

## Presentation of unilateral nasal masses and their management in a tertiary care hospital in Karachi, Pakistan

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### Abstract:

**Objective:** To determine the frequency of unilateral nasal masses and their management in a tertiary care hospital.

**Materials & Methods:** In this retrospective study conducted between January 2015 and June 2016, 44 cases of unilateral nasal masses were included. The analyses included presentation and overall management strategy of the patients who had unilateral nasal masses.

**Results:** The masses comprised of: nasal polyps (allergic and fungal) 21 (47.72%), inverted papilloma 5 (11.36%), antrochoanal polyp 8 (18.18%), adenocarcinoma 2 (4.54%) squamous cell carcinoma 2 (4.54%) angiofibroma 1 (2.27%), olfactory neuroblastoma 2 (4.54%), and lymphoma 3 (6.81%). All nasal polyps were removed by functional endoscopic sinus surgery (FESS), 3 inverted papillomas by medial maxillectomy while 2 by endoscopic removal, antrochoanal polyp by FESS, adenocarcinoma and squamous cell carcinoma by total maxillectomy followed by chemo-radiation, angio-fibroma by trans-nasal endoscopic removal while olfactory neuro-blastoma and lymphoma by nasal biopsy followed by chemo-radiation.

**Conclusions:** Unilateral nasal masses most likely represent chronic inflammation, but there exists a fair likelihood of finding a malignant pathology, particularly in cases where patients have a unilateral polyp.

**Keywords:** unilateral, nasal, masses, adenocarcinoma, squamous cell carcinoma, olfactory, neuroblastoma, lymphoma,

### Introduction:

Unilateral nasal mass are commonly encountered in our routine ENT practice.<sup>1,2</sup> Sometimes there may be doubt of space occupying pathology. Mostly, they are inflammatory in origin but sometimes they may be neoplastic in origin. They can be distinguish with their features but sometimes the features of neoplastic origin are indistinguishable or closely resembles inflammatory conditions.<sup>3</sup> Rhinosinusitis is commonly presented with unilateral symptoms. It is usually presented with unilateral nasal obstruction, nasal discharge, swelling over face etc, treated conservatively or sometimes if complicated then it may need some surgical intervention.<sup>4</sup>

So, this study will serve as milestone for future

studies and to develop proper protocol for management of unilateral sinus disease. So far very little research work has been done in this regard and very insufficient material is available in local as well as international literature.<sup>5-7</sup> The rationale of this study is to select the patient presented with unilateral sinus mass diagnosed clinically, radiologically and also histopathologically if needed then managed conservatively as well as surgically if needed, to determine the frequency of unilateral nasal mass and its management in tertiary care hospital.

### Material and methods:

A retrospective review of 44 cases of unilateral nasal mass were analysed from July 2014 to December 2016 at Civil Hospital Karachi.

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Table 1: Distribution of various pathologies

Diseases	Number	Percentage
Allergic nasal polyp	13	29.54%
Fungal nasal polyp	8	18.18%
Inverted papilloma	5	11.36%
Antrochoanal polyp	8	18.8%
Adenocarcinoma	1	2.27%
Squamous cell carcinoma	5	4.54%
angiofibroma	1	2.27%
Olfactory neuroblastoma	2	4.54%
Lymphoma	1	2.27%

Table 2: Distribution of various symptoms

Diseases	Number	Percentage
Nasal obstruction	44	100%
Nasal pain	4	9.09%
Epistaxis	15	34.04%
Swelling nose	8	18.18%
Nasal discharge	21	47.72%
Hyposmia	18	40.9%
Dental complaints	4	9.09%
Orbital complaints	6	13.63%

