

AN OVERVIEW OF SINO-NASAL MASSES: A STUDY FROM DHAKA MEDICAL COLLEGE HOSPITAL

TALUKDER DC¹, SARKER SC², AHASAN SA³, HAQUE MM⁴, AREFIN MK⁵, MUSABBIR N⁶, RAHMAN CMM⁷, KABIR SMH⁸

Abstract

Background: To study the incidence, clinical presentation and to observe comparison of different sinonasal masses.

Materials and Methods: This Prospective study was carried out from January 2017 to December 2018. Data were collected from 100 patients presented with sinonasal masses. This study is based on history, clinical, radiological, laboratory and histopathological examination.

Results: During the study period, 100 patients presented with sinonasal masses (male 60, female 40; age group 8-70 years). Nasal polypoid masses were non-neoplastic in 70 (70%) subjects, and neoplastic in 30 (30%) cases. Nasal obstruction was the most common (95%) presenting complaint, followed by rhinorrhoea (48%), hyposmia (30%), intermittent epistaxis (17%), headache (15%), facial swelling (10%) and eye-related symptoms (10%). The most common site of origin of polypoid masses was the middle meatus (54%) followed by the lateral wall of the nasal cavity (15%) and superior meatus (11%). unilateral nasal masses was present in 49% patients, while the remaining patients had bilateral nasal masses. Allergic (60%) and inflammatory (28.5%) polyps were the most common non-neoplastic mass, inverted papilloma (41.17%) and haemangioma (35.29%) were most common benign neoplastic mass; 92.3% of all malignant masses were squamous cell carcinoma. Surgery was the major mode of treatment. it included Caldwell-luc operation (7%), polypectomy (10%), excision of mass (25.0%) and functional endoscopic sinus surgery (44%). Malignancies were treated with radiotherapy or Surgery followed by radiotherapy or Chemoradiotherapy.

Conclusions: The masses in nasal cavity, paranasal sinuses, and nasopharynx encompass a wide spectrum of common and rare diseases and are very common lesions encountered in clinical practice. Endoscopic examination and advanced imaging technique help to reach a presumptive diagnosis but histopathological examination remains the mainstay of final definitive diagnosis.

J Dhaka Med Coll. 2019; 28(1) : 49-54

Introduction

The most prominent part of the face is nose which has substantial aesthetic and functional significance. Anatomical location of the nose and its passage have been regarded as the direct avenue to the brain, man's source of intelligence and spirituality. Nasal masses are common finding in an ENT (Ear, nose and Throat)

outpatient department where most patients present with complaints of nasal obstruction¹. Other symptoms include nasal discharge, epistaxis and disturbances of smell. A sinonasal mass can have various differential diagnoses. They may be congenital, inflammatory, neoplastic (benign or malignant) or traumatic in nature. A congenital nasal mass may present

1. Dr. Debesh Chandra Talukder, Associate Professor, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.
2. Dr. Satinath Chandra Sarker, Medical Officer, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka
3. Dr. Syed Ali Ahasan, Medical Officer, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.
4. Dr. Muhammad Mozammel Haque, Registrar, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.
5. Dr. Mostafa Kamal Arefin, Medical Officer, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.
6. Dr. Nadira Musabbir, MD (Pediatric Gastroenterology), Medical Officer, Dhaka Medical College Hospital, Dhaka.
7. Dr. Chowdhury Md. Mushfiqur Rahman, Assistant Professor, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.
8. Dr. SM Humayun Kabir, Assistant Professor, Department of Radiation Oncology, National Institute of Cancer Research and Hospital (NICRH), Dhaka

Correspondence: Dr. Debesh Chandra Talukder, Associate Professor, Department of ENT & Head Neck Surgery, Dhaka Medical College Hospital, Dhaka.

