

# Histopathological study of nasal mass – A study of 110 cases

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## Abstract

A histopathological analysis of nasal mass was done over a period of 2.5 years in Government Thiruvapur Medical College, Thiruvapur. In this study 110 patients were selected who presented in our hospital as nasal mass. All cases were carefully examined histopathologically and found that most of them i.e. 102 cases were non neoplastic and 8 cases were neoplastic. Of neoplastic, 2 cases were malignant and 6 cases were benign. Of non neoplastic cases, the decreasing order of frequency were Inflammatory polyp, Rhinosporidiosis, Aspergillus infection and Mucor mycosis

**Keywords:** Histopathology, Nasal mass, Non neoplastic and neoplastic.

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## INTRODUCTION

Nasal polyp is not a disease but a physical finding with number of causes and associated conditions.<sup>1</sup> Nasal polyp is relatively common condition found in 1 – 4 % of the general population and in high percentage among some selected groups of patients. The polyps are found in 36% of patients with aspirin intolerance, 7% with asthma, 20% with cystic fibrosis and 2 % with chronic rhinosinusitis.<sup>2</sup> A variety of non neoplastic and neoplastic conditions present as nasal polyp. Non neoplastic conditions such as Wegener's granulomatosis, sarcoidosis, rhinosporidiosis, benign neoplastic conditions such as inverted papilloma, capillary hemangioma, angiofibroma, chondroma, plasmacytoma, meningioma, leiomyoma, schwannoma, meningoencephalocele, pituitary adenoma, paraganglioma and malignant conditions such as squamous cell carcinoma, adenocarcinoma, malignant

melanoma, chordoma, olfactory neuroblastoma, rhabdomyosarcoma and adenoid cystic carcinoma can present as nasal polyp.<sup>2,3</sup> Nasal polyp are often bilateral and multiple which lead to broadening of nose. Simple nasal polyps are round, smooth, soft, translucent, yellow or pale glistening structures attached to the nasal or sinus mucosa by narrow stalk. They are non tender and most common site of origin is mucosa of ethmoidal labyrinth. Nasal polyps are most frequent in middle aged males.<sup>4</sup>

## MATERIALS AND METHODS

This study is conducted in the Pathology department of Government Thiruvapur Medical College, Thiruvapur over a period of 30 months. A total of 110 cases clinically diagnosed as nasal polyp were selected for this study. Attention was given to age, sex, laterality, non neoplastic and neoplastic lesions. In OPD each and every patient was thoroughly examined and routine haematological, radiological investigations were performed. After excision of nasal mass, tissues were submitted for histopathological examination. All tissues were fixed in 10% formalin and processed routinely. Sections of 4 – 5 micron thickness were cut and stained with hematoxylin and eosin (HandE), special stains such as PAS and Giemsa were done for fungal cases.

## RESULTS

During the period of study a total of 160 specimens were received from ENT department. Of these 110 cases with

clinical diagnosis of nasal polyp were taken up for study. Out of 110 cases studied 92.72% were nonneoplastic and 7.28 % were neoplastic.

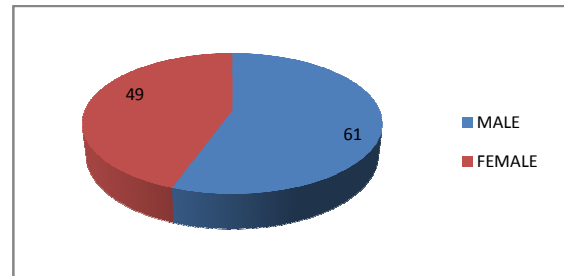
**Table 1:** Shows different lesions presenting as nasal polyp

| Lesions                | No. Of Cases | Percentage (%) |
|------------------------|--------------|----------------|
| Non neoplastic         | 102          | 92.72          |
| Neoplastic - Benign    | 6            | 5.45           |
| Neoplastic - Malignant | 2            | 1.83           |

Non neoplastic nasal masses were more common in the age group of 2nd and 3rd decades where the neoplastic masses were more in 6th and 7th decades. The age of the patients having inflammatory polyps ranged from 11 to 70 years with peak incidence between 2<sup>nd</sup> and 4<sup>th</sup> decade of life.

