



## NASAL TUBERCULOSIS – AN ATYPICAL DISEASE.

**Dr SUMIT SHARMA.**

MBBS(KGMC-Lko), M.S. (KGMC-Lko), Assistant Professor, Department of E.N.T., Mayo Institute of Medical Sciences, Barabanki.

**Dr. SUEEBA SHABIR.**

MBBS, Junior Resident, Department of E.N.T., Mayo Institute of Medical Sciences, Barabanki.

**Dr. KHALID ASHRAF**

Junior Resident – 3, MDS- Orthodontics.Saraswati Dental College, Lucknow.

### KEYWORDS :

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis* (MTB).<sup>(1)</sup> Tuberculosis generally affects the lungs, but can also affect other parts of the body when it is called as extra-pulmonary tuberculosis. Most infections do not have symptoms; in which case it is known as latent tuberculosis. About 10% of latent infections progress to active disease which, if left untreated, kills about half of those infected. The classic symptoms of active TB are a chronic cough with blood-containing sputum, fever, night sweats, and weight loss.<sup>(1)</sup>

Tuberculosis is spread through the air when people who have active TB in their lungs cough, spit, speak, or sneeze.<sup>(1)</sup> People with latent TB do not spread the disease. Active infection occurs more often in people with HIV/AIDS and in those who smoke.<sup>(1)</sup> Diagnosis of active TB is based on chest X-rays, as well as microscopic examination and culture of body fluids. Diagnosis of latent TB relies on the tuberculin skin test (TST) or blood tests. (2)

Nasal septal tuberculosis is a rare entity characterized by granulomatous lesion over septum (Lai *et al.*, 2007). Nasal tuberculosis is usually secondary to tuberculosis of lungs and larynx, facial lupus but rarely primary nasal tuberculosis can occur (Page and Jash, 1974) Lodging of tubercle bacilli in nasal mucosa, which is inherently resistant to tubercle bacilli, is facilitated by trauma and atrophic changes (Choi *et al.*, 2000; Waldman *et al.*, 1981).

Symptoms of nasal septal tuberculosis include nasal bleeding, nasal obstruction, and nasal discharge. On nasal endoscopy ulcerative red nodules (granulomatous lesion) can be seen over the septum. In advanced stage septal perforation and scar stenosis can occur. Nasal endoscopy, Mantoux test, chest x-ray, histopathological verification of Langerhans cell help in making diagnosis (Nayaret *et al.*, 2004).

The lower frequency of nasal tuberculosis might be explained by the protection afforded by ciliary movement, the bactericidal action of nasal secretions and the filtering provided by the nasal vibrissae. It has also been postulated that the nasal mucosa is inherently resistant to mycobacterial growth (3)

Tuberculosis of head and neck area, excluding laryngeal forms, is exceptional and constitutes only 2-6% of extra pulmonary tuberculosis and 0.1-1% of all forms of tuberculosis (Weir and Thosnton, 1985).

### CASE REPORT

A 23 year old patient presented to the department of ENT at Mayo Institute of Medical sciences, Gadia, Barabanki, with chief complaints of difficulty in breathing from the nose for 3-4 months, nasal obstruction for 3-4 months, off and on headache. There was no history of Epistaxis, Nasal discharge, nasal itching,

fever, cough or weight loss. The patient did not complain of any pulmonary complaints and there were no clinically detectable cervical or generalized Lymphadenopathy.

In the past history patient was suffering from an ulcerative lesion over her left lower eyelid (figure-1) for the past 2-3 years which was very slowly progressing in nature. She was operated 1 year back when her entire ulcer was removed. Later after a period of a few months she developed a recurrence at the local site. Histopathology done from this lesion was inconclusive.



