



## NON-MALIGNANT LESIONS; CLINICO-PATHOLOGICAL PROFILE OF NASAL CAVITY AND PARANASAL SINUSES

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Article received on:

12/09/2013

Accepted for Publication:

15/11/2013

Received after proof reading:

26/01/2014

### INTRODUCTION

A variety of non-malignant conditions involve the nasal cavity (NC), and paranasal sinuses (PNS), and these are very common lesions encountered in clinical practice of otorhinolaryngology. A large number of diseases affecting these structures are due, in major part to many of the specialized tissues, each with its own aberrations that exist in the region<sup>1</sup>. A sinonasal mass can have various

**ABSTRACT... Background:** The presence of a mass in the nasal cavity and paranasal sinuses may seem to be simple problem, but it is very difficult to differentiate clinically from potentially malignant tumors. **Objective:** To evaluate the clinical presentation and histopathological features of the non malignant lesions of nasal cavity and paranasal sinuses. **Study Design:** Prospective descriptive study. **Place and duration of study:** Study was carried out in departments of Paediatrics and ENT at Ghulam Muhammad Mahar Medical College Hospital Sukkur from Jan 2009 to Dec 2012. **Patients and Methods:** The study included all cases of non-malignant masses of nasal cavity and paranasal sinuses, those attended the Paediatric & ENT department and underwent the surgical intervention. One hundred twenty non-malignant cases were enrolled for this study. A separate pro-forma was filled to record the cases biodata, history, clinical examination, investigations and histopathological diagnosis. All histopathologically proven malignant masses were excluded from the study. **Results:** Out of 120 cases 78 (65%) were males and 42 (35%) were females, with M:F ratio of 1.8:1. The age of presentation ranged from 8 years to 70 years and mean age was 26.3years. Sinonasal masses were found to be bilateral in 20 cases (16.67%), right sided in 65 (54.17%) and left sided in 35 (29.16%) cases. The main presenting symptoms were nasal blockage 110 (91.66%), nasal discharge 102 (85%), sneezing 60 (50%), hypoinomnia 36 (30%), epistaxis 24 (20%), headache 20 (18.33%) and mouth breathing 18 (15%) cases. Polyp was the most common lesion in 86 (71.66%) cases observed in this study. The common histopathological diagnosis was simple inflammatory nasal polyp in 48 (40%), allergic nasal polyps 30 (25%) and fibroepithelial polyp in 8 (6.7%), inverted papilloma in 12 (10%), angiofibroma 6 (5%), capillary hemangioma 4 (3.34%) and rhinosporidiosis 4 (3.34%) cases. **Conclusions:** Sinonasal masses have various differential diagnoses and are still thought to be simple problem in our society. There is a need for early recognition and referral to ENT surgeon and need histopathological examination of every mass to confirm the diagnosis.

**Key words:** Non-malignant sinonasal mass, nasal obstruction, nasal discharge, inflammatory and allergic polyps.

**Article Citation:** Soomro AA, Magsi P, Sangi HA, Chand H. Non-malignant lesions; clinico-pathological profile of nasal cavity and paranasal sinuses. Professional Med J 2014;21(1): 191-196.

differential diagnosis. They may be congenital, inflammatory, neoplastic or traumatic in nature. Congenital masses are predominantly mid line swellings and include dermoids, glioma and encephaloceles as common diagnosis<sup>2</sup>. Benign sinonasal tumors encompass a collection of pathological findings that include neoplastic masses and fibro-osseous lesions<sup>3</sup>. Nasal polyps as part of sinonasal masses have been a medically

