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Original Research Paper

Otorhinolaryngology

TB OR NOT TB

Dr. Puspen Dasgupta Assistant Professor, Department of E.N.T., IQ City Medical College and Hospital, Durgapur.

Dr. Dharitri Mukherjee Junior Resident, Department of E.N.T., IQ City Medical College and Hospital, Durgapur.

ABSTRACT **Introduction:** Tuberculosis (TB) an infection caused by Mycobacterium tuberculosis and less frequently by ingestion of Mycobacterium bovis infected unpasteurized cow's milk or by other atypical mycobacteria1,is a very commonly encountered disease in the Indian subcontinent and must almost always be included in the differential diagnosis of an infective pathology since it can affect any organ most commonly lungs. **Materials and methods:** An 18 year old male presented to our tertiary care hospital with a right sided submandibular and sub-mental swelling. Differential diagnosis included abscess involving submandibular salivary gland/Ludwig's angina but with further evaluation, tuberculosis of submandibular lymph nodes was found to be the provisional diagnosis. **Conclusion:** Careful evaluation with detailed history, clinical examination and appropriate investigations are necessary before deciding the definitive management and tuberculosis, being highly prevalent in the Indian subcontinent, should always be considered as a possible diagnosis as it significantly changes the course of treatment required by the patient.

KEYWORDS :

INTRODUCTION

Tuberculosis infects 316 Indians per 100,000, way above the 193 predicted by World Health Organisation (WHO) in 2019 according to the National TB Prevalence Survey 2019-2021. Annual TB cases in India rose 19 per cent to 1,933,381 in 2021. Also, 493,000 TB deaths were recorded, excluding HIV, a 13 per cent hike from the previous year. India remains the highest contributor to global TB cases, accounting for 26 per cent of total cases and 34 per cent of all deaths worldwide.

Various hypotheses have been suggested to explain the high prevalence of tuberculosis in the Indian subcontinent like delay in diagnosis, undiagnosed or misdiagnosed cases, less efficacious treatment, high percentage of Latent TB almost 40%[2],drug resistance etc. The frequency of TB in underdeveloped nations is snowballing and this is believed to coexist with poor hygiene environments and increased occurrence of acquired immunodeficiency syndrome[3].From a clinical perspective, therefore, tuberculosis should always form a part of the differential diagnosis as almost all parts of the human anatomy can be affected by tuberculosis.

It is more commonly seen in the people belonging to the less privileged section of the society and is one of the risk factors for Latent TB. Primary involvement is prevalent in youngsters and adolescents than in grown-ups[4,5].TB spreads from one person to other via microscopic droplets that are released in the air. When a person breathes in TB bacteria, the bacteria can settle in the lungs[6].To initiate infection, M. tuberculosis bacilli must be ingested by alveolar macrophages. Bacilli that are not killed by the macrophages actually replicate inside them, ultimately killing the host macrophage (with the help of CD8 lymphocytes); inflammatory cells are attracted to the area, causing a focal pneumonitis that coalesces into the characteristic tubercles seen histologically. In the early weeks of infection, some infected macrophages migrate to regional lymph nodes (e.g, hilar, mediastinal), where they access the bloodstream. From there, they can move through the blood to other parts of the body, such as the kidney, spine, and brain.TB disease in the lungs or throat can be infectious.TB in other parts of the body, such as the kidney or spine, is usually not infectious. Latent TB is caused when the body is able to fight against the bacteria as a result of which the person experiences no symptoms but the body becomes a reservoir of the bacteria.In about 95% of cases, after about 3 weeks of uninhibited growth, the immune system suppresses bacillary replication, usually before symptoms or signs develop. Foci of bacilli in the lung or other sites resolve into epithelioid cell granulomas, which may have caseous and necrotic centers. Tubercle bacilli can survive in this material for years; the balance between the host's resistance and microbial virulence determines whether the infection ultimately resolves without treatment, remains dormant, or becomes active. In some patients, active disease develops when they are reinfected rather than when latent disease reactivates.TB damages tissues through delayed-type hypersensitivity (DTH), typically producing granulomatous necrosis with a caseous histologic appearance[7].Secondary TB is mostly persistent in nature and can begin significant damage to the tangled tissue with caseation, fibrosis and cavity formation[8].

