

Types and Clinical Profile of Unilateral Sinonasal Masses

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ABSTRACT

Background: Unilateral mass in the sinonasal region is a common problem facing the otolaryngologist in daily clinical practice. There are various benign and malignant conditions originating in this area with different clinical features depending on their nature and extent.

Objectives: To evaluate the types and clinical profile of unilateral sinonasal masses.

Materials and methods: This study includes 60 patients who attended the outpatient clinic at Alyarmook Teaching Hospital, Baghdad, Iraq, between January 2017 and April 2018. A thorough history from each patient was taken. Moreover, the clinical examination was done according to standard clinical practice. The imaging results of the nose and paranasal sinuses were documented. Then biopsy was taken from the mass at the operating room under local or general anesthesia if indicated. The specimen was sent for histopathological examination and the results were documented on the data collection sheet. The patients were divided into two groups: non-neoplastic and neoplastic according to the histopathological results.

Results: Out of 60 patients, there were 36 (60%) males. The age of our cases was ranged from 6 to 79 years with a mean age of 34.20 ± 18.126 years. Non-neoplastic causes were (n=38, 63.3%) more than the neoplastic group, and the majority of them were unilateral simple polyp (n=23, 38.3%). Inverted papilloma was the most common benign tumor (n=8, 13.3%), while, squamous cell carcinoma was the commonest malignant neoplasm (n=2, 3.3%). Non-neoplastic causes were more in both sexes. The most affected age group was 20-49 years (n=31, 51.7%). The non-neoplastic causes were mostly seen in the age group 20-49 years (n=22, 36.7%). There was no statistically significant difference between the age and gender and the causes of unilateral sinonasal lesions (P-value > 0.05). Nasal obstruction, nasal discharge, and hyposmia were more in non-neoplastic than neoplastic group. While epistaxis and facial pain were found to be higher in the neoplastic group.

Conclusion: Non-neoplastic masses outnumber neoplastic ones. Among non-neoplastic lesions, inflammatory polyps were the most common. Benign neoplasms outnumber the malignant neoplasms with inverted papilloma and squamous cell carcinoma were the most common respectively.

Keywords: Clinical profile; Nasal polyposis; Unilateral sinonasal masses; Types.

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INTRODUCTION

Unilateral sinonasal masses are a common entity in daily Otolaryngology practice [1]. It is caused by more sinister pathologies than bilateral nasal masses, making the Otolaryngologist is more concerned about them [2]. Persistent unilateral obstruction of

the nose is caused by various lesions in the nose or paranasal sinuses. The majority of the causes are inflammatory, and the minority are benign or malignant tumors [3]. Besides the nasal obstruction, there are various symptoms depends on the nature and extent of the masses. The patient with this pathology is complained of such as unilateral nasal discharge, epistaxis, facial pain, headache, diplopia, and cheek swelling [2, 4].

The assessment of the individuals with these clinical symptoms includes a thorough history, physical examination in-

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cluding anterior rhinoscopy and endoscopy, radiological investigations and biopsy. In the majority of the conditions, inflammatory polyps were found and subsequently treated medically, while in a few cases, surgical treatment is required [4]. Despite unilateral sinonasal mass is frequently facing us in the Otolaryngology clinical practice, few investigations have been studied this topic in Iraq [5]. We aimed to assess the types and clinical features of single-sided sinonasal lesions.

MATERIALS AND METHODS

A total number of 60 patients of different age and sex groups diagnosed as having unilateral sinonasal mass were included in the current study. It is a case series study with a descriptive design that was done at Alyarmouk Teaching Hospital, Baghdad, Iraq between January 2017 and April 2018. Cases of second-time presentation as recurrence after surgical removal were excluded in the study as well as the patients who refuse to participate in this study. The present study was approved by the Arab board for medical specialization. Informed consent was taken from each participant.

A history from each patient was taken for symptoms that related to the nose and paranasal sinuses (nasal obstruction, nasal discharge, epistaxis, sneezing, facial pain, crusting, disturbances of smell, itching of the nose, nasal regurgitation, swelling over nose/face, pain in or around the nose, headache, and fever). Moreover, a clinical examination was done according to standard clinical practice. Examination of the nose starts externally from the front and side views, looking at the skin type and thickness, scars, and lesions. Tilt the head of the patient backward to examine the columella and the vestibule. Check the patency of the nasal airway on each side with a metallic tongue depressor or by occluding the nostril with the thumb and asking the patient to sniff through the nose. Anterior rhinoscopy using Thudichum or Killian speculum was performed to inspect the nasal septum for deviation, perforation, vessels, and mucosal lesions, inferior turbinates for hypertrophy or mucosal changes, and nasal masses (polyps or lesions). Then, we performed a fiberoptic or rigid nasal-endoscopy to inspect the rest of the nasal cavity and post-nasal space [6]. Finally, the neck was examined to rule out any palpable lymph nodes.