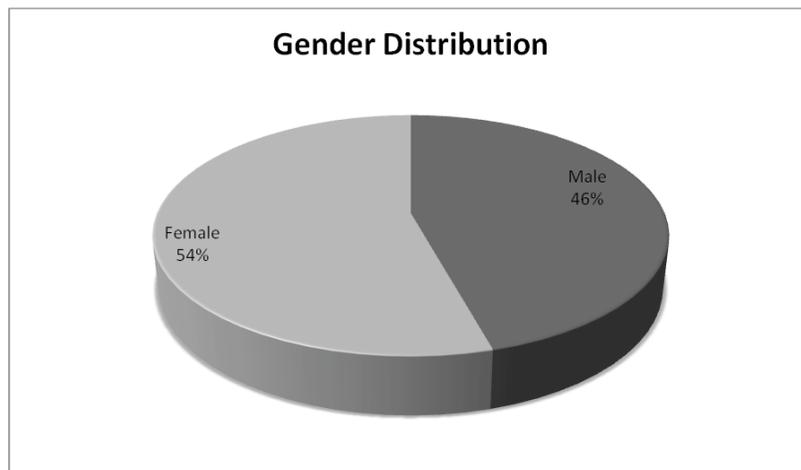


Figure 1: Gender distribution

All patients of unilateral sinonasal symptoms were assessed by detailed history followed by complete otolaryngological examination including detailed nasal examination by anterior and posterior rhinoscopy and diagnostic nasal endoscopy. These patients were further assessed radiologically by CT scan paranasal sinus. Patients presenting with inflammatory conditions were managed initially with conservative treatment and if un-responsive then followed by endoscopic surgical treatment. Neoplastic lesions were treated by endoscopic biopsy followed by

definitive management depending on the histopathological diagnosis. The demographic data, presenting symptoms and radiological findings were analyzed.

### Results:

The retro-spective case review yielded 44 patients of uni-lateral nasal mass and these were included in the present study. There were 19 females and 16 males as shown in Figure 1.

Out of the 44 patients, 21 had nasal polyps. Benign nasal polyp was the most common inflammatory condition whereas inverted papilloma was the commonest neoplastic condition (Table 1).

The various symptoms of the patients analysed showed nasal obstruction to be the commonest symptom among both the groups. Epistaxis, facial pain, dental and orbital complaints were found to be significantly higher in neoplastic conditions whereas nasal discharge was higher in inflammatory conditions (Table 2).

### Discussion:

Most of the uni-lateral sinus disease or mass were inflammatory and benign etiology in them nasal polyps were commonly seen.<sup>8</sup> Our study also support this statement. Sometimes unilateral nasal pathology behaves abnormally. On the basis of this we asses all the new cases of uni-lateral disease and we found 20.45% malignancy. Silva et al was found 14% malignancy among them.<sup>9</sup>

Uni-lateral nasal polyps were commonly seen at younger age group.<sup>10</sup> Neoplastic lesions of the nose and sinuses were seen in older age group, with a male preponderanc.<sup>11</sup> In our review neoplasms were seen in male patients after the 3rd and 4th decade and inflammatory condition were common among the young adults.

In our case series, nasal obstruction was seen among all patients (100%). Nair et al were also seen the same.<sup>12</sup> Trit et al found in his case series that unilateral nasal congestion were commonly seen in 93% of Allergic fungal sinusitis while epistaxis were common presentation of malignant



Figure 2: CT scan shows homogenous enhancing lesion in posterior part of left nasal cavity (Angiofibroma)



Figure 3: CT scan shows heterogeneous mass in left nasal cavity and maxillary sinus (invasive fungal sinusitis)

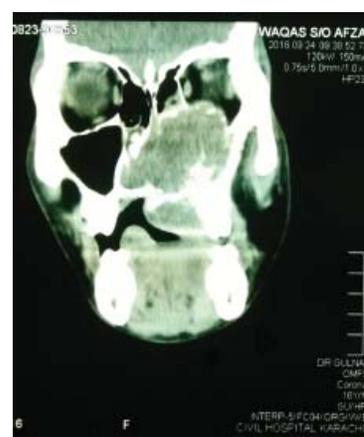


Figure 4: CT scan shows heterogeneous mass with bony erosion involving both nasal cavity, left maxillary sinus and left orbit

as well as benign neoplastic disorders that was 67% and 57% of cases respectively.<sup>5</sup> Our study support this statement as in inflammatory conditions developed more congestion of nasal mucosa. Mean while in neoplastic conditions due to fragile nasal mucosa epistaxis was commonly encountered.

