

# CLINICOPATHOLOGICAL STUDY OF SINONASAL LESIONS AT KING HUSSEIN MEDICAL CENTER

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## ABSTRACT

**Objective:** To study the results of 160 biopsies taken from the nose and paranasal sinuses. The percentage and distribution of benign and malignant tumors according to age, sex and site of origin were assessed.

**Methods:** This is a retrospective study of 160 patients with nasal lesions surgically treated in the ENT department at King Hussein Medical Center between January 1990 and December 1997. Biopsy results were retrieved from histopathological reports while preoperative diagnoses, medical history, results of clinical examination, radiological studies, treatment and its outcome, were all retrieved from medical charts.

**Results:** Out of 160 patients submitted to nasal biopsy, there were 130 patients (81%) with non-neoplastic lesions. The most common non-neoplastic lesions were nasal polyps (62 patients, 48% of all nasal biopsies). Twenty patients (13%) had benign neoplastic lesions. The most common benign nasal neoplasm taken for biopsy was inverted papilloma (10 patients, 50%). Ten patients (6%) had malignant masses; however, the most common malignancy was squamous cell carcinoma (6 patients, 60% of all nasal biopsies).

No evidence of malignancy was reported in 100 % of patients who were preoperatively diagnosed as bilateral nasal polyps.

**Conclusion:** Preoperative diagnosis based on proper clinical examination was consistent with the histopathological diagnosis in most cases.

Preoperative nasal endoscopy, CT-scan or MRI are mandatory when a neoplastic lesion is suspected to evaluate the extent of the tumor and to properly plan for surgery.

Any tissue removed from the nose should be sent for histopathological analysis.

**Key words:** Neoplastic, Non-neoplastic, Benign, Malignant, Biopsy.

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### Introduction

The presence of a mass in the nose is a seemingly simple problem, however, it raises numerous questions about differential diagnosis.

Although neoplasms of the nose and paranasal sinuses are not common, they are of interest because of their various types. It has been found that the nose and paranasal sinuses account for less than 1% of all malignant tumors in general, and not more than 3% of the head and neck region malignancies<sup>(1,2)</sup>.

All patients with nasal masses should be fully investigated before undergoing surgery, since optimal surgical therapy for nasal lesion is best done by a single

operative procedure.

All tissues removed from the nose should be sent for histopathological analysis.

### Methods

This is a retrospective study of 160 patients with nasal lesions surgically treated in the ENT department at King Hussein Medical Center (KHMC) in Jordan between January 1990 and December 1997. Biopsy results were retrieved from histopathological reports while preoperative diagnoses, medical history, results of clinical examination, radiological studies, treatment and its outcome, were all retrieved from medical charts.

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## Results

Out the 160 patients in this study, there were:

One hundred and thirty patients (81%) with non-neoplastic lesions. The most common were:

- Nasal polyps in 62 patients (48% of all nasal biopsies). Male to female ratio was 2:1. The predominant symptom was bilateral nasal obstruction associated with other symptoms of longstanding allergic rhinitis.
- Antrochoanal polyps were reported in 17 patients (11% of all nasal biopsies). Male to female ratio was approximately 1:2. Antrochoanal polyps were more common in young age groups; it has been found that 15 out of 17 patients (88%) were below the age of 20 years. The mean age was 13.2 years.
- Chronic inflammatory process in 19 patients (12%).
- Pyogenic granuloma was found in 6 patients (4%).
- Normal mucosa in 10 patients (6%).
- The histopathological results of the remaining patients with non-neoplastic lesions are shown in Table I.

**Table I.** Sinonasal non-neoplastic lesions. No.=130.

Biopsy result	No.	Sex	
		Male	Female
Nasal polyps	62	42	20
Antrochoanal polyps	17	6	11
Inflammatory process	19	11	8
Normal mucosa	10	4	6
Pyogenic granuloma	6	4	2
Mucocele	6	4	2
Fungal infection	3	2	1
Dentigerous cyst	1	1	0
Rhinoscleroma	1	1	0
Fibrous dysplasia	1	0	1
Others	4	-	-

Thirty patients (19%) were found to have neoplastic lesions. Benign neoplastic lesions were found in 20 patients while malignant tumors were reported in 10 patients with a ratio 2:1.

Benign neoplastic lesions were found in 20 patients (12.5% of all nasal biopsies). The commonest benign tumor was inverted papilloma. It has been found in 10 patients (6% of nasal biopsies). Seven of them were males and three were females with a male to female ratio more than 2.3:1. The mean age was 55 years. The left lateral nasal wall was involved in 4 patients while the right wall was involved in 6 patients.

The rest of the benign neoplastic sinonasal lesions are shown in Table II.

**Table II.** Benign sinonasal neoplasms.

Biopsy result	No.	Sex	
		Male	Female
Inverted papilloma	10	7	3
Squamous papilloma	4	3	1
Capillary hemangioma	2	1	1
Schwannoma	2	2	0
Central giant cell granuloma	1	1	0
Hemangiopericytoma	1	0	1

Malignant tumors were found in 10 patients (6% of all nasal biopsies).

- Squamous cell carcinoma was found in 6 patients (4%). All of them were males. Their ages ranged from 27 to 65 years. In 5 cases, the tumor originated from the lateral wall, and in one case from the nasal septum which is a rare finding.
- Adenoid cystic carcinoma was found in a 46-year-old female patient. It was extending to the left frontal and ethmoidal sinuses. Debulking was done by fronto-ethmoidectomy.
- Chondrosarcoma was found in a male patient aged 32 years, originating from the right maxillary sinus.
- Diffuse large cell lymphoma was found in a male patient aged 19 years, involving the right inferior turbinate.
- Embryonal rhabdomyosarcoma was found in a female child aged 4 years. It was originating from the left lateral nasal wall.

