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# Sino-nasal mass: An overview of epidemiology, clinical profile, diagnosis and surgical prospect in upper Assam region

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## Abstract

**Introduction:** The term "sinonasal mass" refers to sino-nasal polyps and diverse group of neoplasms, which is divided by WHO into several groups Malignant epithelial tumours, Neuroendocrine tumour, Benign epithelial tumours, Soft tissue tumours, Tumours of bone and cartilage, Haematolymphoid tumours, Neuroectodermal tumours,Germ cell tumours and Secondary tumour.

**Materials and Methods:** We conducted a retrospective study in a tertiary care centre of upper Assam region to find out the incidence, epidemiology, clinical profile, diagnosis and treatment prospect of various sino-nasal mass which were operated in department of Otorhinolaryngology in a period of 6 months from June 2019 to December 2019.

**Result:** Nasal obstruction was seen in 100% cases, Nasal stuffiness in 100 % cases, nasal discharge in 80% cases headache in 80 % cases, epiphora in 48 % cases, hyposmia and epistaxis in 36% cases distortion of external nose in 32% cases proptosis of eye in 16 % cases diplopia in 12 % cases, Facial pain and sensory changes on cheek in 8% cases and dental problem in 4 %cases. Unilateral nasal masses were observed in 76% patients, while the remaining patients had bilateral nasal masses.

**Conclusion:** Benign sinonasal mass are undoubtedly more common than malignant mass.

Maximum patients with sino-nasal mass who attend a tertiary care centre present at late stage. This is due to the late onset of nasal symptoms.

**Clinical Significance:** There are limited number of studies on this topic on North East Indian patients. This article could benefit many other ENT Surgeons and their patients by presenting a reliable indicator.

**Keywords:** Sino nasal mass, demography, Upper Assam Region

## Introduction

The first report in the world medical literature of a nasal exam dates back to the sixth century before

Christ. In the Hindu document Sushruta Samhita, in which is described a tubular nasal speculum, made of Bamboo tree, used to remove nasal polyps. In the era of Arabian Medicine, Avicenna (980–1037 AD) described nasal polyps as 'piles in the nose' or haemorrhoids' in the nose. Abulcasis (Al-Zahrawi) (1013–1106 AD), the greatest of the Arab surgeons, used cautery and pulled the nasal polyp forward with a hook, cut through the pedicle with scissors and then washed the nasal cavity with vinegar. Egyptian used instruments to remove the brain through the nose as part of the mummification process [1].

The term "sinonasal mass" refers to sino-nasal polyps and diverse group of neoplasms, which is divided by WHO into several groups Malignant epithelial tumours, Neuroendocrine tumour, Benign epithelial tumours, Soft tissue tumours, tumours of bone and cartilage, Haematolymphoid tumours, Neuroectodermal tumours,Germ cell tumours and Secondary tumour

Nasal polyps resulting from chronic rhinosinusitis affect approximately 4.3% of the population.An estimated 40% to 80% of people with sensitivity to aspirin will develop nasal polyposis. In people with cystic fibrosis, nasal polyps are noted in 37% to 48% [2].Incidence of Inverted papilloma (IP) accounts for 0.5 percent to 4 percent of the surgically removed nasal tumours with an incidence ranging from 0.6 to 1.5 cases per 100,000 inhabitants per year[3].Incidence of Sinonasal neoplasms are uncommon neoplasms, they account only for 1% of all malignancies[4] and for 3% of all upper respiratory tract malignancies and accounting for only 3% to 5% of all head and neck malignancies [5]. Annual incidence is 0.5-1 new cases /100,000 inhabitants in Italy, whereas relatively high rates for sinonasal malignancies (SNM) were found in Asian and African populations, the highest age-adjusted rates, between 2.5 and 2.6 per 100,000 per annum, occurring in Japanese males[6] .The incidence of olfactory neuroblastoma was found 0.4 cases/million inhabitants per year . The incidence of olfactory neuroblastoma is difficult to establish, but the tumour is not as rare as is commonly reported and probably represents more than 5% of all nasal malignant tumours[7] .Occurrence of head and neck rhabdomyosarcoma in adults is rare. Only 10% of all soft tissue tumours and 1% of all neoplasms in the sinonasal tract are rhabdomyosarcomas[8].

