



## HISTOPATHOLOGICAL STUDY OF NASAL MASSES, A RETROSPECTIVE STUDY IN A TERTIARY CARE CENTRE OF JHARKHAND

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**ABSTRACT** **Background:** Neoplastic and non-neoplastic lesions of the nasal cavity are common conditions in routine clinical practice among almost all age group of people. **Objective:** This study was carried out to recognize variety of benign and malignant nasal lesions with regard to age and sex in our region. **Methods:** A retrospective study was done for a period of 1 year (January 2021 to December 2021). In this study, 50 patients are selected who presented in our hospital with nasal masses and having multiple clinical presentation. **Result:** Analysis of 50 cases of masses in nasal cavity, paranasal sinuses and nasopharynx was done. Nasal polyp was the most common non-neoplastic lesion. Among the neoplastic lesions, inverted papilloma was the most common benign lesion and squamous cell carcinoma was the most common malignant lesion. **Conclusion:** Nasal masses are more common in males. For proper evaluation of Sino nasal masses, clinical, radiological and histopathological evaluation should be done in all patients, but histopathology always gives a confirm diagnosis.

### KEYWORDS :

#### INTRODUCTION

The nasal cavity, nasopharynx and paranasal sinuses form functional unit of nose. It is primarily involved in filtering, humidifying and adjusting the temperature of inspired air<sup>1</sup>. Sinonasal and nasopharyngeal masses are common findings in ENT out patient department. They may be congenital, inflammatory, neoplastic, non-neoplastic or traumatic in origin. Unilateral nasal diseases with or without nasal masses/polyp is much more common likely than bilateral diseases to represent proliferative diseases and usually is treated by surgical excision. Some authors suggest that any unilateral nasal mass should always consider neoplastic until proven otherwise<sup>2,3</sup>.

Several characteristic help in differentiating benign from malignant diseases, including clinical presentation, gross appearance, tumor location and extension and radiological parameters among others<sup>4,5</sup>.

#### Normal Nasal Anatomy

The nasal cavity commences at the external nasal valve, which is defined by the lower lateral cartilage, inferior septum, nasal valve, nostril and alae. Superiorly, the septum and nasal bone bones provide the structural support of the nose. The septum is a midline structure that separates the two nostrils and is composed of cartilage anteriorly and bone posteriorly. The internal nasal valve is the narrowest aspect of the nasal cavity and is formed by the septum, inferior turbinate and upper lateral cartilage on either side. There are three turbinate (superior, middle and inferior) that arises from the lateral nasal wall; there function is to humidify, warm and filter air. Inferolateral to each turbinate is a corresponding meatus into which paranasal sinuses and nasolacrimal duct open<sup>6</sup>.

Most of the patient present with complaint of nasal obstruction<sup>7</sup>. Other symptom includes nasal discharge, post nasal discharge, facial pain, alteration in taste. Atopic features -pruritus, epiphora and sneezing. Clinical features and imaging techniques help us in reaching a provisional diagnosis but histopathological examination remains the main stay for making a final definitive diagnosis<sup>8</sup>.

#### METHODS

The study was done for a period of 1 year (January 2021 to December 2021) and it was a retrospective study done in department of Pathology, Rajendra Institute of Medical College. The study comprises of 50 patients – 34 males and 16 females.

#### Inclusion Criteria

Patient attending ENT outpatient department with complains of mass in nose, nasal blockage and nasal discharge were included in the study.

#### Exclusion Criteria

Patients not willing to give consent for biopsy were excluded from the study.

Only fresh viable sample were included in the study. The purpose and objective of study were explained to the patient in their local language and their written consent were taken.

The patient were diagnosed and operated in the department of ENT. Incision and Excision biopsies were performed and tissues were sent for histopathological examination. All the tissues were fixed in 10% neutral buffered formalin and processed as routine paraffin embedded sections. 4-5 µm thick sections were cut and stained with haematoxylin and eosin (H and E) stain.