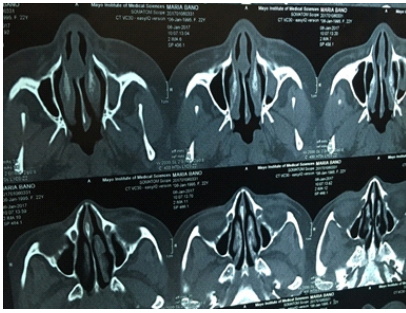
(Figure-1)

On Anterior Rhinoscopy a granulomatous mass was seen over the nasal septum on both the sides, in the region of Cottle's area 3 along with Deviation of Nasal septum towards right side, which was confirmed by nasal endoscopy. The mass was soft to touch and did not bleed on mild probing which also revealed its attachment on the Nasal septum. This mass was about 1x1 centimeter in size with irregular surface and was soft in consistency. It was located on the same site on the septum in both the nasal cavities. The nasal septum was intact and there was no perforation. The adjoining nasal mucosa showed mild congestion but there was no significant discharge. The remaining areas of nasal cavities were normal. The Oro-pharyngeal and laryngo-pharyngeal examination was normal.

Systemic examination did not yield any significant finding. Haemogram was within normal limits. Chest X-ray was within normal limits. Sputum for AFB was negative. Mantoux revealed an induration of 15 mm.

CT nose and Para-nasal sinuses revealed the same mass as described above (Figure 2) nearly at the junction of bony and cartilaginous part of the septum. It can be seen obstructing the nasal passages. In the CT scan it could be seen that the part of the bony septum in between the mass on the two sides of the nasal cavities shows mild thickening. There is also some turbinate hypertrophy.

Maxillary sinus on left side shows a small polyp.



(Figure-2)

After complete evaluation and cardiopulmonary clearance, the patient was operated under general anesthesia where the septal correction (as it may be contributing to nasal obstruction) was done along with excision of the mass on the septum on the two sides. The mass was soft, got easily detached from the septum, and did not cause any significant bleeding after excision. There was no destruction of the intervening septum either. The postoperative healing of the site of excision of the mass was normal and adequate. The tissue was sent for histo-pathological examination which revealed, caseating granulomatous inflammation consistent with Mycobacteriosis.

She was put on anti-tubercular therapy and she responded well to treatment.

## DISCUSSION.

Nasal tuberculosis was first described in 1761 by the Italian anatomy professor Giovanni Morgagni while reporting the autopsy findings of a young man with pulmonary tuberculosis who had ulcerations of the nose, soft palate and nasopharynx. (4). Primary tuberculosis of the nose is also rare. The first case of primary tuberculosis of the upper respiratory tract and nose was presented to the Pathological Society of London by Clarke in 1852. The diagnosis is difficult because NTB sign and symptoms are nonspecific. A definitive diagnosis is made by identifying or isolating tuberculosis bacilli from tissue removed during biopsy or surgery. Nasal secretions and swab specimens have a very low yield and should not be used to rule out this condition. (5)

In 2007 Yong Min Kim (6) showed that the disease was more common in females (75%) the patient in the present study is also a female, Nasal septum is the most commonly involved site in the nose (87%) followed by the palate, he also reported a 37% incidence of septal perforation and 25% incidence of sinus involvement in his study. In his study he found 75% primary infections of the nose by tuberculosis.

Study conducted by Seyed Mohammad Alavi, (5) also showed that females are more commonly affected; He suggested that lesions may be ulcerative, infiltrative, or proliferative, and most cases were unilateral, where as in our study it was proliferative and bilateral. He also suggested that nasal septum is the most common site involved in the nasal cavity. Biopsies of non-caseating granulomas are confusing histologically, and these cases are often misdiagnosed as Wegener's granuloma.

In 2016 Murat Özeretal (7) suggested that nasal tuberculosis is more common secondary to pulmonary tuberculosis. He also found a greater incidence of the disease in females, with a very low incidence in pediatric age group. In his study he has reported Epistaxis to be the commonest presenting symptom which was not the case in our patient. He suggested that M. tuberculosis may be introduced into the nasal cavity either through local infiltration by finger contact or by inhaling infected droplets or dust. He suggested that the formation of nodules on anatomic- or cicatrice-formed

lesion is one characteristic finding of nasal tuberculosis that he observed. Septum was the commonest site of involvement in the nasal cavity in his study. He also suggested that confirmative diagnosis is established by histopathological examination although culture results may be negative in some cases because of a very low number of mycobacteria in the tissue.

