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# CORRELATION OF CLINICAL,RADIOLOGICAL AND HISTOPATHOLOGICAL FINDINGS AMONG PATIENTS WITH SINONASAL MASSES

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## ABSTRACT

**Aim:** To correlate the clinical findings, radiological findings of various sinonasal masses in patients along with histopathological diagnosis. **Material And Method:** The study was a prospective cross-sectional analysis of 59patients with sinonasal masses conducted over 18months at NIMS&Research, Jaipur. Inclusion required informed consent and prior diagnosis of nasal mass, while cases with other nasal pathologies or unfit for procedures were excluded. Diagnosis and evaluation were done through clinical exams, imaging(X-ray, CT/MRI), nasal endoscopy, FNAC, and biopsy. **Results:** The 18month study at NIMS&Research, Jaipur, included 59patients with sinonasal masses, mostly males aged 19–30, with nasal obstruction being the most common symptom. Diagnostic tools revealed varying patterns of nasal and sinus involvement, with bilateral sinonasal polyposis being the most frequent finding across clinical, radiological, and histopathological evaluations. High correlation was observed between clinical, radiological, and histopathological diagnoses, with 93.2%clinical-radiological and 84.7%clinical-histopathological concordance. **Conclusion:** The study highlights the need for a multidisciplinary approach—combining clinical evaluation, imaging(CT/MRI), and histopathology—for accurate diagnosis and treatment of sinonasal masses. It emphasizes histopathology as the gold standard and advocates for larger, multicenter studies to strengthen findings.

## KEYWORDS

Sinonasal masses, Rhinosinusitis, Diagnostic nasal Endoscopy

## INTRODUCTION

The nose plays a key aesthetic and functional role and holds emotional and cultural value. These masses may be benign or malignant, with symptoms like obstruction, bleeding, or facial deformities. Air pollution is a growing factor contributing to nasal and paranasal sinus diseases[1]. Diagnosis involves clinical evaluation, imaging(CT/MRI), nasal endoscopy, and histopathological examination. Benign tumours, though non-cancerous, may still cause major discomfort and structural changes. Malignant tumours, though rare, are aggressive and often present late with symptoms like nasal blockage, epistaxis, and facial swelling. Squamous cell carcinoma is the most common sinonasal cancer, often linked to occupational exposures[2]. Some rare tumours arise from nervous tissue in the nasal region. Prognosis depends on tumour type, stage, spread, and treatment strategy, making early and accurate diagnosis essential for management[3].

## MATERIAL AND METHODS

The study was a prospective cross-sectional analysis conducted over 18months in the ENT department at NIMS&Research, Jaipur. It included 59patients with sinonasal masses who met inclusion criteria, with written informed consent and prior ethical clearance.

### Inclusion Criteria:

- Cases attended ENT OPD with already diagnosed mass in nasal cavity.
- Cases who give informed written consent to participate in the study.

### Exclusion Criteria:

- Cases presented with nasal pathology except sinonasal Masses.
- Cases who are unfit for taking biopsy or for surgery.
- Participants who were not willing to participate in the study.

### Methodology

Patients attending the ENT OPD or admitted to the ward at NIMS&Research, Jaipur, during the study period were included based on defined criteria. Data was collected using a pre-tested structured proforma, with detailed history, clinical examination, and investigations. Institutional ethical committee approval was obtained, and informed consent was taken. Patients were evaluated for nasal mass symptoms, onset, treatment history, and complications. Diagnosis was confirmed through nasal endoscopy, X-ray, CT/MRI scans, FNAC, and biopsy.

### Statistical Analyses

Data was entered and cleaned using MSExcel, and analysed using SPSS version 25.0. Continuous variables were presented as mean±SD or median±IQR, while categorical variables were shown as numbers and percentages. Graphs like pie charts, bar diagrams, and histograms were used for visualization. Statistical tests were applied to assess associations, with $p < 0.05$ considered significant.

## OBSERVATION AND RESULTS

The study titled "Correlation of Clinical, Radiological and Histopathological Findings among Patients with Sinonasal Masses" was conducted at NIMS&R, Jaipur, over 18months, including 59patients.

Majority were males(67.8%), and the most common age group was 19–30years(23 patients), followed by 31–45years(14 patients).

Nasal obstruction was reported by all patients (100%), followed by nasal discharge (59.3%), headache (69.5%), facial pain (42.4%), anosmia/hyposmia(20.3%), and abnormal vision (11.9%).

On diagnostic nasal endoscopy, unilateral nasal polyposis was seen in 37.3%, bilateral in 40.7%, while 22% had none; DNS was found in 55.9%, asymmetric septum in 27.1%, and necrosed septum in 5.1%.

Rhinorrhoea was noted in 59.3%, mucosal thickening in 28.5%, nasal congestion in 67.8%, hypertrophied turbinates in 45.8%, and middle meatus involvement in 66.1%.

Radiologically, frontal sinus was normal in 89.8%, with bilateral involvement in 6.8%; ethmoidal sinus was involved bilaterally in 47.5%, unilaterally in 16.9%, and normal in 35.6%.