#### RESULT

In our study a total of 50 patients were studied. Non neoplastic masses formed the largest group of lesions 36 cases (72%) followed by 14 cases (28%) of neoplastic masses.

Non neoplastic masses were common in age groups 1<sup>st</sup> and 2<sup>nd</sup> decades, while neoplastic masses were more common in 3<sup>rd</sup> and 6<sup>th</sup> decades.

Table 1 shows age wise distribution of patients in the study population, Table 2 shows gender wise distribution of the study population.

| Age   | Nasal polyp | Inverted papilloma | Rhinospodiosis | Keratinous cyst | Mucormycosis | Sino nasal carcinoma | Angiofibroma | Hemangioma |
|-------|-------------|--------------------|----------------|-----------------|--------------|----------------------|--------------|------------|
| 0-10  | 1           |                    | 1              |                 |              |                      |              |            |
| 11-20 | 15          |                    | 1              |                 |              |                      |              | 1          |
| 21-30 | 4           |                    |                | 2               |              |                      | 4            | 2          |
| 31-40 |             |                    | 3              |                 |              | 2                    | 4            |            |
| 41-50 |             |                    | 1              |                 | 1            |                      |              |            |
| 51-60 |             |                    |                |                 | 2            | 1                    |              |            |
| 61-70 | 1           | 2                  |                |                 | 1            | 1                    |              |            |
| Total | 21          | 2                  | 6              | 2               | 4            | 4                    | 8            | 3          |

Table 1: Age wise distribution of the patients in the study population.

| Type of lesions        |    | Male | Female |
|------------------------|----|------|--------|
| Nasal Polyp            | 21 | 16   | 5      |
| Inflammatory Papilloma | 2  | 2    |        |
| Rhinospodiosis         | 6  | 6    |        |
| Keratinous cyst        | 2  | 1    | 1      |
| Mucormycosis           | 4  | 2    | 2      |
| Sino nasal carcinoma   | 4  | 4    |        |
| Angiofibroma           | 8  | 7    | 1      |
| Haemangiomas           | 3  | 2    | 1      |
| Total                  | 50 |      |        |

#### DISCUSSION

Prolonged irritant dust inhalation, smoking, nickel, chromium,

radium, isopropyl alcohol, toxic gases such as isopropyl alcohol, toxic gases such as mustard gas constitutes the aetiology of nasal cavity tumors. Radiation exposure (diagnostic or therapeutic), immunosuppression or the lesions that carry the risk for malignant transformation such as inverted papilloma increases the frequency of the malignant lesions<sup>9,10</sup>. However, nasal cavity malignant lesions are rare, but the similar clinical features of the benign and malignant lesions in the beginning may delay the diagnosis<sup>11</sup>.

Nasal polyps are the most common lesion involving in this region. Most common in 1st decade followed by 2nd decade. Ninety eight percent of the ethmoidal polyp and 2% cases of antrochoanal polyps were bilateral. All patients presented with presented with the symptoms of nasal stiffness and obstruction. Other symptoms were alteration of smell, headache, sneezing and discharge.

On examination, the mass was pale, glistening grape like, insensitive to probing and did not bleed on touch. Microscopically, the polyps were composed of loose mucoid stroma infiltrated by lymphocytes, plasma cells, neutrophils with mucus glands covered by respiratory epithelium. We found 21 cases of nasal polyp in our study.

Angiofibroma- Rare tumor, usually occurs in adolescent males, rarely in older patients or women. 75% have androgen receptor but not estrogen or progesterone receptors. It arises from erectile - like fibrovascular stroma in posterolateral wall of roof of nose, may grow into nasopharynx, orbit or cranial cavity. Nasopharyngeal angiofibroma are well circumscribed but unencapsulated polypoid fibrous mass, bleeds severely on manipulation and biopsy, may occlude nare<sup>12</sup>.