We conducted a retrospective study in a tertiary care centre of upper Assam region to find out the incidence, epidemiology, clinical profile, diagnosis and treatment prospect of various sino-nasal mass which were operated in department of Otorhinolaryngology in a period of 6 months from June 2019 to December 2019.

**Materials and Methods**

A total of 25 cases of sino-nasal mass were included in the study which were operated in department of Otorhinolaryngology in a period of 6 months from June 2019 to December 2019.basic demographic data, detailed history, clinical features at time of presentation, diagnosis (histopathological finding) and surgery performed were noted.

Before commencing the study, necessary permission and approval from ethics committee was obtained. Informed written consents were obtained from each patient involved in the study according to the protocol approved by the Ethics Committee and after explaining them in their own understandable language.The statistical analysis of data was performed using the computer program, Statistical Package for Social Sciences (SPSS for Windows, version 20.0. Chicago, SPSS Inc.) and Microsoft Excel 2010.

**Results**

During the study period of 6months ,total 25 patients of sino-nasal mass which were operated in a tertiary care centre department of Otorhinolaryngology in a period of 6 months from June 2019 to December 2019.Out of 25 cases 18 were male and 7 female.

Nasal polyploidal masses were non-neoplastic in 80% study subjects, and neoplastic in 20% patients. The age range of the patients were 10 to 80 years. Benign masses were common in the age group 10 to 40 years and malignant masses were evenly distributed in study group as mentioned in Table 1.85% patients belonged to lower socioeonomic group and rest in lower middle .32% of patients were student and 68 % patients were farmer by occupation. Out of 25 cases only 1 patient was Muslim with the diagnosis of Sino nasal-papilloma and all other cases were Hindu.

40% patients included in study were from Dibrugarh with 25% cases being diagnosed as antrochoanal polyp as mentioned in Table 2.All the patients included in study belonged to places with similar environment, dietary habits, lifestyle and housing(ill ventilated house with drinking water from tap.36% patients gave history of smoking and 40% patients gave history of alcohol consumption and tobacco chewing.10% patients gave history of exposure to wood .68% of cases gave history of chronic sinusitis of which 95% patients develop nasal polyp.

Nasal obstruction was seen in 100% cases, Nasal stuffiness in 100 % cases, nasal discharge in 80% cases headache in 80 % cases, epiphora in 48 % cases, hyposmia and epistaxis in 36% cases distortion of external nose in 32% cases proptosis of eye in 16 % cases diplopia in 12 % cases, Facial pain and sensory changes on cheek in 8% cases and dental problem in 4% cases as mentioned in Table 3. Unilateral nasal masses were observed in 76% patients, while the remaining patients had bilateral nasal masses.

Histopathological diagnosis is given in (table 4). Nasal polyposis was seen in maximum patients (64% case).

Surgery was the major mode of treatment in all cases. It included polypectomy with functional endoscopic sinus surgery (FESS) in 64% cases , 16% cases were operated with combined endoscopic and lateral rhinotomy approach and radiotherapy was considered as the treatment of choice in 1 patient. (table 4)

None of the case showed recurrence in 3 months of followup .1 case of rhabdomyosarcoma could not be followed up.

