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# CORRELATION OF CLINICAL AND RADIOLOGICAL WITH POSTOPERATIVE HISTOPATHOLOGICAL DIAGNOSIS OF NASAL MASSES

**Objective:**
To correlate clinical and radiological diagnosis with postoperative histopathological diagnosis of nasal masses.

**Materials and Methods:**
It was a prospective, comparative, longitudinal study carried out from 15th October 2007 to 14th July 2009 in Ganesh Man Singh Memorial Academy of ENT and Head &Neck Studies, Institute of Medicine, Maharajgunj, Kathmandu, Nepal. Patients included were >12yrs with clinically diagnosed nasal masses, both gender and recurrent diseases. Every patients were subjected to CT scan and underwent surgery. The preoperative CT scans were studied for the extent and diagnosis of nasal masses by consultant radiologist. Surgeries were performed by faculties. The nasal mass specimens were sent for histopathological diagnosis and were studied by consultant pathologist. Both the clinical and radiological diagnosis was correlated with final histopathological diagnosis.

**Results:**
This study showed 84.0% correlation and 16.0% discrepancy between clinical and final histopathological diagnosis of nasal masses. The overall sensitivity of clinical examination in diagnosing of various nasal masses was100%, specificity 91%, accuracy 92% and P value 0.008. The comparison of radiological and final histopathological diagnosis of various nasal masses showed correlation of 84.0% and diagnosis results varied in 16.0%. The overall sensitivity of CT scan was100%, specificity 91%, accuracy 92% and P value 0.008.

**Conclusion:**
There is a good correlation between clinical and radiological diagnosis with that of final histopathological diagnosis of various nasal masses.

**Keywords:** Nasal masses, CT scan, Histopathology.

## INTRODUCTION:

Nasal masses are one of the commonly encountered conditions in out patient department of Otorhionolaryngology. Nasal masses can be unilateral or bilateral and neoplastic or non-neoplastic. Nasal polyp, the commonest is oedematous mucosa from osteomeatal complex and extending into nasal cavity, sinus and nasopharynx.[1] Though can be diagnosed clinically but radio imaging is essential for the evaluation of proper surgical approach. CT scan is the investigation of choice in accessing nasal masses. The accuracy of CT and MRI for small tumors is 45-80%.[2] It is difficult to determine clinically and radiologically, the actual pathology underneath every nasal masses and in some cases for further treatment planning like postoperative radiotherapy and chemotherapy as in cases of malignancies, therefore post operative histopatholical evaluation is mandatory for a definitive diagnosis. Thus histopathology is regarded as a gold standard in diagnosing every nasal mass.

## MATERIALSAND MEHODS:

It is a prospective, comparative, longitudinal study carried out from 15th October 2007 to 14th July 2009 in Ganesh Man Singh Memorial Academy of ENT and Head & Neck Studies, Institute of Medicine, Maharajgunj, Kathmandu, Nepal. Patients included were >12 years of age with clinically diagnosed nasal masses, both gender and recurrent diseases. Patients with inconclusive histopathological reports were excluded. Apart from routine work up and investigation, CT scan of nose and paranasal sinuses was done. Surgery was performed and every specimen was sent for histopathological examination. All data were analyzed and Mc Nemar test was applied and significance was taken as 95% confidence interval with P value of less than 0.5.

## RESULTS:

The total number of patients enrolled during the study period was100. The patients were divided in different age groups ranged from 13-72 years with mean age of 31.38 years. Maximum number were within 13-20 years (34.0%) (Fig.1). Among 100 patients, male were 69.0% and female were 31.0% (Fig.2). The male to female ratio was 2.2:1.

Out of 80 patients clinically diagnosed as non-neoplastic nasal masses, 72 cases (90.0%) correlated both clinically and histopathologically, and in 8 cases (10.0%) of clinically diagnosed fungal polyposis had a different histopathological diagnosis. Among 20 neoplastic nasal masses,12(60.0%) had correlation between clinical and histopathological diagnosis whereas 8 (40.0%) were not correlated as shown in Tab:1.

Fig: 1. Age distribution

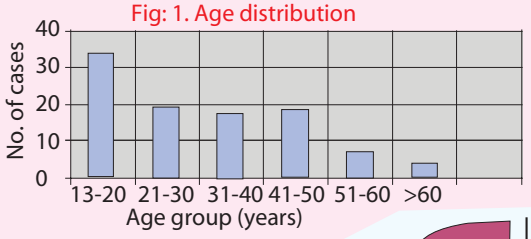
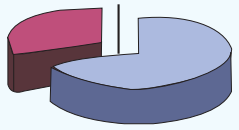



Fig: 2. Sex distribution




Tab:1. Comparision of clinical and histopathological diagnosis.