Maxillary sinus showed bilateral involvement in 30.5%, right in 23.7%, left in 20.3%, and normal in 25.5%.

Sphenoid sinus was normal in 78%; bilateral involvement seen in 18.6%, and unilateral in 3.4%.

Osteomeatal complex was bilaterally involved in25.4%, unilaterally in 37.3%, and not involved in 37.3%; bone erosion was present in13.6%of patients.

Clinically, 18patients had bilateral sinonasal polyposis, 8 had Antro choanal polyp, 6 had pansinusitis, and 3 each had juvenile nasopharyngeal angiofibroma and rhino-orbital mucormycosis.

Radiologically, 16were diagnosed with bilateral sinonasal polyposis, 8 with Antro choanal polyp, 6 with pansinusitis, 4 with allergic fungal rhinosinusitis, and 3 with rhino-orbital mucormycosis.

Histopathology showed 54.2%with inflammatory polyp, 11.8%with Antro choanal polyp, 8.5%with allergic polyp,6.8% with allergic fungal rhinosinusitis, and 5.1%each with angiofibroma and mucormycosis.

Clinical and radiological diagnoses matched in 93.2%of cases; only 6.8%showed differences.

Clinical and histopathological diagnoses matched in 84.7%; 15.3%had discrepancies, mainly pansinusitis being diagnosed as inflammatory polyp.

Radiological and histopathological diagnoses also matched in 84.7%; 15.3% differed, including pansinusitis diagnosed as inflammatory polyp and residual lesions diagnosed as angiofibroma.

**Table:-1 Correlation Between Clinical And Radiological Diagnosis**

| Clinical diagnosis | Frequency(n) | Radiological diagnosis | Frequency (n) | Radiological correlation | |
|---|---|---|---|---|---|
| | | | | Matched n(%) | Non-matched n(%) |
| B/L sinonasal polyposis | 18 | B/L sinonasal polyposis | 16 | 16(88.9) | 02 (11.1) |
| Antrochoanal Polyp | 08 | Antrochoanal Polyp | 08 | 08 (100) | 00(00) |
| Left sinonasal polyposis | 07 | Left sinonasal polyposis | 07 | 07(100) | 00(00) |
| Right sinonasal polyposis | 07 | Right sinonasal polyposis | 07 | 07 (100) | 00(00) |
| Pansinusitis | 06 | Pansinusitis | 06 | 06 (100) | 00(00) |
| Juvenile nasopharyngeal angiofibroma | 03 | Juvenile nasopharyngeal angiofibroma | 01 | 01 (33.3) | 02(66.7) |
| Chronic rhinosinusitis | 02 | Allergic fungal rhinosinusitis | 04 | 02 (50) | 02 (50) |
| Rhino-orbital mucormycosis | 03 | Rhino-orbital mucormycosis | 03 | 03 (100) | 00(00) |
| Inverted papilloma | 02 | Inverted papilloma | 02 | 02 (100) | 00(00) |
| Mucocele | 02 | Mucocele | 02 | 02 (100) | 00(00) |
| Rhinosporidiosis | 01 | Rhinosporidiosis | 01 | 01 (100) | 00(00) |
| **Total** | 59 (100) | | 59 (100) | 55 (93.2) | 04 (6.8) |

**Table:-2 Correlation Between Clinical And Histopathological Diagnosis**

| Clinical diagnosis | Frequency(n) | Histopathological diagnosis | Frequency(n) | HPE Correlation | |
|---|---|---|---|---|---|
| | | | | Matched n(%) | Non-matcheD n(%) |
| B/L sinonasal polyposis | 18 | Inflammatory/ Allergic polyp | 16 | 16 (88.9) | 02 (11.1) |
| Antrochoanal Polyp | 08 | Antrochoanal Polyp | 07 | 07 (87.5) | 01 (12.5) |
| Left sinonasal polyposis | 07 | Inflammatory/ Allergic polyp | 07 | 07 (100) | 00(00) |
| Right sinonasal polyposis | 07 | Inflammatory/ Allergic polyp | 07 | 07 (100) | 00(00) |
| Pansinusitis | 06 | Inflammatory polyp | 06 | 00(00) | 06 (100) |
| Juvenile nasopharyngeal angiofibroma | 03 | Juvenile nasopharyngeal angiofibroma | 03 | 03 (100) | 00(00) |
| Rhino-orbital mucormycosis | 03 | Mucormycosis | 03 | 03 (100) | 00(00) |
| Mucocele | 02 | Mucocele | 02 | 02 (100) | 00(00) |
| Chronic rhinosinusitis | 02 | Allergic fungal rhinosinusitis | 04 | 02 (50) | 02 (50) |
| Inverted papilloma | 02 | Inverted papilloma | 02 | 02 (100) | 00(00) |
| Rhinosporidiosis | 01 | Rhinosporidiosis | 01 | 01 (100) | 00(00) |
| **Total** | 59 | | 59 | 50 (84.7) | 09 (15.3) |