**Discussion**

Patients with Sino-nasal mass often present late as their initial symptoms are mild such as chronic rhinitis which is overlooked by patients and their clinicians for months and may be years, particularly in primary health care centres , where these conditions are rarely encountered.The exact cause of sino-nasal mass is unclear.They are, however, commonly associated risk factors like chronic rhino-sinusitis, Allergic fungal sinusitis, Kartagener's syndrome, Young's syndrome,Eosinophilic granulomatosis with polyangiitis,Nasal mastocytosis, smoking, genetic link, exposure to wood, nickle, chromium, aflatoxin, mustard gas, thorium dioxide, radiation, viral , poly-hydrocarbon etc.

Total 25 cases of sino-nasal mass operated in a tertiary care centre department of Otorhinolaryngology in a period of 6 months from June 2019 to December 2019 were included in study.Out of 25 cases 18 were male and 7 female with male : female ratio of 2.5:1.

Jaiganesh Sivalingam et al in their study mentioned that almost all the benign cases were seen in the age group <40 y with mean age of 20 y and most of the malignant

cases were seen in the age group above 40 y with mean age of 55 y. In were study they found male preponderance with male female ratio of 4:1 in both benign and malignant conditions[9].

In our study Nasal polyploidal masses were non-neoplastic in 80% study subjects, and neoplastic in 20% patients. The age range of the patients were 10 to 80 years. Benign masses were common in the age group 10 to 40 years and malignant masses were evenly distributed in study group.

A Lathi et al in their study mentioned that 45% cases were farmer by occupation, 37% labourer, 17% students.67% patient belonged to lower socioeconomic group and 37% to lower socioeconomic group. 63% cases were hindu, 35% were muslim, 7% were christian and 7% other [10].

In our study 85% patients belonged to lower socioeonomic group and rest in lower middle .32% of patients were student and 68 % patients were farmer by occupation. Out of 25 cases only 1 patient was muslim with the diagnosis of Sino nasal-papilloma and all other cases were hindu.

40% patients included in study were from Dibrugarh with 25% cases being diagnosed as antochoanal polyp.All the patients included in study belonged to places with similar environment, dietary habits, lifestyle and housing(ill ventilated house with drinking water from tap.

36% patients gave history of smoking and 40% patients gave history of alcohol contemption and tobacco chewing.10% patients gave history of exposure to wood .68% of cases gave history of chronic sinusitis of which 95% patients develop nasal polyp.

Usha et al in their study mentioned that the common presentation of the sinonasal masses were nasal obstruction (97.3% cases), rhinorrhoea (49.1%), hyposmia (31.3%) and headache (16.9%). Epistaxis was noticed in 17.9% of cases. Among the benign neoplastic lesion, angiofibroma ( 16.49%) was the commonest tumour encountered in the present study followed by hemangioma (14.43%) . Among the malignant cases, squamous cell carcinoma was the commonest malignant tumour. One case each of adenoid cystic carcinoma and mucosal melanoma were also detected during the study period[11].

In our study we found similar results such as nasal obstruction was seen in 100% cases ,Nasal stuffiness in 100 % cases, nasal discharge in 80% cases headache in 80 % cases, epiphora in 48 % cases, hyposmia and epistaxis in 36% cases distortion of external nose in 32% cases proptosis of eye in 16 % cases diplopia in 12 % cases, Facial pain and sensory changes on cheek in 8% cases and dental problem in 4 %cases. Unilateral nasal masses were observed in 76% patients, while the remaining patients had bilateral nasal masses.

Harshad et al. stated that most non-neoplastic and benign neoplastic nasal masses require surgical excision, while malignant neoplastic nasal masses require wide surgical excision, radiotherapy, or chemotherapy either alone or in combination[16].

Lathi et al mentioned in their study that surgical treatment included Caldwell-Luc operation (7.1%), polypectomy (17.8%), excision of mass (25.0%) and functional endoscopic sinus surgery (FESS) (44.6%). Chemotherapy and/or radiotherapy were considered as the treatment of choice in 17.8% of patients. Among 20 cases of antrochoanal polyp, 12 (60%) patients were treated with polypectomy by avulsion and 8 (40%) had undergone polypectomy with the Caldwell-Luc procedure. All 50 patients with bilateral ethmoidal polyps underwent polypectomy/FESS followed by steroid therapy. Only one patient developed recurrence

of bilateral ethmoidal polyp. Malignancies were treated with radiotherapy[10].