The endoscopic examination of nose has provided useful information regarding diagnosis of disease.<sup>13</sup> There are mainly two types of inflammatory nasal polyps ethmoidal and antrochoanal polyp. In nasal endoscopic examination ethmoidal polyps are usually seen as multiple grapes like while antrochoanal polyp were single originates from maxillary ostium and involves posteriorly choana.<sup>14</sup> Same features were seen in our case series. In our practice we also concluded that nasal endoscopy is not enough for confirmation of diagnoses. Same thing found by Armstrong et al.<sup>15</sup> Intra-nasal lesions of neoplastic conditions may present as typical firm proliferative lesions with destruction of surrounding structures or may mimic inflammatory conditions in their early stages with the presence of polyps on endoscopy.

Imaging studies like CT scan and MRI are also very helpful in making proper diagnosis of disease (figures 2 to 4). In CT scan important features of disease like extent of disease, bone involvement, bone erosion, involvement of neighbouring structures were identified. Double density sign is the feature of fungal sinusitis. This

is due to accumulation of heavy metals in fungal mucin.<sup>16</sup> An inverted papilloma on CT scan shows mass seen in maxillary antrum and ipsilateral nasal cavity.<sup>17,18</sup> Similarly juvenile nasopharyngeal angio-fibroma presents as homogeneously enhancing lesion nasopharynx to neighbouring areas.<sup>19</sup> Radiologically all malignant lesions are characterized by soft tissue mass with aggressive bone destruction of the adjacent walls.

Biopsy for histopathology of the disease is mandatory in each and every case specially if the lesion was suspicious to be neoplastic.<sup>20</sup> If biopsy turn out to be negative then plan for deeper tissue biopsy or excisional biopsy. Iqbal et al had done biopsy in each every case except angiofibroma if clinically confirmed. We also did biopsy in all suspicious cases except nasal polyps, angio-fibromas etc.

Most frequent masses in nasal cavity are nasal polyps.<sup>21</sup> Frosini et al found that non neoplastic inflammatory nasal polyps had different presentation as compare to allergic nasal polyps. Allergic nasal polyps were usually bilateral while non neoplastic inflammatory nasal polyps were presented as unilateral masses.<sup>22</sup> In our case series there are 47.72% ethmoidal nasal polyps and 18.18% antrochoanal polyps this was comparable to other studies as well.<sup>23</sup> Most common benign tumor in our study is inverted papilloma which was seen 11.36% cases and in malignancy squamous cell carcinoma were seen 11.36% comparable to Nair et al. Other malignancies

were also included in our study in lymphoma 6.81%, olfactory neuroblastoma 4.54% and adenocarcinoma seen in 4.54%.

Treatment of these cases depends upon type and extent of disease. In cases of allergic nasal and fungal nasal polyp initially first 3 weeks patient has been treated conservatively with oral and intranasal topical steroids then followed by endoscopic sinus surgery and later on intra-nasal steroids for few months. In cases of antro-choanal polyp directly perform removal of nasal polyp via endoscopic or Caldwell-Luc approach. All cases of angio-fibroma after embolization removed via sublabial medial maxillectomy approach. Inverted papilloma were also removed via medial maxillectomy and endoscopic approach. Iqbal et al also did pre operative angiography and embolization for excision of angio-fibroma. Weber Ferguson and lateral rhinotomy were commonly used approaches in his series. Adeno-carcinomas and squamous cell carcinoma after staging of disease then remove via Weber Ferguson approach in total and partial maxillectomy were included followed by radiotherapy if needed. Combined surgery and radiotherapy yields better results.<sup>24</sup> In cases of olfactory neuroblastoma and lymphoma patient after diagnosis of disease send to oncologist for chemo-radiotherapy.

#### Conclusion:

Neoplastic lesions of nose and paranasal sinus are one of the most challenging conditions that otolaryngologists have to diagnose and treat. Favorable outcomes depend on an early diagnosis and appropriate management. With the advent of endoscopes, these pathologies are easily managed for diagnostic and therapeutic purposes where needed.

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#### Role and contribution of authors:

Dr. Zeba Ahmed, Associate Professor, Dept of ENT Head and Neck surgery, DUHS CHK, collected the data and wrote the initial write up

Dr. Tarique Zahid, collected the data and references and helped in writing in introduction and results.

Dr. Danish ur Rahim, collected the data and references and helped in introduction and discussion writing.

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