Received: 12 May 2018

Revision: 26 August 2018

Accepted: 08 September 2018

intranasally, extranasally, or as external nasal mass with or without nasal obstruction ². Congenital masses are predominantly mid line swellings and include dermoids, glioma and encephaloceles as common diagnoses ³. Polyps are a common cause of nasal obstruction in adults with a prevalence of about 4% in the general population ⁴. The present investigation was undertaken to study the clinico-pathological profile of sinonasal masses in Dhaka Medical college Hospital.

Materials and methods

The study was carried out at ENT outpatient department of Dhaka Medical college Hospital, Dhaka. All patients diagnosed with sinonasal masses during the period from January 2017 to December 2018 were included. The criteria for selection of cases were mainly based on history and clinical examination. Detailed history was taken considering the patients' complaints, mainly nasal obstruction, mass in the nose, epistaxis, rhinorrhoea, hyposmia and deformity of nose and face. Clinical examinations were carried out as per standard protocols. Appropriate radiological and laboratory investigations were done as appropriate. Biopsy was taken from all cases for histopathological examination to confirm diagnosis. Patients were treated either by pharmacotherapy, surgery, radiotherapy or chemotherapy or a combination as appropriate. Patients were asked for regular follow up. Ethical approval was obtained from the institutional Ethical Committee of the medical college. Data was analysed using microsoft office Excel 2007.

Results

During the study period, 100 patients presented with sinonasal masses, and confirmed by various investigations. Age and sex distribution of the study population are given in Table i. Nasal polypoidal masses were non-neoplastic in 70 (70%) study subjects, and neoplastic in 30 (30%) patients (Table ii). The age range of the patients were 8 to 70 years. Non-neoplastic polypoid masses were common in the age group 11 to 40 years. Benign neoplastic polypoid masses were common in the age range of 11 to 50 years,

while malignant neoplastic polypoid masses were more common after the third decade of life (Table iii). Nasal obstruction was the most common (95% cases) presenting complaint. Rhinorrhoea (48%), hyposmia (30%), intermittent epistaxis (17%), headache (15%), swelling over face (10%) and eye related symptoms (10%) were other common symptoms. Facial pain (3%) and external nasal deformity (2%) were demonstrated in a minority of patients. Unilateral nasal masses were observed in 49% patients, while the remaining patients had bilateral nasal masses. All the benign as well as malignant polypoid masses presented unilaterally, with the exception one benign neoplastic mass. Among non-neoplastic (62) nasal masses, 42 (67.74%) were multiple and 20 (32.26%) presented as a single mass. All benign and malignant nasal polypoid masses were found to be single except in one malignant case (Table iv). The most common site of origin of the polypoid masses was the middle meatus (54%) followed by the lateral wall of the nasal cavity (15%) and superior meatus (11%). The study further revealed that of 62 cases of true nasal.

Table I
Socio-demographic characteristics of study population.

	N (%)
Gender	
Male	60 (60)
Female	40 (40)
Age Group	
< 10 years	10 (10%)
11-20 years	21 (21%)
21-30 years	20 (20%)
31-40 years	20 (20%)
41-50 years	14 (14%)
51-60 years	05 (05%)
61-70 years	10 (10%)

Table II
Incidence of nasal masses and grouped according to gender.

Type of mass	Male	Female	Total
Non-neoplastic	40	30	70
Neoplastic			
Benign	11	6	17
Malignant	10	3	13
Total	61	39	100

Table III
Distribution of nasal masses according to age.

Age (years)	Non-neoplastic mass	Neoplastic mass (Benign)	Neoplastic mass (Malignant)	Total
< 10	10	0	0	10
11-20	18	3	0	21
21-30	17	3	0	20
31-40	16	4	0	20
41-50	5	6	3	14
51-60	2	0	3	5
61-70	2	1	7	10
Total	70	17	13	100

polyps, 51 (82.26%) originated from the middle meatus and 10 (16.13%) from the superior meatus. Mucoïd discharge was found to be common in non-neoplastic nasal polypoid masses. All patients with malignant neoplastic polypoid masses presented with blood stained discharge or intermittent epistaxis (Table-V).

Table IV
Presentation of nasal masses in the nasal cavity.