**Table 2:** Gender wise distribution of nasal mass

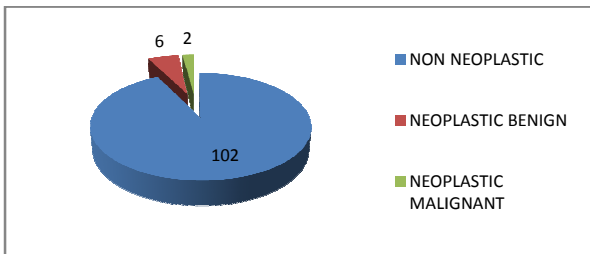
|        | No. of cases | Percentage (%) |
|--------|--------------|----------------|
| Male   | 61           | 55.45          |
| Female | 49           | 44.55          |



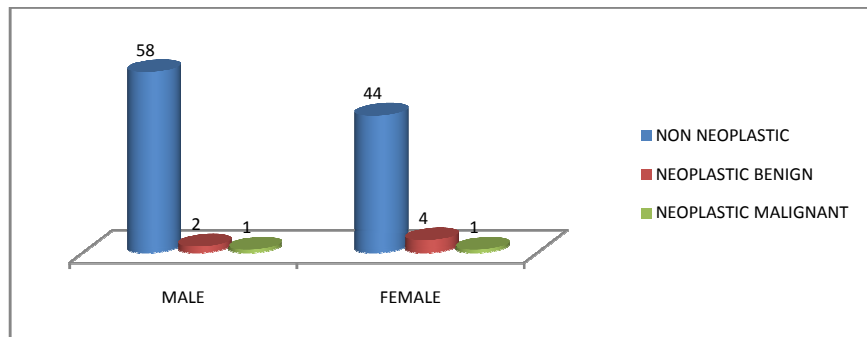
**Figure 2:** Gender wise distribution

**Table 3:** Gender wise distribution of non neoplastic nasal mass

|        | No. of cases | Percentage (%) |
|--------|--------------|----------------|
| Male   | 58           | 52.73          |
| Female | 44           | 40.00          |



**Figure 1:** Distribution of nasal masses



**Figure 3:** Gender wise distribution of non neoplastic and neoplastic cases

**Table 4:** Gender wise distribution of neoplastic nasal mass

|        | Benign       |                | Malignant    |                |
|--------|--------------|----------------|--------------|----------------|
|        | No. of cases | Percentage (%) | No. of cases | Percentage (%) |
| Male   | 2            | 1.83           | 1            | 0.91           |
| Female | 4            | 3.63           | 1            | 0.91           |

**Table 5:** Age wise distribution of nasal mass

| AGE (in yrs) | Up to 10 | 11 – 20 | 21 – 30 | 31 – 40 | 41 – 50 | 51 - 60 | 61 – 70 | 71 – 80 |
|--------------|----------|---------|---------|---------|---------|---------|---------|---------|
| No. of cases | 10       | 26      | 21      | 18      | 20      | 8       | 6       | 1       |
| Percentage   | 9.09     | 23.64   | 19.1    | 16.36   | 18.18   | 7.27    | 5.45    | 0.91    |

**Table 6:** Distribution of nasal mass depending on laterality

|                | Right | Left  | Bilateral |
|----------------|-------|-------|-----------|
| No. of cases   | 52    | 39    | 19        |
| Percentage (%) | 47.27 | 35.45 | 17.27     |