Microscopic description- Intricate mixture of stellate and staghorn blood vessels with variable vessel wall thickness ranging from single layer of endothelium to variable smooth muscle coat. Irregular fibrous stroma (loose, oedematous to dense, acellular). Stromal cells are stellate fibroblasts with small pyknotic to large vesicular nuclei. Large vessels at base of lesion, smaller vessels with plump endothelial cells at growing edge of tumor. We found 8 cases of Angiofibroma.

Rhinosporeidiosis is endemic in Asian countries<sup>13</sup>. Causative organism is *Rhinosporeidium seeberi*. Rhinosporeidiosis were four times common in males and most of the patients were in 2nd and 4th decade of life, who shared same pond with that of cattle. It is characterised by hyperplastic polypoid lesions of nasal cavity and rarely of other mucous membranes. Diagnosis is made by identification of numerous globular cysts measuring up to 200 nm in diameter. Each of these cysts represent a thick-walled sporangium containing numerous spores. We found 6 cases of rhinosporeidiosis in our study.

Malignant nasal cavity tumors are 80% squamous cell carcinoma and often originates from maxillary sinus of the malignant tumors are adenocarcinoma and adenoid cystic carcinoma. Other malignant tumors are extremely rare. They mimic the symptoms of chronic sinusitis, thus once diagnosed, they invade or infiltrate other structures<sup>14</sup>. Local osteolytic, perineural or perivascular invasion or metastatic invasions to the lungs or skeleton identified cross - sectionally addresses the malignant potential of the tumor. We found 4 cases of Sino nasal carcinoma in our study.

Rhino cerebral mucormycotic is a rare invasive fungal infection, with potentially fulminant course most commonly associated with diabetic ketoacidosis, hematologic malignancies, acquired immunodeficiency syndrome, and immunosuppressive therapy<sup>15</sup>. It is considered to be the most fatal fungal infection known to man because it is rapidly disseminated by the blood vessels. The clinical manifestation starts as sinusitis, rapidly progressing to involve neighbouring tissue like the orbit, eye and optic nerve and extend to the brain. Facial oedema, pain, necrosis, loss of vision, black discharge along the nasal cavity, angle of the eye and proptosis are usual features. We found 4 cases of Mucor mycosis in our study.

Sino nasal haemangiomas are uncommon in literature<sup>16</sup>. In our study we, 3 cases were cavernous haemangiomas.

Inverted papilloma is benign neoplasm of the respiratory mucosa, commonly presenting with nasal stuffiness, nasal obstruction or epistaxis. Most cases are seen in adult men. Many adjectives have been attached to them, such as inverted, cylindrical cell, everted, squamous

and Schneiderian. The papilloma arising in the nasal septum are usually exophytic and mushroom shaped, with a thin central core of connective tissue.

Microscopically, Sino nasal papilloma are composed of proliferating columnar or squamous epithelial cells with an admixture of mucin containing cells and numerous microcysts. Some tumors are partially or entirely composed of swollen, granular, eosinophilic cells with features of oncocytes<sup>17</sup>. We found 2 cases of inverted papilloma in our study.

Keratinous cyst is a kind of epidermal cyst filled with keratin originating from the epidermis, most often from a hair follicle. We got 2 cases of Keratinous cyst in our study.

## Conclusion

Sino nasal masses have similar presenting symptoms clinically, on basis of which differentiation of malignant lesions from non-malignant lesions was not possible accurately. Most common presenting symptom of Sino nasal masses was nasal obstruction. Nasal polyp was the most common benign lesion and squamous cell carcinoma was the most common malignant lesion. Sino nasal masses is more common among males. Benign lesions are more common in younger patients while malignant lesions are more found in elderly patients. Surgery was the treatment of choice of most of the non-neoplastic Sino nasal masses. The presenting features, symptoms and advance imaging techniques help to reach presumptive diagnosis, but histopathological examination remains the mainstay of final diagnosis. Thus, a careful histopathological correlation is mandatory for proper diagnosis and early treatment of patients.

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