	Non-neoplastic mass	Noeoplastic mass (Benign)	Neoplastic mass (Malignant)	Total
Laterality				
Unilateral	20	16	13	49
Bilateral	50	1	0	51
Total	70	17	13	100
Number				
Single	20	15	12	47
Multiple	42	0	1	43
Total	62	15	13	90

(* Cases of rhinoscleroma are not considered; ** a case of angiofibroma is not considered)
Histopathological examination revealed that 60% (n = 42) of the polyps to be allergic in nature (ethmoidal

Table V
Type of nasal discharge through nose.

	Non-neoplastic mass	Neoplastic mass (Benign)	Neoplastic mass (Malignant)
Mucoid	25	2	-
Mucopurulent	14	1	-
Foul smelling	2	0	-
Blood Stained/intermittent epistaxis	3	1	13

polyp), while 28.57% (n = 20) were inflammatory (antrochoanal polyp). rhinoscleroma and rhinosporidiosis were the other two non neoplastic lesions confirmed by histopathological investigation (Table VI). All patients with rhinoscleroma were in the third decade of life with a male-female ratio of 3:1 (3 males, 1 females). Among benign neoplastic lesions, inverted papilloma was the most common (n = 7) followed by haemangioma (n = 6). Mucocele and Angiofibroma were only seen in 2 and 2 cases, respectively. Squamous cell carcinoma represented 92.3% all sinonasal malignancies (Table vi). Surgery was the major mode of treatment in all cases. It included Caldwell-luc operation (7%), polypectomy (10%), excision of mass (25.0%) and functional endoscopic sinus surgery (FESS) (44%). chemotherapy and/or radiotherapy were considered as the treatment of choice in 16% of patients.

Table VI

Histopathological findings of nasal polypoid masses.

Types of lesion	N(%)
Non-neoplastic mass	
Allergic polyp	42 (60%)
Inflammatory polyp	20(28.57%)
Rhinoscleroma	4(5.71%)
Rhinosporidiosis	4(5.71%)
Total	70
Benign neoplastic mass	
Inverted papilloma	7(41%)
Heamangioma	6 (35.29%)
Mucocele	2 (11.76%)
Angiofibroma	2 (11.76%)
Total	17
Malignant neoplastic mass	
Squamous cell carcinoma	12 (92.3%)
Adenocarcinoma	1 (7.7%)
Total	13

Discussion

Sinonasal masses had predilection for males, demonstrating a male to female ratio of 1.5:1. it was higher (male-tofemale ratio of 1.7:1) in the study by Zafar et al. ⁵ from india, while a study from nigeria⁶ revealed an opposite ratio showing female preponderance (M:F ratio of 1:1.2). The 2nd to 4th decades of life are the most vulnerable period for development of sinonasal masses. Bakari et al. ⁶ had reported a peak incidence of 33 years, while for Zafar et al. ⁵ the mean age of presentation was 22.5 years. Malignancies have been reported generally after the fourth decade of life. We found 62% of the sinonasal masses to be non-neoplastic. Such a high proportion of non-neoplastic lesions has been reported in previous studies ^{5,6,7}. Nasal polyp was the most common non-neoplastic mass and was similarly documented by those authors. The incidence of rhinoscleroma (6%) was reported by another similar study ⁵. We found 2 cases of rhinosporidiosis, while Pradhananga et al.⁸ had encountered only one case during their two year study period. Among the benign lesions, capillary haemangioma was found 6 cases in our study. All cases were found to be arising from the cartilaginous part of the nasal septum. This finding corresponds to the observation of Pradhananga et al. ⁸. Inverted papillomas are comparatively rare, but this morphological variant is the most commonly encountered lesion of all sinonasal papillomas⁹. Inverted papilloma was most common 7 (41.17%) benign neoplastic mass in this study, which was marginally higher from the findings of humayun et al. ¹ and Bakari et al. ⁶. The maxillary sinus is the most common site of origin of malignancy¹⁰, while the most common histological type is squamous cell carcinoma ¹¹. It is rarely encountered before

the 4th decade of life. it formed 11.6% of all lesions and 40.6% of neoplastic masses in our study. Svane-Knudsen et al.¹² have similarly reported squamous cell carcinoma to be the most commonly encountered malignancy of sinonasal tract in Denmark.