Radiological imaging including computerized tomography (CT) scan Figure 1, magnetic resonance imaging (MRI), and magnetic resonance angiography (MRA) was taken depending on each case. The imaging results of the nose and paranasal sinuses were documented. The biopsy was taken from the mass at the operating room under local or general anesthesia. The specimens were sent to the laboratory for histopathological examination and the results were documented on the data collection sheet. Questionnaires were filled in which the patients were classified according to the state of pathology into two groups: non-neoplastic and neoplastic as stated by the histopathological results. Gender classification for each disease was done. The age of the patient was divided into three groups < 20, 20-49, and ≥ 50 years.

The data were analyzed using Statistical Package for the Social Sciences (IBM SSPS) version 22. The results were presented in simple tables. For categorical variables were analyzed using the Chi-squared test. P-value <0.05 was considered a statistically significant difference.



Figure 1. CT scan coronal view of a patient with left side allergic fungal rhinosinusitis.

RESULTS

The age of our patients was ranged from 6-79 years with a mean age of 34.20 ± 18.126 years. The highest age group affected was 20-49 years (n=31, 51.7%), and the least ≥ 50 groups (n=13, 21.6%). The non-neoplastic causes were mostly seen in the age group 20-49 years (n=22, 36.7%). There was no statistically significant difference between the age and the causes of unilateral sinonasal lesions (P-value=0.108). There were 36 (60%) male and 24 (40%) female with a male to female ratio of 1.5:1. The most common causes of single-sided sinonasal masses in males (n=22, 61.1%) and females (n=16, 66.7%) were non-neoplastic. Besides, there was no statistically significant difference between the gender and the causes of unilateral sinonasal masses (P-value =0.787) as shown in Table 1.

The most common symptom of the studied patients was nasal obstruction (n=39, 65%), followed by nasal discharge (n=27, 45%), and the least was orbital complaints (n=1, 1.7%). Nasal obstruction was more in the non-neoplastic (n=28, 71.8%) than neoplastic group (n=11, 28.2%). While, epistaxis was more in the neoplastic (n=9, 69.2%) than non-neoplastic group (n=4, 30.8%) as shown in Table 2.

The highest group of causes were non-neoplastic (n=38,

Table 1. Age and gender distribution of all sinonasal masses.

Variable	Non-neoplastic Number(%)	Neoplastic Number(%)	Total Number(%)	P-value
Age groups (years)				0.108
0-19	11 (18.6%)	5 (8.3%)	16 (26.7%)	
20-49	22 (36.7%)	9 (15%)	31 (51.7%)	
≥ 50	5 (8.3%)	8 (13.3%)	13 (21.6%)	
Total	38 (63.3%)	22 (36.7%)	60 (100%)	
Gender				0.787
Male	22 (61.1%)	14 (38.9%)	36 (100%)	
Female	16 (66.7%)	8 (3%)	24 (100%)	
Total	38 (63.3%)	22 (36.7%)	60 (100%)	

Table 2. Frequency of the symptoms of the 60 patients.

Symptoms	Non-neoplastic	Neoplastic	Total
	Number(%) [*]	Number(%) [*]	Number(%) [†]
Nasal obstruction	28 (71.8%)	11 (28.2%)	39 (65%)
Nasal discharge	20 (74.1%)	7 (25.9%)	27 (45%)
Epistaxis	4 (30.8%)	9 (69.2%)	13 (21.7%)
Hyposmia	8 (66.7%)	4 (33.3%)	12 (20%)
Headache	4 (50%)	4 (50%)	8 (13.3%)
Facial pain	2 (33.3%)	4 (66.7%)	6 (10%)
Orbital complaints	0 (0%)	1 (100%)	1 (1.7%)

* Calculated from the total number of each symptom.

† Calculated from the total number of the patients (60).

Table 3. Types of unilateral nasal masses.

Types	Number	%
Non-neoplastic mass		
Unilateral simple polyp	23	38.3
Antrochoanal polyp	11	18.3
Fungal (AFRS)	4	6.7
Total	38	63.3
Neoplastic (benign)		
Inverted papilloma	8	13.3
Angiofibroma	5	8.4
Lobular Capillary Hemangioma(Pyogenic Granuloma)		
Total	17	28.3
Neoplastic (malignant)		
Squamous cell Ca	2	3.3
Lymphoma (NHL)	1	1.7
Transitional cell carcinoma	1	1.7
Ewing sarcoma	1	1.7
Total	5	8.4

63.3%), and the majority of them were unilateral simple polyp (n=23, 38.3%). Inverted papilloma was the most common benign tumor (n=8, 13.3%), while, squamous cell carcinoma was the commonest malignant neoplasm (n=2, 3.3%) as shown in Table 3.

DISCUSSION

Single-sided sinonasal mass affects all age groups and both sexes. However, certain pathology affects certain age and gender, such as congenital causes in the pediatric population, inflammatory causes in young age groups, and malignant conditions were more common in male and old age.

In the ear, nose, and throat clinic, bilateral sinonasal masses are more commonly seen than unilateral masses. However, sinister pathology like malignant problems is mostly seen in single-sided mass necessitating great care when dealing with this issue [2, 7]. The most common malignancy in the sinonasal region is squamous cell carcinoma. At an early stage, it appears and mimics simple nasal polyp [8]. Sinonasal malignancies are more prevalent in the 5th–7th decades, and it appears in men more than in women [7]. The present study was revealed similar findings to the reported literature [1, 3] that malignant lesions are more common in the older age group (≥ 50 years) and men.