recognized condition since the time of the ancient Egyptians and their removal with a snare was described by Hippocrates, a method which persisted well into the second half of the 20th century<sup>4</sup>. Simple nasal polyps are round, smooth, soft, translucent, yellow or pale glistening structures attached to the nasal or sinus mucosa by a relatively narrow stalk or pedicle. They are non-tender and displaced backwards on probing. These features clinically distinguish them from the turbinates, which are sometimes assumed to be nasal polyps by the less experienced<sup>5</sup>. Benign neoplasia of the nose and paranasal sinuses is relatively not uncommon<sup>6</sup>. The fibro-osseous lesions are common, with radiologic evidence of osteoma present in up to 1% of all radiographs and up to 3% of all CT scans<sup>7</sup>. In clinical practice, the benign masses in the sinonasal cavity is often neglected by the clinicians suspecting the early symptoms of nasal obstruction and rhinorrhea to be associated with infective or allergic rhinitis. In today's world with the availability of sophisticated endoscopes, high-end microscopes coupled with newer immunohistochemical techniques have opened the Pandora box to include as many probable types of benign nasal masses as one can think of which can not be differentiated only on clinical grounds and need histopathological confirmation. There is lack of recorded evidence of nasal and paranasal sinuses about non malignant lesions in our institutes and community. The aim of this study was to evaluate the clinical presentation and histopathological features of non malignant lesions of nasal cavity and paranasal sinuses in our tertiary care hospital Sukkur.

### PATIENTS AND METHODS

This prospective descriptive study was carried out at departments of Paediatrics and ENT of Ghulam Muhammad Mahar Medical College Hospital at Sukkur, Sind Pakistan, from Jan 2009 to Dec 2012. The study included all cases of non-malignant masses of nasal cavity and paranasal sinuses, which were clinically, radiologically diagnosed and histopathologically proven. One hundred twenty patients of either sex, non-malignant sinonasal masses were enrolled for this study. After taking written consent from patients and

parents, detailed history was taken about the clinical presentation, duration of complaints, associated history of allergy, number of episodes, nasal obstruction, mass in the nose, epistaxis, nasal discharge, loss of smell, site either bilateral or unilateral and deformity of nose and face. Clinical examinations were carried out as per standard protocols. All patients were subjected to nasal endoscopy and computed tomography (CT) of the paranasal sinuses, and routine hematological investigations done preoperatively. All cases required surgical intervention and the mode of approach-external or endoscopic was entirely based on the extent of the lesion documented on paranasal sinus, CT Scan and also on gross pathology. Biopsy was taken from all cases for histopathological examination to confirm diagnosis. All the data were entered into the Statistical Package for Social Sciences (SPSS) version 13.0 computer soft ware for analysis and results presented in tables according to frequency and figures.

### RESULTS

Out of 120 cases 78 (65%) were males and 42 (35%) were females with male to female ratio of 1.8:1. The age of presentation ranged from 8 years to 70 years and mean age was 26.3 years. Maximum number of 43 cases (35.8%) were seen in the 2<sup>nd</sup> decade and least cases in first decade (Table I). Sinonasal masses were found to be bilateral in 20 patients (16.67%), right sided in 65 patients (54.17%) and left sided in 35 patients (29.16%) [Table II]. The main presenting symptoms were nasal blockage in 110 (91.66%) followed by nasal discharge in 102 (85%). Facial pain 6 (5%) and external nasal deformity 2 (1.6%) were demonstrated in a minority of cases (Table III).

Duration before presentation was within 1 to 280 months with a mean duration of 30 months. Nasal polyp was the commonest lesion observed in this study. It constituted 71.66% (86) of all cases. The other non-malignant lesions in the decreasing order of frequency were inverted papilloma 12 (10%), angiofibroma 6 (5%), capillary hemangioma and rhinosporidiosis 4 (3.34%),

Parameter	No.	%age
<b>Sex</b>		
Male	78	65.0
Female	42	35.0
<b>Age (years)</b>		
8-10	02	1.67
11-20	43	35.83
21-30	28	23.33
31-40	20	16.67
41-50	14	11.67
51-60	08	6.67
61-70	05	4.16

**Table-I. Frequency of sex and age distribution of the non-neoplastic lesions of nasal cavity and paranasal sinuses (n = 120)**

Site	No.	%age
Bilateral	20	16.67
Right sided	65	54.16
Left sided	35	29.17

**Table-II. Frequency of localization of sinonasal mass (n = 120)**

nasal schwannoma, nasal fibroma, nasal dermoid, rhinoscleroma, osteoma, fibrous dysplasia, pyogenic granuloma and giant cell lesion one each (0.83%) was seen in Table IV. In histological diagnosis polyps of various nature were seen in majority of cases (71.7%), followed by inverted papilloma in 10% of cases. The least common lesion was capillary haemangioma (3.34%) [Table V].