## Discussion

The nose and paranasal sinuses are involved in a wide variety of pathological conditions. There is a high incidence of benign non-neoplastic lesions (81%) but malignancy could not be excluded without histopathological analysis.

Nasal polyps and antrochoanal polyps were the most common non-neoplastic lesions in this study forming up 50% of all nasal masses submitted for biopsy (the real percentage is probably higher because not all nasal polyps were sent for biopsy).

Despite the fact that preoperative diagnosis of benign nasal polyps was identical with the postoperative histopathological results of nasal polyps without evidence of malignancy in 100% of patients in this study, it is still necessary to repeat biopsy, even for recurrent bilateral and macroscopically not doubtful nasal polyps to exclude malignancy.

In contrary to antrochoanal polyps, ethmoidal nasal polyps are rarely found in children and if present they are usually secondary. The only child who had ethmoidal polyps in this study was found to have mucoviscidosis.

In our department, antrochoanal polyps are usually removed under general anesthesia, with the tonsillectomy position and mouth gag in place. Antral washout was found useful to facilitate gentle extraction of the whole polyp (antral, nasal, and choanal parts) in one piece through the nasopharynx. Unlike ethmoidal nasal polyps, antrochoanal polyps do not recur after proper excision.

Inverted papilloma was the commonest benign tumor. Even though inverted papilloma is a benign tumor, it is a locally malignant one with the tendency to invade soft tissues and cause pressure necrosis on surrounding bones. Malignant transformation occurs in 5% of cases. The best treatment is surgery but the recurrence rate is high. Buchwald C. reported 50% recurrence after surgery<sup>(3)</sup>. Radiotherapy is contraindicated as it may provoke malignant changes.

Inverted papilloma is usually treated by lateral rhinotomy and medial maxillectomy, but recently with the advances in functional endoscopic sinus surgery, it started to be used especially when the tumor is limited to the nasal cavity or if it is minimally invading the surrounding sinuses. Six out of ten of our patients (60%) developed recurrence of inverted papilloma and only one of them (10%) developed malignant transformation after 6 years of diagnosis. The patient was treated by lateral rhinotomy followed by radiotherapy and is still on follow-up. Chemotherapy may also be used in the management of malignant transformation. Sooriyaarachchi and Skuta reported that transitional cell carcinoma of nasal passages had a dramatic and complete response to chemotherapy with cis-platinum, methotrexate and bleomycin<sup>(4)</sup>.

Patients with malignant tumors usually present with unilateral nasal obstruction, epistaxis and pain for a short period of time. Squamous cell carcinoma was the commonest malignant nasal neoplasm. It was found in 6 patients, all of whom were males. In one of them it was originating from the septum. Squamous cell carcinoma of the nasal septum occurs infrequently, and it is often misdiagnosed because its symptoms are similar to every rhinologic complaint<sup>(5)</sup>.

Four of the patients with squamous cell carcinoma were smokers, although there are no consistent published associations with any environmental toxins to determine patients at risk<sup>(6)</sup>.

Lymph node metastasis was unrelated to the degree of differentiation, but distant metastasis significantly correlated to the degree of differentiation ( $P=0.014$ )<sup>(7)</sup>.

Magnetic resonance imaging (MRI) is useful in evaluating the wide spectrum of diseases that cause nasal masses. Despite the advantages of MRI, CT-scan remains the preferred imaging modality for evaluating nasal masses that contain calcifications or originate from bone or cartilage<sup>(8)</sup>. Preoperative CT-scan or MRI is mandatory if malignancy is suspected to evaluate the extent of the tumor and to properly plan for surgery.

Nasal endoscopy was found to be very effective in both diagnosis and treatment of nasal lesions. It is also useful in evaluating the extent of tumor extension and planning for surgery. The increased experience in functional endoscopic sinus surgery (FESS) helped to avoid major external surgeries and to decrease morbidity with better cosmeses. But it should be remembered that the endoscope is less useful for removal of malignant lesions unless they are very small and localized, or if it is used as a palliative measure.

All patients with squamous cell carcinoma were treated by lateral rhinotomy followed by radiotherapy except for the one with carcinoma of the septum who was treated by intranasal excision of the tumor followed by radiotherapy. Two patients (33%) were disease-free three years after surgery. One patient was lost to be followed, while the remaining three patients (50%) had

recurrence of squamous cell carcinoma. Patients with recurrent carcinoma were treated repeatedly by functional endoscopic sinus surgery; two of them (33%) died at some time after surgery, and the third one is still on follow-up.

Weinberger reported that the policy of initial treatment of the primary tumor by radiation, reserving surgery for the management of residual or metastatic cancer, resulted in good control rates and cosmeses<sup>(9)</sup>.

Adenoid cystic carcinoma of the nasal cavity has a unique natural history. It has a propensity for frequent local recurrence and early perineural and perivascular spread. These factors, together with a complex anatomic situation, make adequate oncologic surgery difficult. The choice between conservative and radical management may not alter prognosis. Indeed, it is doubtful if any patients are cured of this disease<sup>(10)</sup>.

## Conclusions

Preoperative diagnosis based on proper clinical examination is consistent with the histopathological diagnosis in most cases.

Squamous cell carcinoma is the most common malignant nasal tumor and may present in different age groups.

Preoperative nasal endoscopy, CT-scan or MRI are mandatory when a neoplastic lesion is suspected to evaluate the extent of the tumor and to properly plan for surgery. Finally, any tissue removed from the nose should be sent for histopathological analysis.

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