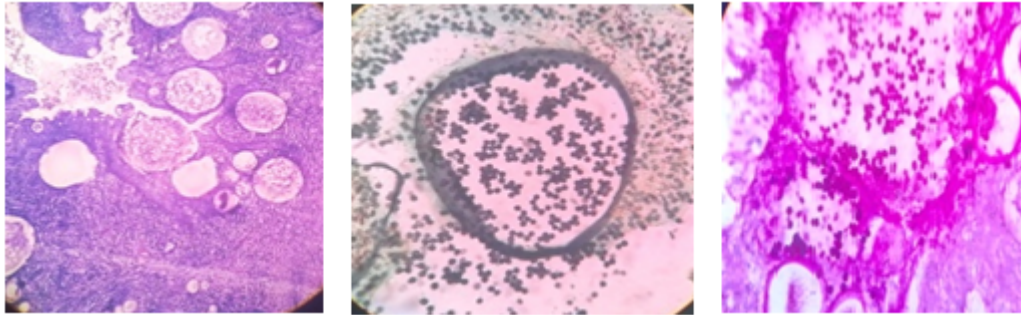


Figure 4

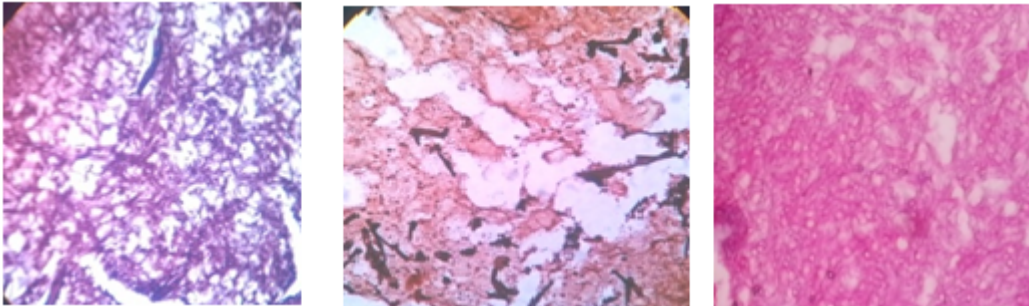


Figure 5

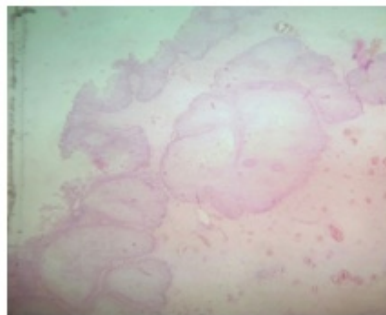


Figure 6

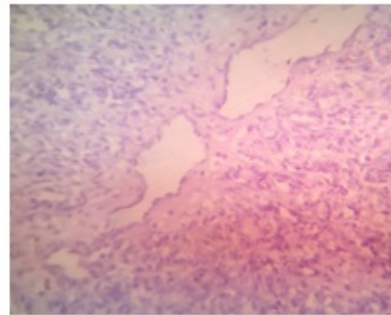


Figure 7

Figure 4: rhinosporidiosis showing sporangium in hpe,gms,pas

Figure 5: mucormycosis showing hyphae in hpe,gms,pas

Figure 6: inverted papilloma in hpe

Figure 7: lobular capillary hemangioma in hpe

## DISCUSSION

Nasal masses are not true neoplasm, their formation is associated with inflammation, allergy, infection or mucovisidosis.<sup>5</sup>

**Age:** The age of presentation ranged from 1<sup>st</sup> to 8<sup>th</sup> decade of life. The mean age of presentation was 32 years. The youngest was 4 years and oldest was 75 years. **Sex:** Male to female ratio was 1.2:1. The incidence was more common among male patients. Among nasal polyps, the non neoplastic lesions in the decreasing order of frequency are allergic nasal polyp (62 cases), rhinosporidiosis (35 cases), aspergillus (4 cases) and mucormycosis (1 case). The neoplastic lesions in the decreasing order of frequency are inverted papilloma (3 cases), lobular capillary hemangioma (2 cases),

neurofibroma (1 case), hemangiopericytoma (1 case) and squamous cell carcinoma (1 case). Bilaterality in 19 cases (17.27%) and others are unilateral.