The common presentation of the sinonasal masses were nasal obstruction, (95% cases), rhinorrhoea (48%), hyposmia (30%) and headache (15%). These findings compare favourably with other studies¹⁶⁷⁸. Unilateral presentation was seen in 49% of cases. This was in contrast with the observations of Bakari et al.⁶ Non-neoplastic inflammatory polyps were usually unilateral and single, while allergic polyps were usually bilateral and multiple in agreement with the analysis of Frosini et al.¹³. Most of 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 combination¹⁴, regular follow-up is necessary for early detection of recurrence or metastases. FESS was the most commonly used surgical intervention (44%) followed by excision of the mass (25.0%).

Conclusions

Sinonasal masses have various differential diagnoses. malignancy should be distinguished from non-malignant lesions. Benign conditions show a peak during second to fourth decade of life, while malignancy is generally observed only after the 4th decade. Polyps are the most common benign lesion, while squamous cell carcinoma is the most common malignant tumour of the sinonasal tract. nasal obstruction is the most common symptom. medical management is often not adequate and has a limited role. Surgery is the treatment of choice for benign lesions, while a combination of surgery and radiotherapy is helpful in malignant conditions.

References

1. Humayunahm, ZahurulhuqAhm, Ahmed SmT, et al. Clinicopathological study of sinonasal masses. Bangladesh J otorhinolaryngol2010;16:15-22.
2. Harley Eh. Pediatric congenital nasal masses. Ear nose Throat J 1991;70:28-32.
3. Valencia MP, castillo M. Congenital and acquired lesions of the nasal septum: a practical guide for differential diagnosis. radio graphics 2008;28:205-23.
4. Hedman J, Kaprio J, Poussa T, et al. Prevalence of asthma, aspirin intolerance, nasal polyposis and chronic obstructive pulmonary disease in a population-based study. int J Epidemiol 1999;28:717-22.
5. Zafar U, Khan n, Afroz n, et al. Clinicopathological study of non-neoplastic lesions of nasal cavity and paranasal sinuses. indian J Pathol Microbiol 2008;51:26-9.
6. Bakari A, Afolabi oA, Adoga AA, et al. Clinicopathological profile of sinonasal masses: an experience in national ear care center Kaduna, Nigeria. BMC research notes 2010;3:186.
7. Dasgupta A, ghoshrn, mukherjee C. Nasal polyps - Histopathologic spectrum. indian J otolaryngol head neck Surg 1997;49:32-6.
8. PradhanangarB, adhikari P, Thapa NM, et al. Overview of nasal masses. J inst med 2008;30:13-16.
9. Syrjänen KJ. HPV infections in benign and malignant sinonasal lesions. J clin Pathol2003;56:174-81.
10. FasunlaaJ, lasisiao. Sinonasal malignancies: a 10-year review in a tertiary health institution. J natl med Assoc 2007;99:1407-1410.
11. weymuller EA, gal TJ. Neoplasms of the nasal cavity. in: cummings cW, Flint PW, harker la, et al. editors. Otolaryngology - Head and Neck surgery. 4th ed. mosby; 2005.
12. Svane-Knudsen v, Jorgensen KE, hansen o, et al. Cancer of the nasal cavity and paranasal sinuses: a series of 115 patients. rhinology 1998;36:12-4.
13. Frosini P, Picarella G, De campora E. Antrochoanal polyp: analysis of 200 cases. Acta otorhinolaryngolital2009;29:21-6.
14. Zy*ka S, Bieñ S, Kamiński B, et al. Epidemiology and clinical characteristics of the sinonasal malignancies. otolaryngol Pol 2008;62:436-41.