**Table:-3 Correlation Between Radiological And Histopathological Diagnosis**

| Radiological diagnosis | Frequency(n) | Histopathological diagnosis | Frequency(n) | HPE Correlation | |
|---|---|---|---|---|---|
| | | | | Matched n(%) | Non-matched n(%) |
| B/L sinonasal polyposis | 16 | Inflammatory/ Allergic polyp | 16 | 16 (100) | 00(00) |
| Antrochoanal Polyp | 08 | Antrochoanal Polyp | 07 | 07 (87.5) | 01 (12.5) |
| Left sinonasal polyposis | 07 | Inflammatory/ Allergic polyp | 07 | 07 (100) | 00(00) |
| Right sinonasal polyposis | 07 | Inflammatory/ Allergic polyp | 07 | 07 (100) | 00(00) |
| Pansinusitis | 06 | Inflammatory polyp | 06 | 00(00) | 06 (100) |
| Allergic fungal rhinosinusitis | 04 | Allergic fungal rhinosinusitis | 04 | 04 (100) | 00(00) |
| Rhino-orbital Mucormycosis | 03 | Mucormycosis | 03 | 03 (100) | 00(00) |
| Inverted papilloma | 02 | Inverted papilloma | 02 | 02 (100) | 00(00) |
| Residual or Recurrent Lesion | 02 | Juvenile nasopharyngeal angiofibroma | 02 | 00(00) | 02 (100) |
| Retention cyst | 02 | Mucocele | 02 | 02 (100) | 00(00) |
| Juvenile nasopharyngeal angiofibroma | 01 | Juvenile nasopharyngeal angiofibroma | 03 | 01 (33.3) | 02 (66.7) |
| Rhinosporidiosis | 01 | Rhinosporidiosis | 01 | 01 (100) | 00(00) |
| **Total** | 59 | | 59 | 50 (84.7) | 09 (15.3) |

## DISCUSSION

### Evaluation Approach And Diagnostic Significance

The assessment of sinonasal masses requires a multi-modal approach integrating clinical evaluation, radiology, and histopathology. In the present study, benign lesions such as nasal polyps and inverted papillomas were more associated with obstruction, while malignant lesions commonly presented with recurrent epistaxis and aggressive progression. Radiological tools, particularly CT and MRI, were invaluable in determining lesion extent, bony erosion, and soft tissue characteristics. However, imaging alone was not definitive benign lesions often mimicked malignancies—underlining the importance of histopathology as the diagnostic gold standard. The study observed strong correlations between radiological and histopathological findings, especially in inverted papillomas and fungal sinusitis, though discrepancies did occur in some cases, emphasizing the necessity for tissue diagnosis.

### Socio-demographic Profile And Clinical Symptoms

The current study included mostly male patients(67.8%), predominantly aged 19–30 years. Similar trends were seen in studies by Sahoo K et al[4], Zafar et al., and Ray S et al., where males were more affected and the peak incidence was in the 2nd and 3rd decades. Common symptoms included nasal obstruction(100%), nasal discharge(59.3%), headache(69.5%), and facial pain(42.4%). Comparatively, Sahoo K et al.[4] and Lathi A et al[5]. also reported nasal obstruction as the leading symptom. Vision abnormalities and epistaxis were less frequently reported. These consistent findings across studies emphasize that early symptoms are nonspecific and can

delay diagnosis unless carefully assessed.

### Nasal Endoscopy And Radiological Findings

Diagnostic nasal endoscopy revealed bilateral nasal polyposis in40.7%and unilateral in 37.3%. Deviated nasal septum was seen in over half the patients. These results align with studies by Dhillon V et al.[6] and Bist S et al.[7], who reported similar findings, including the predominance of nasal masses in the middle meatus. Radiologically, ethmoidal and maxillary sinuses were most frequently involved. CT scans showed bilateral ethmoidal involvement in 47.5%and maxillary in 30.5%. Bone erosion was less frequent (13.6%). Similar sinus involvement patterns were reported in studies by Sahoo A et al. and Poursadegh M et al.[8]

### Diagnosis And Correlation

Clinically, bilateral sinonasal polyposis was the most common diagnosis, followed by Antro choanal polyp and pansinusitis. Radiological findings largely supported clinical impressions, with minor differences. Histopathologically, inflammatory polyps were most common (54.2%), followed by Antro choanal and allergic fungal polyps. Correlation rates were high:93.2% between clinical and radiological, 84.7% between clinical and histopathology, and 84.7%between radiology and histopathology. These are consistent with other studies—Gujrathi et al.(92.5%), Gupta et al.(96%), and Bist S et al.(96.3%) reinforcing that while clinical and radiological evaluations are informative, histopathology remains the definitive diagnostic standard.

### Limitations

- Small Sample Size
- Single-Center Study
- Lack of Longitudinal Follow-Up

## CONCLUSION

This study emphasizes the importance of an integrated clinical, radiological, and histopathological approach for accurately diagnosing sinonasal masses. Clinical signs offer initial suspicion, while CT and MRI help assess lesion extent and characteristics. Histopathological examination remains the gold standard for definitive diagnosis. Correlating all findings improves accuracy and guides proper treatment. Despite study limitations, it highlights the need for multidisciplinary collaboration and calls for larger, multi-centre research for further validation.

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