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Case Report

A rare case of primary nasal tuberculosis

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ABSTRACT

Even though tuberculosis is not uncommon, primary nasal tuberculosis is extremely rare. This is the story of a 46 years old man, diabetic, who had not any chest symptoms suggestive of tuberculosis, presented to us with nasal block, sneezing for a long time. The symptoms didn't improve with the usual lines of management from Dubai where he was working. When we saw the patient, he had a deviated nasal septum towards right side, and highly boggy pale mucosa of the nose with mucoid discharge on left side. He was on antibiotics for a long time. Hence a CT scan was taken. The CT scan showed typical features of sinusitis. Therefore, he was advised septoplasty with functional endoscopic sinus surgery (FESS). On surgery, the inferior turbinate was seen boggy with pale mucosa. It obscured the vision of the middle turbinate. There was granuloma on the turbinate. This was taken for biopsy and the report was granulomatous tissue with areas of necrosis and the possibility of tuberculosis is there. His blood samples were negative for other granulomatous disease and therefore was advised antituberculosis treatment. His symptoms improved. There was no evidence of a pulmonary tuberculosis in the chest and therefore was diagnosed as a case of primary nasal tuberculosis.

Keywords: Extra pulmonary tuberculosis, Primary nasal tuberculosis, FESS

INTRODUCTION

Tuberculosis is not an uncommon disease. This is of mainly two types, the more common, pulmonary tuberculosis and less common, extra pulmonary tuberculosis of other organs. Among the second variety, head and neck tuberculous cervical lymphadenitis is more common compared to the tuberculosis of larynx, middle ear, cervical spine or tuberculous ulcers of mouth. Tuberculosis of skin like lupus vulgaris is also rare. Rarest of these head and neck region, is tuberculosis of nose. When there is a primary lesion in the lung there is a possibility of secondary tuberculosis of nose, but primary tuberculosis of the nose without having pulmonary tuberculosis is extremely rare.[1-9]

CASE REPORT

A 46 years old diabetic patient working in Dubai as security worker presented with nasal block of both sides and nasal discharge of 2 months duration. Symptoms suggestive of nasal allergy, bronchial asthma were present. Nasal block was gradually progressive in nature. No history of nasal bleeding. There was no history suggestive of recurrent upper respiratory tract infection headache or fever.

Family history

No history of nasal allergy, bronchial asthma or any communicable disease in the family.

Systemic examination

All systems, including the respiratory system - normal.

Local examination

Showed DNS towards right, mucopurulent discharge, coming from the olfactory cleft of the right nasal cavity. Left nasal cavity showed mucoid discharge in the floor of nasal cavity and inferior turbinate seen boggy and pale in colour.

Laboratory examination

ESR 43 mm/h, RBS- 186 mg percent. HIV - negative. Rest of the blood tests normal CT scan showed bilateral haziness of the maxillary and ethmoid sinuses and DNS to the right. X-ray chest was normal (Figure 1).

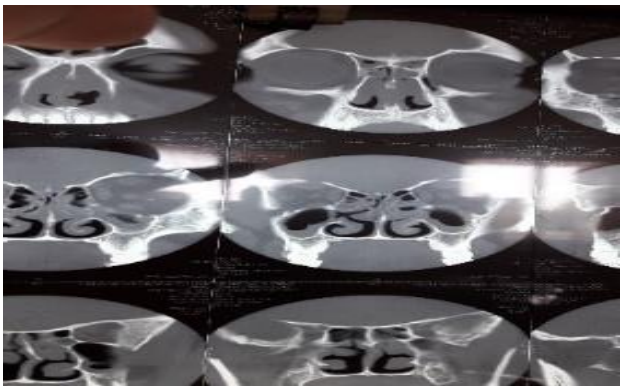

Figure 1: CT PNS.

Temporary diagnosis of DNS towards right with nasal allergy, bronchial asthma, chronic sinusitis and diabetes mellitus was made and he was put on antibiotics, antihistamines and nasal steroid sprays.

Since he was on similar type of treatment for a long time from Dubai for same disease, he was advised septoplasty with FESS after seeing the CT scan taken after two more weeks of treatment.

On surgery, there was irregular granulation tissue of inferior turbinate left side, and in other areas boggy, obstructing the vision of middle turbinate, even after decongestion and surgical correction of septum. This raised the suspicion of being a chronic granulomatous disease of the nasal cavity and the granulation tissue was sent for histopathological examination.

HPE report

Multiple fragments of mucosa showing granuloma, composed of epithelioid histiocytes, multinucleated giant cells and areas of necrosis. No fungal organisms seen. PAS, GSM, Ziehl-Neelson stains were negative. Diagnosis of granulomatous tissue of nose with necrosis, possibility of tuberculosis cannot be excluded (Figure 2).

