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Case Report

Tuberculosis a diagnostic pitfall of Nasopharyngeal carcinoma? Two case report

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ABSTRACT

Nagaland has the highest AAR (age adjusted rates) of Nasopharyngeal carcinoma (NPC) in India. The frequent presentation of metastatic neck nodes of nasopharyngeal carcinoma can lead to diagnostic errors if preliminary investigations are not done properly. We present two patients with metastatic NPC who were initially treated with anti-tubercular therapy presumed to have tuberculosis. Metastasis was confirmed with fine needle aspiration cytology and NPC diagnosis was made on histopathological examination of endoscopic nasal biopsy. Both patients were treated with neoadjuvant chemotherapy, followed with concurrent chemo-radiation and are on follow-up.

1. Introduction

Nasopharyngeal carcinoma (NPC) is prevalent in Southern China and Southeast Asia.

In Asia, Zhongshan City (25.0 per 100,000) in China had the highest incidence of cancer nasopharynx among males and Zhuhai in China (9.0 per 100,000) had the highest AAR among females.[1]

In India, according to the National Cancer Registry Programme 2020, the state of Nagaland had the highest AAR of cancer nasopharynx when compared with Non-Asian countries both in males (14.4 per 100,000) and females (6.5 per 100,000).[1]

The most common complaint in nasopharyngeal carcinoma is cervical lymphadenopathy, which is followed by complaints of nasal obstruction, epistaxis, and serous otitis media.[2,3] Approximately 70% of patients with nasopharyngeal carcinoma initially presents with major complaint of neck mass, and 60 to 96% of nasopharyngeal carcinoma patients also show cervical lymph node adenopathy.[2,4]

Tuberculosis (TB) is a communicable disease with high disease burden in India and is one of the leading causes of death worldwide. Despite many advances and the continued fight against tuberculosis, the cases of tuberculosis was 7.1 million in 2019 and 5.8 million in 2020.[5] As per the Global TB Report 2021, the estimated incidence of all forms of TB in India for the year 2020 was 188 per 100,000 populations (129-257 per 100,000 population).[5] The diagnosis of tuberculosis has always been a challenge especially in low- and median-income countries (LMICs) where the diagnosis of TB is mainly established by stained sputum smear microscopy. However, bacilloscopy can only detect 50 – 60% of all cases (positive acid-fast bacilli [AFB]).[6,7] Hence many tuberculosis cases are either missed out or patients with high clinical suspicion are usually treated for tuberculosis without prior diagnosis. Tuberculosis has various clinical presentation, among which head and neck regions can be involved in up to 10% of all TB cases with the cervical lymph nodes most frequently involved.[8]

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Due to high prevalence, similar presentation and lack of facilities to diagnosed both NPC and tuberculosis in resource limited area like the North east India, some NPC are misdiagnosed as tuberculosis and treated for the same.

We present two cases of nasopharyngeal carcinoma which were initially misdiagnosed (from other centers) as tuberculosis and were being treated with ATT. We present the following case in accordance with the AME (Academic Made Easy/Excellent/Enthusiastic) case series checklist.

2. Materials and Methods

A retrospective retrieval of records on all consecutive single center cases of biopsy and imaging proven nasopharyngeal carcinoma initially misdiagnosed as tuberculosis with history of ATT. Clinical and laboratory parameters, treatment and clinical outcome data were analyzed.

2.1. Setting

The hospital is a Secondary level 190 bedded private-public partnership in a semi urban district in North-East India.

2.2. Ethical statement

Written informed consent was taken from all patients for publication. Study was conducted following the national and institutional ethics guidelines.