In our study also surgery was the major mode of treatment in all cases. It included polypectomy with functional endoscopic sinus surgery (FESS) in 64% cases , 16% cases were operated with combined endoscopic and lateral rhinotomy approach and radiotherapy was considered as the treatment of choice in 1 patient.(table 4)None of the case showed recurrence in 3 months of followup .1 case of rhabdomyosarcoma could not be followed up.

**Conclusion**

Benign sinonasal mass are undoubtedly more common than malignant mass.

Maximum patients with sino-nasal mass who attend a tertiary care centre present at late stage ,this is due to the fact that the recent onset of nasal symptoms are treated in peripheral centres for long time.Therefore all junior doctors should be trained to palpate that nasal symptoms which do not improve with a short course of medical therapy should be given a prompt referral for specialist assessment for better management.There is good evidence that if surgical intervention is taken at early stage then it is easier to achieve excellent disease clearance. Endoscopic removal gives as good, if not better, results when compared to external approaches and helps in achieving an excellent disease clearance.

**Clinical Significance**

There are limited number of studies on this topic on North East Indian patients. This article could benefit many other ENT Surgeons and their patients by presenting a reliable indicator.

**Acknowledgement**

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**References**

1. Ashraf Ahmed Yakoot;The journey of the evolution of rhinology;Egypt J Otolaryngol;2013;29:136-42
2. Bachert, Claus (2014). Middleton's Allergy: Principles and Practice. pp. 686–699.
3. Lampertico P, Russell W, MacComb W. Squamous papilloma of upper respiratory epithelium. Archives of Pathology & Laboratory Medicine 1963;75:293-302.
4. Rinaldo A, Ferlito A, Shaha AR, Wei WI. Is elective neck treat-ment indicated in patients with squamous cell carcinoma of the maxillary sinus?Acta Oto-laryngologica 2002;122(4):443-7.
5. Le QT, Fu KK, Kaplan M, Terris DJ, Fee WE, Goffinet DR.Treatment of maxillary sinus carcinoma: a comparison of the1997 and 1977 American Joint Committee on cancer staging systems. Cancer 1999;86(9):1700-11
6. Muir CS, Nectoux J. Descriptive epidemiology of malignant neoplasms of nose, nasal cavities, middle ear and accessory sinuses. Clinical Otolaryngology & Allied Sciences1980;5(3):195-211
7. Theilgaard SA, Buchwald C, Ingeholm P, Kornum LS, EriksenJG, Sand HH. Esthesioneuroblastoma: a Danish demographic study of 40 patients registered between 1978 and 2000. ActaOtolaryngologica 2003;123(3):433-9

8. Hicks J, Flaitz C. Rhabdomyosarcoma of the head and neck in children. Oral Oncology 2002;38(5):450-9
9. Jaiganesh Sivalingam, Radha Sarawagi,Sameer Raghuwanshi, Pankaj Kumar Yadav;Sinonasal Neoplasia – Clinicopathological Profile And Importance of Computed Tomography;J Clin Diagn Res. 2015 Jun; 9(6)
10. A. LATHI, M.M.A. SYED,P. KALAKOTI,D. QUTUB, S.P. KISHVE;Clinico-pathological profile of sinonasal masses: a study from a tertiary care hospital of India;Acta Otorhinolaryngol Ital. 2011 Dec; 31(6): 372–377
11. Usha Sarma, Srajit Kumar Roy; Histopathological Pattern of Sinonasal Masses Reported in A Tertiary Level Hospital;IJSR; 2014;3:9
12. Sutar HB. Clinicopathological study of nasal polypoidal masses. Annals of International Medical and Dental research. 2015;1(3):315–319.