**Non-neoplastic (n=80)**

| Clinical findings | No. of pts. | Histopathology | No. of pts |
|---|---|---|---|
| Ethmoidal Polyp | 50 | Inflammatory polyp | 50 |
| AC Polyp | 22 | Inflammatory polyp | 22 |
| Fungal polyposis | 8 | Inflammatory polyp | 8 |

**Neoplastic (n=20)**

| Clinical findings | No. of pts. | Histopathology | No. of pts |
|---|---|---|---|
| BENIGN | | | |
| Hemangioma | 1 | Haemangioma | 1 |
| Angiofibroma | 8 | Angiofibroma | 8 |
| Inverted Papilloma | 7 | Inverted papilloma | 2 |
| | | Inflammatory polyp | 5 |
| MALIGNANT | | | |
| Carcinoma of nasal cavity | 4 | Inflammatory polyp | 3 |
| | | Small cell carcinoma | 1 |

Comparision of radiological and histopathological diagnosis were done among 81 non-neoplastic cases, out of which 73(90.13%) were correlated and 8(9.8%) were not correlated and among 19 neoplastic masses, 11(57.89%) correlaeted and 8(42.10%) not as shown in Tab. 2.

Tab: 2. Comparision of radiological and histopathological diagnosis

**Non-Neoplastic (n=81)**

| Radiological findings | No. of pts. | Histopathology | No. of pts |
|---|---|---|---|
| Ethmoidal Polyp | 47 | Inflammatory polyp | 47 |
| AC Polyp | 21 | Inflammatory polyp | 21 |
| Fungal Sinusitis | 5 | Inflammatory polyp | 5 |
| Maxillary & ethmoidal sinusitis | 5 | Inflammatory polyp | 5 |
| Fungal polyposis | 3 | Inflammatory polyp | 3 |

**Neoplastic (n=19)**

| Radiological findings | No. of pts. | Histopathology | No. of pts |
|---|---|---|---|
| **Benign** | | | |
| Hemangioma | 1 | Haemangioma | 1 |
| Angiofibroma | 8 | Angiofibroma | 8 |
| Inverted Papilloma | 7 | Inverted papilloma | 2 |
| | | Inflammatory polyp | 4 |
| | | Small cell carcinoma | 1 |
| **Malignant** | | | |
| Malignant mass in ethmoid sinus | 2 | Inflammatory polyp | 2 |
| Malignant mass in nasal cavity | 1 | Inflammatory polyp | 1 |

## DISCUSSION:

There is controversy that if all nasal masses removed during surgery should be sent for histopathological examination.[3] Conventionally not only unilateral polyps and suspicious-looking masses, but all kind of nasal masses need final histological examinations as unexpected clinically relevant diagnosis may occur.[4]

Romashko et al, preferred to send histopathological examination only in suspicious masses as they found occult neoplasm in 0.26% of suspicious cases. According to them submission of specimen for histopathological examination is indicated in routine cases when there is intraoperative suspicion of tumor, unilateral nasal mass, unilateral sinus opacification, additional diagnostic information is needed (like, fungal forms).[5] Garavello et al reported incidence of unexpected clinically relevant diagnosis up to 0.92% of nasal masses.[3] In the next study Garavello et al found the incidence of inverted papilloma in postoperative histopathology in 0.26% of nasal polyposis.[6] Hence even in nasal polyp there may be associated malignancy or inverted papilloma. According to postoperative histopathogical report the mode of further management may be changed. Therefore for the better management and final diagnosis, postoperative histopathology must be needed.

In our study benign cases occurred in 2nd decade of life and was predominantly in male sex with the ratio of 2.2:1 which correlated with the study by Bernes et al.[7] According to Zafar et al, out of 240 cases, 145 were non-neoplastic and 95 were neoplastic and in our study out of 100 cases, 80 were non-neoplstic and 20 were neoplastic.[8] Our study showed 16.0% had different clinical and histopathologiocal diagnosis. In a study done by Chopra H, 8% had different clinical and histopathological diagnosis.[9] Similarly a study by Diamantopoulos et al,1.1% had different clinical and histopathological diagnosis.[10] Pradhananga et al in their study stated the discrepancy of 6.3% between clinical and histopathological diagnosis.[11] Another study by Garavello et al, showed that out of 2,147 cases only 8 cases differed clinically with histopathologically.[6]

In our study all clinically diagnosed fungal polyposis were reported histopathologically as inflammatory polyp. This may be due to lack of proper use of special stains in histopathological specimen or due to the variation in individual experty among pathologist.

Clinically neoplasia was suspected in patients with persistent sinonasal complaints who presented with recurrent epistaxsis, dentition problems, trismus, cranial neuropathies or orbital extensions. But the correct diagnosis of neoplasic lesion was established only in 60% of cases (12 out of 20 cases) whereas in the study of Chopra H clinical diagnosis correlates with histopathological diagnosis in 77.7 %.[9]

Our study showed that clinically diagnosed seven cases of inverted papilloma were also reported as inverted papilloma in two cases and in five cases as inflammatory polyps. The discrepancy between clinical diagnosis and final histopathological diagnosis was found to be 71.4% whereas in the study by Pradhananga et al, discrepancy was 62.5%.[11]

On analysis of different nasal masses in our study, clinical diagnosis showed 100% sensitivity, 91% specificity and accuracy of 92% with P value of 0.008 (significant) and overall sensitivity of CT in diagnosing nasal masses was 100%, specificity of 91%, accuracy of 92% and P value of 0.008 (significant).

## CONCLUSION:

In the view of our results, 84.0% (n=84) cases diagnosed by clinical and radiological examination correlated with histopathological diagnosis, while 16.0% (n=16) of cases did not correlated. The overall sensitivity of clinical and radiological diagnosis was 100%, specificity 91% and P value 0.008.

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