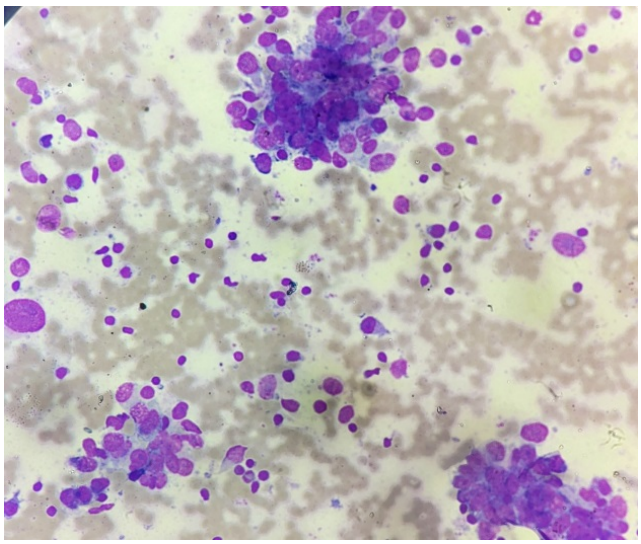

Fig. 1: Fine needle aspiration cytology of cervical lymph node showing metastatic malignant cells (Leishman giemsa stain, 400x)

3. Case

Both patients had not been proven for tuberculosis and we assumed that they were started on ATT on clinical suspicion and clinical presentation of weight loss and neck nodes from other peripheral centers, and was referred to our center for no clinical improvement. Initial assessment was done by fine needle aspiration cytology (FNAC) of the neck swelling (Figure 1) and was confirmed by imaging and histopathology. Histopathology report of both patients were of Non Keratinizing undifferentiated NPC (Figure 2).

The details of the same are highlighted in Table 1.

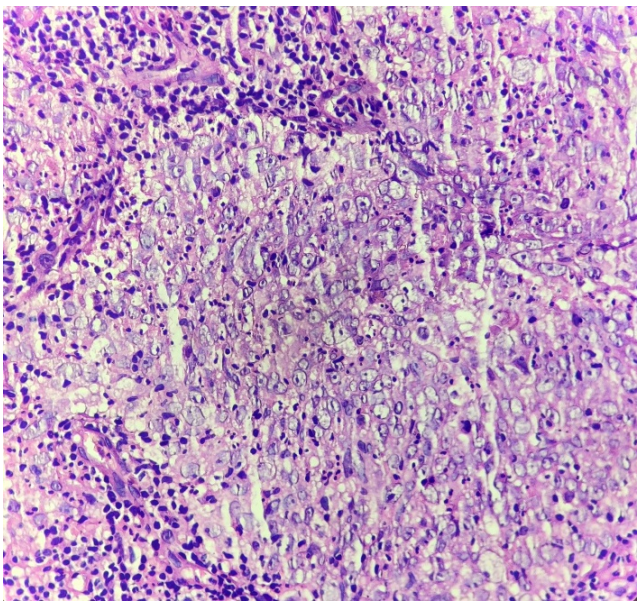

Fig. 2: Histology of Non-Keratinizing Undifferentiated Nasopharyngeal Carcinoma from nasopharyngeal mass. (H&E, 400x)

4. Case 1

A 37-year-old gentleman, past smoker, came with complaints of generalized weakness, decreased appetite and swelling in the right side of the neck for five months. He was on ATT for three months. CECT neck and naso-pharyngoscopy showed a mass in the nasopharynx with cervical lymph node metastasis. A biopsy from the nasopharynx confirmed Non-keratinizing undifferentiated NPC and FNAC from the neck swelling showed metastatic disease. He was treated with neoadjuvant chemotherapy, followed with concurrent chemo-radiation and is on follow up with nasal endoscopy and CECT neck for 2 years and 4 months with no residual disease.

5. Case 2

A 65-year-old male, non-smoker, came with complaints of bilateral neck swelling which gradually progressed in size and was not painful for 10 months, along with nasal block, difficulty in swallowing for 3 months. He was evaluated in other center and was started on ATT. He completed four months of ATT. However, there was no improvement in symptoms but the neck swelling had

Table 1: Demographics, clinical characteristics and diagnostic results.