## DISCUSSION

A wide variety of pathological conditions involve the nose and paranasal sinuses. Clinically simple nasal polyps are pale bags of non specific eosinophilic, edematous, hyperplastic, sinonasal

Symptoms	No.	%age
Nasal blockage	110	91.7
Nasal discharge	102	85.0
Sneezing	60	50.0
Anosmia/hyposmia	36	30.0
Intermittent epistaxis	24	20.0
Headache	22	18.3
Mouth breathing	18	15.0
Swelling over face	14	11.7
Eye related symptoms	10	8.3
Facial pain	06	5.0

**Table-III. Frequency of clinical presentation of benign sinonasal masses (n = 120)**

masses, they are most often unilateral and may be bilateral lesions should be considered as a neoplastic masses. Sinonasal masses had predilection for males, demonstrating a male to female ratio of 1.8:1, similar to the previously reported by Lathi et al 8, and by Zafar et al 9 from India, but a study from Nigeria revealed an opposite ratio showing female preponderance (M:F1:1.2)<sup>10</sup>.

The most vulnerable period for the development of sinonasal masses are the young age group 20-40 years of life. Majority of cases in this study occurred in 2<sup>nd</sup> to 4<sup>th</sup> decade of life, similarly reported in other studies<sup>8,9</sup>. The common presentation of the sinonasal masses were nasal blockage (91.66%) cases, nasal discharge (85%), sneezing (50%) cases, hypoinsomnia (30%) cases, and headache (18.33%) similar to the previous observations by Lathi et al<sup>8</sup>, and others<sup>10,11,12</sup>. Symptoms of allergy such as rhinorrhea, itchy nostrils, excessive sneezing were observed in more than 50% of the patients which support the fact that allergy still play a major role in nasal polyp in our environment, these observations are similar to the previous study<sup>10</sup>.

Nature of lesion	No.	%age
Ethmoidal polyp	60	50.0
Antrochoanal polyp	26	21.6
Inverted papilloma	12	10.0
Angiofibroma	6	5.0
Rhinosporidiosis	4	3.3
Capillary hemangioma	4	3.3
Nasal fibroma	1	0.8
Nasal dermoid	1	0.8
Rhinoscleroma	1	0.8
Osteoma	1	0.8
Fibrous dysplasia	1	0.8
Pyogenic granuloma	1	0.8
Giant cell lesions	1	0.8
Nasal schwannoma	1	0.8

**Table-IV. Frequency of nature of lesions of sinonasal masses among total patients**

Histopathological type	No.	%age
Inflammatory polyps	48	40.0
Allergic polyps	30	25.0
Fibroepithelia polyp	08	6.7
Inverted papilloma	12	10.0
Angiofibroma	06	5.0
Capillary hemangioma	04	3.3
Rhinosporidiosis	04	3.3
Others	08	6.7

**Table-V. Frequency of histopathological diagnosis (n = 120)**

Intermittent epistaxis was presentation in 20% of cases with more in paediatric age group and higher than previously reported by Lathi et al<sup>8</sup> from

India. Bilateral mass presentation was seen in 20% cases. It was in contrast with the observation of Bakari et al<sup>10</sup> where bilateral sinonasal masses were seen in 44.7% of cases and Lathi et al<sup>8</sup> who found 57.8% of bilateral masses in his series. Unilateral masses were found in 80% of cases similar to the study conducted by Chavan et al<sup>13</sup> from India, but much higher than the previously reported by other studies<sup>8,9,10</sup>. Benign inflammatory polyps were usually unilateral and single, while allergic polyps were usually bilateral and multiple in agreement with the analysis of Frosini et al<sup>14</sup>. Nasal polyps result from chronic inflammation of the nasal and sinus mucous membranes and are the most common tumors of the nasal cavity. Their exact pathogenesis is not known, but a strong association with allergy, infection, asthma and aspirin sensitivity has been implicated<sup>15</sup>.