MATERIALS AND METHODS

An 18 year old man presented to our tertiary care hospital with a swelling for duration of 5 days involving the submental region and extending upto the right submandibular region. It was soft in consistency, 3 cm x 4 cm in size and fluctuant in nature. Initial diagnosis was abscess involving submandibular salivary gland and Ludwig's angina was also suspected as the abscess was lying in the submandibular and submental space. The initial diagnosis was also corroborated by the ultrasound neck report which said in its impression "Right submandibular gland abscess", while describing the presence of a 59 mm x 14 mm size hypoechoic heterogeneous area with septations and echogenic material at right side of floor of mouth involving the right submandibular salivary gland, the gland itself appears swollen and shows increased vascularity on colour Doppler. Presence of multiple subcentimetric lymph nodes was also noted in right level IA, IB and V. Due to the possibility of airway compromise, informed consent for emergency tracheostomy was taken from patient and his relatives out of an abundance of caution while conservative management was started by administering empirical i.v. antibiotic[piperacillin+tazobactam] in appropriate dosage and after proper skin testing, along with analgesics [infusion of paracetamol] and proton pump inhibitors [injection pantoprazole]. Computed tomography scan of the neck was also prescribed the day after admission when the swelling had ceased to be soft and fluctuant. CT Scan revealed that the swelling was not involving the submandibular salivary gland but the submandibular region lymph nodes. This raised the suspicion of tuberculosis of the submandibular region lymph nodes, in other words,

tuberculous lymphadenitis, which was confirmed by performing ultrasound guided fine needle aspiration cytology from the swelling in the submandibular region. Due consultation was sought from the Department of Respiratory Medicine and patient was started on anti-tubercular drug treatment under their aegis after explaining the treatment plan to the patient, his relatives and obtaining informed consent. For TB at any site, a 6-9months course of treatment regimen that includes INH and RIF is recommended[9].

DISCUSSION

Prevalence of tuberculosis of the cervical lymph nodes is quite high in the Indian subcontinent. Thus, it should always be a part of the differential diagnosis to ensure correct management of the disease process. Extra pulmonary TB at any site can sometimes manifest without evidence of lung involvement. Mohapatra et al in a study published in Journal of Association of Physicians India in the year 2009 said that lymphadenitis is the most common extra pulmonary manifestation of tuberculosis.[10]If the possibility of tuberculosis being responsible for a swelling in the submandibular region is not considered and surgical excision of the same swelling is performed, patient might have inadequate healing in the post-operative period and can even develop avoidable complications like sinuses and fistulae, as mentioned by Deveci et al in a study published in Istanbul Northern Anatolian Association of Public Hospitals in the year 2016.[11] One must remember that swellings in the submandibular region have a significant possibility of being malignant in nature and surgical excision, thereby, is a very important treatment modality for the same, as mentioned in a study by Abdullah et al published in Journal of Cranio-facial Surgery in the year 2013.[12] Studies like the one published by Kamal et al in Pakistan Journal of Medical Sciences in the year 2016 stressed the need to rule out tuberculosis before performing excision of a swelling in the submandibular region.[13] Fine needle aspiration cytology while helpful in diagnosing tuberculosis of the cervical lymph nodes, also has some limitations as mentioned in a study by Aljafari et al published in the year 2004 in the journal Cytopathology.[14] Despite all the limitations, there is no substitute for careful evaluation of a submandibular swelling by taking a detailed history, performing a proper clinical examination and prescribing appropriate investigations to arrive at the correct diagnosis before beginning definitive treatment to provide maximum benefit to the patient while minimising the possibility of any adverse outcome.

CONCLUSION

This case report highlights the need to carefully evaluate the swelling in the submandibular region paying close attention to the possibility of tuberculosis being the cause as performing surgical excision in a swelling caused by tuberculosis can result in considerable morbidity to the patient in the post-operative period that could have been avoided. Hegde S et al in a study concluded that initial diagnosis of the ailment would be beneficial not only to provide early treatment to the patient, but also averting the spread of the disease to others.[15] "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

Hence, it is our recommendation from this case report that tuberculosis should always be part of the differential diagnosis when an infective neck swelling is encountered owing to its high prevalence and significantly different treatment plan.

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