S.No.	Age	Sex	Complaint	FNAC site	Imaging	Histology	TNM	ATT Duration
1	37	M	Nasal discharge with tinnitus	Left level II And V	MRI- NECK contrast- Heterogeneous enhancing mass lesion circumferentially involving the nasopharyngeal lumen. Multiple enlarged lymph nodes right level II, III, IV, right retropharyngeal and left level III region.	Non keratinizing undifferentiated NPC	$cT_2N_2M_x$	3 months
2	65	M	Nasal blockage for 1 month	Bilateral level V	CT neck with contrast- Heterogeneous enhancing solid lesion involving left side of nasopharynx. Few enlarged nodes seen in level II and V	Non keratinizing undifferentiated NPC	$cT_3N_3M_0$	4 month

increased in size. Hence, to seek further treatment he was referred to our hospital. Upon evaluation, FNAC of the neck swelling, naso-pharyngoscopy and CECT neck confirmed the diagnosis of Non keratinizing undifferentiated NPC and the FNAC confirmed metastasis. He was treated with neoadjuvant chemotherapy, followed with concurrent chemo-radiation and is on follow up with nasal endoscopy and CECT neck for 1 year and 8 months.

6. Discussion

Nasopharyngeal carcinoma due to its vague presentation can mimic a variety of other neoplastic as well as non-neoplastic conditions particularly with neck node enlargement**.** This can further be more challenging in anatomical pathology of two diagnoses i.e. tuberculosis and NPC, as seen in our study. Most patients with NPC are diagnosed in the advanced stage and more than three-quarters of NPC patients presents late and have developed locally advanced or metastatic disease at presentation.[9,10] Detection of early disease is vital as the most important parameter affecting the treatment outcome of NPC patients is the disease stage at diagnosis and the 5-year survival rate for patients with localized disease is up to 90% and the figure drops to below 50% for patients with metastatic disease.[9] Unfortunately, in our study as well, both patient had already developed locally advanced or metastatic disease at presentation (Table 1) which could be attributed to the misdiagnosis of the cases. Other study has also shown that there can be many reasons which can lead to the misdiagnosis of NPC, some of which are patient factors (patient delay), facilities and infrastructures at health facilities, and the doctor.[11]

In the primary assessment of head and neck swelling, FNAC is a very useful tool, particularly in occult carcinomas, FNAC findings may be the only indication for searching primary in the nasopharynx.[12] This makes FNAC a very useful tool for assessment of metastatic NPC. The rapid assessment makes the technique a very important part of surgical pathology.[13] as it also enables to discriminate benign from malignant conditions. The aspirate findings from metastatic NPC can be confused with other malignant conditions particularly Hodgkin's Lymphoma and other metastatic carcinomas, however, careful studies of the cytological and architectural findings are key in arriving at the right diagnosis.[12,14] Endoscopy, FNAC and imaging plays a key role in detecting the NPC lesions, and endoscopic biopsy enables their definite diagnosis. In endemic areas, biopsy of the nasopharyngeal mucosa is recommended even if the mucosal surface exhibits normal appearance if NPC is strongly suspected.[15] As the treatment outcome of nasopharyngeal carcinoma is stage dependent, it cannot be made more clear the importance of early detection of this malignancy.

7. Conclusion

The study showed the importance of proper history, clinical examination and proper diagnostic tools for accurate diagnosis of NPC. The clinical outcome of NPC is based mostly on the staging at presentation therefore in addition to the proper diagnostic tools, increase awareness of this carcinoma among the physicians and the general population will undoubtedly contribute to the early detection of the disease.

8. Ethical Statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved**.**

9. Limitations

Correlation with molecular studies were not conducted due to lack of facilities.

10. Conflicts of interest

All authors have completed the ICMJE uniform disclosure form. The authors have no conflicts of interest to declare.

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None.

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