Nasal polyps were the most common lesion observed in our study 71.67% similar to the observations of Zafar et al<sup>9</sup> and other authors<sup>10,14</sup>. Real nasal polyps are subdivided into allergic nasal polyps, showing abundant eosinophils in the stroma in addition to inflammatory cells, whereas in inflammatory nasal polyps, there is lack of eosinophils. Ethmoidal and antrochoanal polyps are generally allergic and inflammatory in nature respectively, was observed in this study also. Antrochoanal polyps and inverted papilloma were found to be commoner in females than males which are similar to finding from previous report<sup>5</sup>.

Inverted papilloma was the second common mass in our study (10%), lower than the reported by Mishra et al<sup>16</sup> (18%), but in contrast to our observation others studies report very low observation (6.25%)<sup>8,10,11</sup>. Inverted papilloma was found more in female patients. Angiofibroma was found in young adolescent males having a history of intermittent epistaxis in (5%) of cases, while Pradhanagra et al<sup>12</sup> reported 9 cases of angiofibroma over a period of 2 years in Nepal, and only one case was reported by Lathi et al<sup>8</sup> in his series of sinonasal masses of 112 cases. Capillary hemangioma was observed in 4 cases (3.34%), and all patients were female presented to us with epistaxis and nasal obstruction similar to

the previous observations by Chavan et al<sup>13</sup>, but high capillary hemangioma was reported (8%) by Lathi et al<sup>8</sup> from India in contrast to our observations. Therefore, the role of strong hormonal influence for the pathology must be suspected and further evaluated<sup>17</sup>. All cases were found to be arising from the cartilaginous part of the nasal septum. Rhinosporidiosis was found in 4 cases (3.34%) in our study, similar to the observations of Lathi et al<sup>8</sup> and Pradhananaga et al<sup>12</sup>. Rhinosporidiosis, an endemic disease in India, Sri Lanka and a few African nations<sup>18</sup>. We found one case of rhinoscleroma in our 120 patient series and (4.83%) reported by Zafar et al<sup>9</sup> and much higher than us 10% was reported by Lathi et al<sup>8</sup>. Rhinoscleroma and rhinosporidiosis are rare entities in the west countries (Europe and America) and rarely documented among those who have never traveled to endemic areas<sup>19,20</sup>. In our study we found one case of nasal fibroma similar to the previously in literature<sup>9,21</sup>. The other rare cases witnessed in our study were nasal dermoid, nasal schwannoma, osteoma, fibrous dysplasia, pyogenic granuloma and giant cell lesion.

Histopathological examination is conclusive in diagnosing the sinonasal masses describing both etiology and cellular nature of the lesions. Our results showed simple inflammatory nasal polyps in 48 (40%) cases, allergic nasal polyps 30 (25%) cases and fibroepithelia polyps in 8 (6.7%), and inverted papilloma in 12 (10%) similar to the previously reported by other study<sup>10</sup>. A study from India showed 44.6% allergic polyps while 17.8% were inflammatory polyps, 8% haemangioma and 6.25% inverted papilloma respectively<sup>8</sup>.

## CONCLUSIONS

Sinonasal masses have various differential diagnoses and are still thought to be simple problem in our society. There is a need for early recognition and referral to ENT surgeon, and need histopathological examination of every mass to confirm the diagnosis. Nasal obstruction and rhinorrhea are the commonest symptoms of presentation, unilateral masses are common in our experience and simple inflammatory and

allergic nasal polyps are still the common histological patterns seen in our environment.

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