Study conducted by Sabina Khanetal. (8) suggested an equal male to female ratio, which is contradictory to other studies which have suggested a greater incidence in females. She has reported an incidence of 100% as primary tuberculosis (all her four patients had primary tuberculosis) although she also suggested that clinical diagnosis of the disease is not possible which can only be made after histo-pathological examination. She has suggested that nasal obstruction is the commonest presenting feature of the disease which was also the case in our case, nasal septum is the commonest site involved followed by the turbinates, She suggests that if we do not find a response in the nasal symptoms of the patient with the empirical antibiotic treatment we should suspect nasal tuberculosis.

In 2001 Baruahetal (3) suggested that Nasal tuberculosis can be caused by either a pulmonary disease or a retrograde involvement of the nose by lupus vulgaris of the facial skin. In only a few cases, it represents a primary infection. He suggested that nasal tuberculosis is usually seen in patients with strong immune responses and considered to be due to hypersensitivity to acid-fast bacilli which further causes tissue destruction. He also suggested that some patients with nasal tuberculosis subsequently develop pulmonary tuberculosis and/or extra-pulmonary tuberculosis in adjacent sites such as the larynx, though it is rare.

Common diseases that come in the differential diagnosis of Nasal tuberculosis includes Wegner's granulomatosis, sarcoidosis, fungal infection, leprosy, rhino-scleroma, rhino-sporidiosis, foreign bodies, carcinoma, natural killer-T-cell lymphoma, midline malignant reticulomas. The numbers of Langham's giant cells and epithelioid cells are believed to be greater in TB than in other granulomas (3)

## CONCLUSION.

The incidence of extra-pulmonary tuberculosis is on the increase in the recent times due to increase in Immune-compromised states like AIDS, diabetes etc. Nasal tuberculosis is still a rare entity in extra-pulmonary sites of tuberculosis but must always be considered in granulomatous conditions of the nose especially when condition does not improve after regular antibiotic and supportive treatment. It is mainly secondary to either Pulmonary or cutaneous (Lupus vulgaris) tuberculosis but sometimes can be primary as well. The nasal mucosa is resistant to Mycobacteria because of its inherent nature but inoculation can occur either from the droplet or hand contamination. Clinically disease symptoms are nonspecific and diagnosis can only be established by histo-pathological examination. The condition should be diagnosed early as it can lead to septal perforation, palatal destruction etc. The disease responds to the regular Anti-tubercular treatment with which complete cure can be achieved.

## REFERENCES:

1. "Tuberculosis Fact sheet N°104". WHO. October 2015. Retrieved 11 February 2016.
2. Konstantinos A (2010). "Testing for tuberculosis". *Australian Prescriber*. 33 (1): 12–18.
3. Tuberculosis of nose and palate with vanishing uvula - B Baruah1, A Goyal1, NB Shunyu1, ZA Lynrah1, V Raphael2 - *Indian Journal of Medical Microbiology*. - Year 2001/Volume:29 / Issue: 1/ page 63-65.
4. Waldman SR, Levine HL, Sebek BA, Parker W, Tucker HM. Nasal tuberculosis: A forgotten entity. *Laryngoscope* 1981;91:11-6.
5. Nasal tuberculosis in a 56 year old woman - Seyed Mohammad Alavi, MD - *Caspian J Intern Med*. 2014 Winter; 5(1): 49-51. - PMID: PMC3894473.
6. Eight cases of nasal tuberculosis - Yong Min Kim, MD et al. *Otolaryngology - Head and Neck Surgery* Volume 137, Issue 3, September 2007, Pages 500-504.
7. Primary Nasal Tuberculosis in a 10-Year-Old Girl - Murat Özeretal - *Canadian Journal of Infectious Diseases and Medical Microbiology* - Volume 2016 (2016), Article ID 9128548, 3 pages
8. Primary nasal tuberculosis: Resurgence or coincidence - A report of four cases with review of literature - Sabina Khan, Mukta Pujani, Sujata Jetley - *Year: 2017/Volume: 9/ Issue - 1/ pages 26-30.*