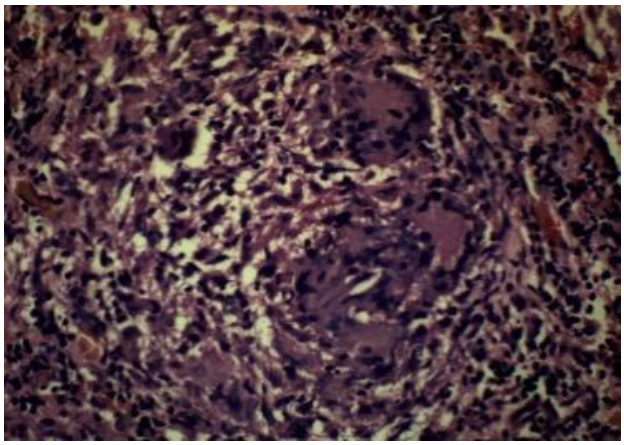

Figure 2: Histopathological examination slide.

DISCUSSION

Tuberculosis is caused by bacteria of the *Mycobacterium tuberculosis* complex and usually affects the lung although other organs are involved in up to one-third of cases. It is commonly transmitted from a person with infectious pulmonary TB to others by droplet nuclei, which are aerosolized by coughing, sneezing or speaking. There may be as many as 3000 infectious nuclei per cough. The interaction of M. Tuberculosis with the human host begin when droplet nuclei are inhaled. While majority are trapped in upper airways and expelled by ciliated mucosal cells, less than 10 percent reach the alveoli.[10] Tuberculosis is classified into pulmonary, extra pulmonary (EPTB) or both. In order of frequency, the sites most involved are 1. lymph nodes, 2. pleura, 3. genitourinary tract, 4. bones and joints, 5. meninges 6. peritoneum,7. pericardium. Tuberculosis of upper respiratory tract are nearly always a complication of advanced cavitary pulmonary tuberculosis. Less common EPTB sites include eye, ear, nasopharynx where it may simulate wegner's granuloma. The bactericidal secretions, ciliary movement, mechanical filtering by vibrissae are responsible for the protective function of the nose.[4,5,7,9] 3 forms of pathologies are described. 1. infection confined in mucosa, where it is boggy and pale. 2. bony involvement and fistula formation. 3. hyperplastic type with tuberculoma formation.[2] Another type of pathology described is 1. lupus formation 2. ulcer formation. 3. granuloma.[1] Third type of pathology described by Onodi is 1. ulcerative. 2. infiltrative 3. Proliferative.[8] Reports of nasal tuberculosis are available plenty in the literature. Only 3 being included.[2,5,9] There are reports regarding septal involvement of tuberculosis which even caused perforation of the nasal septum.[6,7] Other areas of primary tuberculosis described are , maxillary sinus tuberculosis.[3,8] Frontal sinus skin causing lupus and an interesting case of primary nasal tuberculosis mimicking a dermoid cyst in a three year old child.[1,3]

Investigations

Sputum microscopy culture, tuberculin test are the old tests. Immunological test to diagnose active tuberculosis are tuberculin skin test which is prone to give false positive results following BCG vaccinations and environmental exposures to different mycobacterial strains.

Serology CB NAAT test- it is a cartridge based nucleic acid amplification test with well-established role in diagnosis of tuberculosis. Samples collected are tissue, lymph node pus pleural fluid CSF, gastric lavage cystic fluid peritoneal fluid. It is a useful tool in the diagnosis of EPTB because of its simplicity and rapid turnaround. It is more effective as compared to AFB smear.

Extrapulmonary TB is rarely smear positive. CB-NAAT is likely to revolutionise the diagnosis. 11 TB IgG and IgM can be considered as screening tool for active pulmonary tuberculosis. Quantiferon TB gold test and T Spot TB tests are used in diagnosing mycobacterial tuberculosis infection including latent tuberculosis and tuberculosis disease. Specimen used is whole blood. Limitations are blood samples must be processed within 16 hours. A negative quantiferon TB gold result does not preclude the possibility of mycobacterial tuberculosis infection or tubercular disease. False negative result can be due to the stage of infection, comorbid conditions that affect immune functions or other individual immunological factors. A delay in incubation may cause false negative or indeterminate results Another screening test to find out tuberculosis is the breath test with electronic nose. Electronic nose has an array of sensors that identifies the pattern of volatile organic compounds. Positive response to treatment is also an excellent method by which tuberculosis is diagnosed.[3]

Treatment

For extrapulmonary tuberculosis, the treatment recommended is a 6 months regimen consisting of 2 months of INH, rifampazine, pyranzimide, and ethambutol followed by 4 to 7 months of INH and rifampicin.[3]

CONCLUSION

When atypical features of infection of the nasal cavity are seen in patients who are immune compromised, like diabetes, or HIV infection, it is ideal to go in for a biopsy, which will be rewarding. But, the most reliable and fastest test to find out tuberculosis is CB-NAAT test from the tissue, if there is a suspicion of tuberculosis. This is all the more important when the histopathology report is granulomatous tissue. Then it becomes necessary to rule out other chronic granulomatous diseases like sarcoidosis, leprosy etc. The other tests like quantiferon gold test and T spot TB tests are not very sensitive or specific.

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