Our results were reported that unilateral sinonasal masses

were more in males than in females. This is consistent with prior studies [1, 3, 5, 9]. However, in a retrospective study by Nair et al., based on the patients' gender, 27 (61.3%) were females and 17 (38.7%) were males in the non-neoplastic group. On the other hand, the neoplastic group consists of seven (77.8%) males and two (22.2%) females [4]. Concerning the neoplastic masses in the above study, it is going with our study but it's not with non-neoplastic.

In the study by Kucur et al., the age has ranged from 1-74 years with a median age of 41.74 years [9]. In a study by Nair et al., The age of the females and males groups were of (1668 years, mean 32.7 years) and (18-77 years, mean 41.2 years), respectively. Neoplasms were observed more in males and in age above 50 years, while inflammatory conditions were observed more among females and in age below 50 years [4]. Our finding was comparable to the above-mentioned studies. In the study by Oliver et al., squamous cell carcinoma is mostly seen in the elderly (median age of 64 years) with a male predominance and presented with advanced stage [10].

Inflammatory nasal polyps could be defined as prolapse of the nasal and paranasal mucosa into the nasal cavity. They can result from allergic insults, chronic inflammation, infections, and on rare occasions cystic fibrosis. The overall prevalence in the population has ranged from 1-4%. They are more commonly seen in adult than pediatric population, and more in males than in females [2]. Besides, nasal polyps were the most common unilateral mass in our study (38.3%), this finding is nearly similar to Shuaibu et al. study (42.1%) [3]. However, it was much less than Belli et al. study (81.03%) [1]. In a retrospective study of 73 cases of unilateral sinonasal mass by Kucur et al., they have reported that inflammatory polyps as the most common non-neoplastic mass. Inverted papilloma was the most common benign tumor of the nasal cavity and paranasal sinuses and pyogenic granuloma the second commonest benign tumor. From 16 neoplastic groups, two malignant cases were described in the same study (adenocarcinoma and adenoid cystic carcinoma) [9]. It is not consistent with our study although squamous cell carcinoma stays the commonest malignant tumor [11]. In Kahveci et al. study, 25.2% of 127 unilateral sinonasal cases were found to be concerning neoplastic while the rest of them were about non-neoplastic causes [12]. In a study by Ibrahim et al., the non-neoplastic cases were 22 out of 34. The simple inflammatory polyp was the most common non-neoplastic mass in 59.9%. The neoplastic cases were 12 out of 34. The commonest benign tumor was inverted papilloma, 6 out of 12 (50%). The most common malignant tumors were non-Hodgkin's lymphoma (3 out of 12) [5].

Out of 17 benign tumors, 8 were inverted papilloma which was similar to the previous study [3]. Although inverted papilloma is a benign tumor, it can locally aggressive behavior. The tumor presents usually as a single-sided fleshy lesion that can recur after surgical removal [13]. In 10% of cases, the tumor could be converted to a transitional cell carcinoma [14]. Similar to other head and neck tumors, both synchronous and metachronous occurrences are the features of the tumor as reported in the literature [15]. Lateral rhinotomy and medial maxillectomy were performed for all our cases.

In this study, the most commonly observed symptoms were unilateral nasal obstruction, nasal discharge, and epistaxis among the different patients' symptoms. Nasal obstruction was higher in non-neoplastic cases when compared to the neoplastic ones. Besides, epistaxis was found as considerably higher in neoplastic conditions. In the study of 73 cases by

Kucur *et al*, 46 (63%) patients are suffered experienced nasal obstruction as the most frequent admission reason. Nosebleed and headache as well as swelling around the eyes along with loss of vision and facial paralyzes were among the other reason for admissions [9]. Nosebleed, facial pain, nasal obstruction, and toothache were the dominant symptoms that occurred in cases of paranasal sinus tumors [11]. In the study by Nair *et al.*, the most commonly observed symptom was nasal obstruction among the various patients' symptoms. This symptom was higher in non-neoplastic conditions when compared to the neoplastic ones. Besides, epistaxis, facial pain was also found as considerably higher in neoplastic conditions while in non-neoplastic conditions nasal discharge was the highest [4]. In a study by Paz Silva *et al.*, nasal obstructions were the common symptom that was observed in all of the groups. Patients with inverted papilloma have experienced higher headache symptom compared to the rest of the group. Epistaxis was found to be the highest symptom among patients with malignant lesions [2].

The included data were collected from a single center and

of short duration resulting in a small sample size, which was considered a shortcoming of the current study. However, this study was revealed that non-neoplastic lesions are more common than neoplastic lesions. Among non-neoplastic lesions, inflammatory polyps are the most common. Among neoplastic lesions, benign neoplasms outnumber the malignant neoplasms. Inverted papilloma was the commonest benign tumor and squamous cell carcinoma was the commonest malignant tumor. Therefore, our conclusion highlights the importance of being cautioned in the management of unilateral sinonasal mass.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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