**Legend Tables**

| Age (Years) | A-C Polyp | Ethmoidal Polyp | Sinonasal Papilloma | Inverted Papiloma | Olfactory Neuroblast-Oma | Invasive Papillary Adenocarcinoma | Rabdomyosar-Coma | Adenoid Cystic Carcinoma | Transitional Cell Carcinoma | Total Number Of Patients |
|---|---|---|---|---|---|---|---|---|---|---|
| 10-20 | 5 | | 1 | | | 1 | 1 | | | 8 |
| 21-30 | 3 | | | 1 | | | | | | 4 |
| 31-40 | 2 | 2 | | | | | | | | 4 |
| 41-50 | 2 | 1 | | | | | | 1 | 1 | 5 |
| 51-60 | | | | 1 | 1 | | | | | 2 |
| 61-70 | 1 | | | | | | | | | 1 |
| 71-80 | | | | | | 1 | | | | 1 |

Table 1: Age wise distribution of study group

| Diagnosis | Dibrugarh | Lakhimpur | Dhemaji | Charaideo | Arunachal Pradesh | Sivsagar | Tinsukia | Jorhat |
|---|---|---|---|---|---|---|---|---|
| A-C Polyp | 7 | 1 | 1 | 1 | | 1 | 2 | |
| Ethmoidal Polyp | 1 | | 1 | | 1 | | | |
| Sinonasal Papilloma | 1 | | | | | | | |
| Inverted Papiloma | | | | | | 1 | 1 | |
| Olfactory Neuroblastoma | | | | | | | | 1 |
| Invasive Papillary Adenocarcinoma | | 1 | | | | 1 | | |
| Rabdomyosa-Coma | 1 | | | | | | | |
| Transitional Cell Carcinoma | | | 1 | | | | | |
| Adenoid Cystic Carcinoma | | | | | | 1 | | |

Table 2: Region wise distribution of study group

| Clinical Presentation | Number Of Patients | Percentage(%) |
|---|---|---|
| Nasal Stuffiness | 25 | 100 |
| Nasal Mass | 25 | 100 |
| Headache | 20 | 80 |
| Mucopurulent Nasal Discharge | 20 | 80 |
| Epiphora | 12 | 48 |
| Epistaxis | 9 | 36 |
| Hyposmia/Anosmia | 9 | 36 |
| Distortion Of External Appearance Of Nose | 8 | 32 |
| Proptosis Of Eye | 4 | 16 |
| Diplopia | 3 | 12 |
| Lateral Rectus Palsy/Squint | 3 | 12 |
| Facial Pain | 2 | 8 |
| Sensory Changes On Skin Of Cheek | 2 | 8 |
| Dental Pain/Teeth Loosening | 1 | 4 |
| Neck Nodes /Distant Metastasis | 0 | 0 |

Table 3: Clinical presentation of the study group

| Diagnosis | Number of Patients | Procedure Performed |
|---|---|---|
| A-C Polyp | 13 | Polypectomy With Fess |
| Ethmoidal Polyp | 3 | Polypectomy With Fess |
| Sinonasal Papilloma | 1 | Combined Endoscopic & Lateral Rhinotomy Approach |
| Inverted Papiloma | 2 | Combined Endoscopic & Lateral Rhinotomy Approach |
| Olfactory Neuroblastoma | 1 | Combined Endoscopic & Lateral Rhinotomy Approach (With Fascia Lata Dura Repair) Followed By Radiotherapy |
| Invasive Papillary Adenocarcinoma | 2 | Tumour Excision With Weber Ferguson Approach |
| Rabdomyosacoma | 1 | Radiotherapy |
| Transitional Cell Carcinoma | 1 | Tumour Excision With Fess |
| Adenoid Cystic Carcinoma | 1 | Subtotal Maxillectomy |

Table 4: Procedure performed in the study group