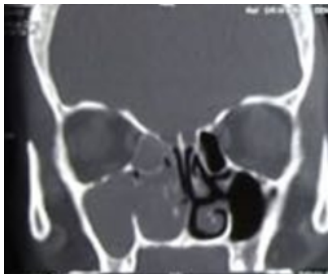

FIG4. Maxillary Ostium Is Widened.

MRI scan with T1-weighted images with contrast and T2-weighted images can be used to differentiate between tumor mass and postoperative secretions.[1,2,9,11,12] Sometimes, in cases without bony destruction, neither CT nor MRI is helpful in the qualitative diagnosis, but they at least provide the suspicion of a neoplasm.[13] MRI is the first imaging modality to perform in the follow-up after removal of inverted papilloma.[14] However, in this case, MRI was not performed since patient was poor. On gross appearance, the inverted papillomas appear to be exophytic, polypoidal and vascular. It is pink to gray in color, with frond-like projections extending from the bulk of the lesion,[7] vary from firm to friable in consistency.

Histologically, inverted papillomas have an endophytic or inverted growth pattern consisting of markedly thickened squamous epithelial proliferation growing downward into the underlying connective tissue stroma to form large clefts, ribbons and islands. The epithelium varies in cellularity and is composed of squamous, transitional and columnar with admixed mucocytes (goblet cells) and intraepithelial mucin microcysts. A mixed chronic inflammatory cell infiltrate is characteristically seen within all layers of the surface epithelium. The cells are generally bland in appearance with uniform nuclei and no piling up; however, pleomorphism and cytoplasmic atypia may be present. The epithelial component may demonstrate extensive clear cell features indicative of abundant glycogen content. Mitotic figures may be seen in the basal and parabasal layers, but atypical mitotic figures are not seen. Surface keratinization may be present. The stromal components vary from myxoid to fibrous, with admixed chronic inflammatory cells and variable vascularity. Intraepithelial mucocytes show intra cytoplasmic mucin positive material, which is Mucicarmine positive and diastase – resistant, PAS – positive.

Differential diagnosis includes sinonasal inflammatory polyps, nonkeratinizing respiratory carcinoma and verrucous carcinoma. Sinonasal inflammatory polyps are clinically similar but histopathologically epithelial alterations are seen in inverted papillomas and not in the inflammatory polyps. Sometimes nonkeratinizing respiratory carcinoma mimics inverted papillomas and then they can be differentiated by the presence of dysplastic features in carcinoma. In verrucous carcinoma, characteristically, cleft-like spaces lined by a thick layer of parakeratin extending from the surface deeply into the lesion which is the hallmark of verrucous carcinoma, is seen and is absent in inverted papilloma.[15]

Inverted papilloma is a benign neoplasm with an association with squamous cell carcinoma. Krouse documents the occurrence of malignancy as 9.1% in all patients with inverted papilloma.[16]. Squamous cell carcinoma may present in the setting of inverted papilloma in three different circumstances. First, patients may present with small foci of squamous cell carcinoma within inverted papilloma. The patient may also present with malignancy as a separate synchronous lesion and not within inverted papilloma and finally, the patient may present with metachronous carcinoma in areas of prior resection of benign inverted papilloma.[1,7,17]

This association with malignancy, along with a propensity for invasion and recurrence, drives the treatment paradigm for inverted papilloma. Treatment includes complete surgical excision, including the adjacent uninvolved mucosa, as the later is necessary as growth and extension along the mucosa results from the induction of squamous metaplasia in the adjacent sinonasal mucosa. Initially, in 18th century, inverted papillomas were excised via a endoscopic method. In fact, these early procedures mimicked polypectomies.[1,18,19] Although the intent of these procedures were curative,recurrence rates of 40–80% were unacceptably high.[2]

CONCLUSION

Inverted papilloma is a benign sinonasal tumor comprises only 0.5–4% of all primary nasal tumor. The etiology of which is unknown. High risk of recurrence and the risk of carcinomatous progression warrant wide surgical resection, ideally based on the tumor insertion point as found on radiologic examination and histopathological examination should be done. Endonasal endoscopic surgery seems to provide equivalent or better results than surgery on an external approach. The patient has better results without recurrence.

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