Table 7: Comparison table

| Diagnosis                    | No. Of Cases | Percentage (%) |
|------------------------------|--------------|----------------|
| Allergic nasal polyp         | 62           | 56.36          |
| Rhinosporidiosis             | 35           | 31.82          |
| Aspergillus                  | 4            | 3.64           |
| Mucormycosis                 | 1            | 0.91           |
| Inverted papilloma           | 3            | 2.73           |
| Lobular capillary hemangioma | 2            | 1.82           |
| Neurofibroma                 | 1            | 0.91           |
| Hemangiopericytoma           | 1            | 0.91           |
| Squamous cell carcinoma      | 1            | 0.91           |

The patients commonly presented with symptom of nasal obstruction and mass protruding from the nostril. Other

symptoms were loss of smell, headache due to sinusitis, sneezing, mucoid or watery discharge. Microscopically the polyps were composed of loose mucoid stroma, mucous glands lined by respiratory epithelium. The epithelium in some cases show squamous metaplasia. The stroma was infiltrated by lymphocytes, plasma cells, neutrophils and eosinophils.<sup>1,6</sup> Rhinosporidiosis is an inflammatory disease endemic in India, but it had also been reported in other parts of the world. The causative organism is *Rhinosporidium seebri*. It is characterized by hyperplastic polypoidal lesion of nasal cavity and rarely other mucous membrane. Microscopically there is numerous globular cysts measuring upto 200 nm in diameter, represents thick walled sporangium containing numerous spores.<sup>8,12</sup> In our study 35 cases have been reported. Sinonasal papillomas are benign neoplasm of respiratory mucosa presented with nasal stuffiness, nasal obstruction or epistaxis. Most cases are seen in adult men but also occur in children. Many adjectives have been attached to them such as inverted cylindrical cell, everted, squamous and schneiderian. In contrast to inflammatory polyps, sinonasal papillomas are unilateral in majority of cases. The papillomas arising in the nasal septum are usually exophytic and mushroom shaped (fungiform or everted), with a thin central core of connective tissue. Those located in the lateral wall are of the inverted type, with inward growth of the epithelium into the stroma.<sup>6,13</sup> In our study, 3 cases of inverted papilloma are reported, in adult men. Microscopically, sinonasal papillomas are composed of proliferating columnar and/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. Occasional mitoses are present in the basal layer.<sup>6,14</sup> The patients with fungal infection such as *Aspergillus* 4 cases and *Mucormycosis* 1 case were reported. Microscopy showed fungal hyphae, inflammation with neutrophils and histiocytes with granulation tissue.<sup>7</sup> Special stain study such as PAS [periodic acid schiff] and GMS [Gomori's methanamine silver] were done to express the fungal elements and spores.

**Table 8:** Overall distribution of different lesions presenting as nasal polyp

| Study                        | Total Cases | Non Neoplastic | Neoplastic | Benign | Malignant |
|------------------------------|-------------|----------------|------------|--------|-----------|
| Dasgupta <i>et al</i>        | 344         | 130            | 214        | 181    | 33        |
| Diamantopoulous <i>et al</i> | 2021        | 2008           | 13         | 8      | 5         |
| Kale <i>et al</i>            | 344         | 328            | 16         | 9      | 7         |
| Shulbha <i>et al</i>         | 100         | 91             | 9          | 6      | 3         |
| Present study                | 110         | 102            | 8          | 6      | 2         |

In present study, out of 110 cases studied, 102 were non neoplastic and 8 were neoplastic. In the study conducted by Shulbha *et al* 91 were non neoplastic and 9 were neoplastic.<sup>1</sup> In a study conducted by Dasgupta *et al*, 344 cases were studied wherein 130 were non neoplastic and 214 were neoplastic lesions.<sup>9</sup> Diamantopoulous *et al* conducted a study in 2,021 patients presenting as nasal polyps and found 2,008 non neoplastic and 13 neoplastic lesions.<sup>3</sup> Kale *et al* studied 344 cases presenting as nasal polyp and found 328 non neoplastic and 16 neoplastic lesions.<sup>10</sup>

## CONCLUSION

The majority of nasal masses sent for histopathological examination are inflammatory secondary to infection / allergy. A variety of benign and malignant lesions of the nose present as nasal masses. Hence all nasal masses must need thorough histopathological examination.

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