

TUBERCULOSIS OF THE PAROTID GLAND – HOW WE DIAGNOSE & MANAGE IT?Arup Sengupta¹, Shib Shankar Paul², Lopamudra Majumder³, Jyoti⁴¹Associate Professor, Department of ENT, M. G. M. Medical College & L. S. K. Hospital, Kishanganj, Bihar.²Post Graduate Trainee, Department of ENT, M. G. M. Medical College & L. S. K. Hospital, Kishanganj, Bihar.³Clinician, M. G. M. Medical College & L. S. K. Hospital, Kishanganj, Bihar.⁴Post Graduate Trainee, Department of ENT, M. G. M. Medical College & L. S. K. Hospital, Kishanganj, Bihar.**ABSTRACT****BACKGROUND**

The Parotid gland is the most common salivary gland to be affected by different pathological variants of swellings which present as a mass in the retromandibular area. The pathology of these lesions varies from inflammatory lesions, cysts, benign and malignant neoplasms. In our study we included only the cases which turned out to be Tuberculosis of the parotid gland.

METHODS

A small hospital based study of 100 cases of parotid swellings were carried out in the department of Otorhinolaryngology & Head Neck Surgery, MGM Medical College & LSK Hospital Kishanganj, Bihar, India from December 2012 to December 2015. All the cases of parotid swellings were analyzed by taking detailed history, clinical features, biochemical, microbiological, ultrasonographic & CT scan findings, and FNAC. The cases which were diagnosed as Tuberculosis of the parotid, were included in the study. Pathological variants other than tuberculosis were excluded from the study.

RESULTS

In our series there were 47 males (47%) and 53 females (53%), out of which 5 patients (5%) were diagnosed with tuberculosis of the parotid gland. Amongst the 5, male patients were 3(3%) & females 2(2%).

KEYWORDS

Parotid gland, Tuberculosis (TB), Mycobacterium tuberculosis, PCR, USG, FNAC, CT scan, Facial nerve. Superficial parotidectomy, ATD, RNTCP.

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INTRODUCTION: Tuberculosis of the parotid gland is very rare clinical entity¹ and it is difficult to distinguish from other parotid inflammatory diseases & neoplasm. Thus, in countries where tuberculosis as a disease is rare, the diagnosis of parotid gland involvement with tuberculosis has usually been made from histopathological specimen of the excised parotid gland.²

Tuberculosis of parotid gland should be included in the differential diagnosis of a parotid lump especially when the social economic characteristics of the patient with a positive family history of tuberculosis (pulmonary/ extra pulmonary) is present.³ Tuberculosis of the parotid gland may develop secondary to infection in the oral cavity. Direct extension to salivary gland tissues by the mycobacterium tuberculosis may occur through the glands ductal system. The parotid being the major salivary gland, most commonly gets infected in this manner. Tuberculosis of the parotid gland is difficult to distinguish clinically from other diffuse inflammatory disease of the salivary glands if a culture of the glandular secretions from the Stenson's duct or saliva are negative for

AFB.⁴ Hence it requires high degree of clinical suspicion, coupled with biochemical, microbiological & histopathological evaluation. On imaging too, tuberculosis of the parotid may mimic neoplasm.⁵ Tuberculosis of parotid requires prolonged chemotherapy with regular follow-up.⁴

Clinically it presents as a slow growing isolated parotid lump, painless, mobile, non-tender, diffuse or well circumscribed. It only presents as painful lump & tender, when there is abscess formation or fistula. Associated unilateral/bilateral cervical lymphadenopathy is almost frequently seen in cases of Tuberculosis of parotid. Involvement of both the parotid gland is even rarer.⁶

MATERIALS & METHODS: A small hospital based study of 100 cases of parotid swellings were carried out in the department of Otorhinolaryngology & Head Neck Surgery, MGM Medical College & LSK Hospital Kishanganj, Bihar, India from December 2012 to December 2015. All the cases of parotid swellings were analysed by taking detailed history, clinical features, biochemical, microbiological, imaging findings, and FNAC. The cases which were diagnosed as Tuberculosis of the parotid, were included in the study. Pathological variants other than tuberculosis were excluded from the study.

The respective Microbiological evaluation includes Sputum for AFB (3 consecutive samples), pus for culture. The Biochemical investigation includes TB-PCR (only in cases with strong suspicion) and pathological evaluations includes

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FNAC from the parotid mass as well as from the enlarged cervical lymph nodes. The imaging modality was USG & CT scan. Chest X-Ray (PA view) were aided to find out any associated pulmonary tuberculosis (recent/old).

Only one patient amongst the 5 parotid tuberculosis patients, went superficial parotidectomy, because the presented with cystic mass of the left parotid gland, which we failed to diagnose as tuberculosis of the parotid pre-operatively. On excision biopsy report it confirmed as Tuberculosis of the parotid gland, followed by treatment with Anti tubercular drugs. The rest of the 4 patients were conservatively managed by Anti-tubercular chemotherapy successfully as per RNTCP guidelines.

- Total no. of patients with parotid swellings-100 (47 males & 53 females).
- No. of patients diagnosed with tuberculosis of the parotid gland clinically, aided by investigations-4.
- No. of patients diagnosed with tuberculosis of the parotid following superficial parotidectomy (on excision biopsy)-1.
- No. of male patients with TB parotid-3.
- No. of female patients with TB parotid-2.

Among 100 patients with parotid swelling, only 5% of cases turned out to be the tuberculosis of the parotid gland, with an age group between 20 to 30 years. The prevalence among males are 3% and females are 2%. Out of 5 patients one was diagnosed with HIV.

RESULTS:

Sl. No.	Gender	Nature of parotid swelling	Microbiological evaluation	Biochemical Evaluation	FNAC	Imaging	Associated other disease	Treatment
1.	Male	Cyst	Sputum for AFB - negative	TB-PCR-not done	Negative	USG-cystic lesion. CT-capsulated lesion	-	Superficial parotidectomy. TB confirmed by excision biopsy
2.	Female	Fistula	Sputum for AFB - positive. pus for culture - positive.	TB-PCR-positive	Positive	USG, CXR	PTB	ATD
3.	Female	Fistula	Sputum for AFB - positive. pus for culture - positive.	TB-PCR-positive	Positive	USG, CXR	-	ATD
4.	Male	Tubercular abscess	Sputum for AFB-positive, pus for culture-positive.	TB-PCR-positive	Positive	USG, CXR	PTB; HIV	ATD
5.	Male	Cyst	Sputum for AFB-negative	TB-PCR-positive	Positive	USG, CT	-	ATD

Table 1

- ATD were administered to the patients according to RNTCP guidelines (DOTS).⁷ None of them emerged to be MDR-TB.
- Other supportive biochemical test was also done on follow up basis (complete blood count, LFT, RFT, Urine for RE & ME) & other supportive investigations related to HIV.
- Patients associated with HIV were counselled and treated accordingly. In all HIV-positive TB patients, co-trimoxazole preventive therapy should be initiated as

soon as possible and given throughout TB treatment. The first priority for HIV-positive TB patients is to initiate TB treatment, followed by co-trimoxazole and ART.⁸ TB treatment should be started first, followed by ART as soon as possible and within the first 8 weeks of starting TB treatment.⁹

- It is recommended that TB patients who are living with HIV should receive at least the same duration of TB treatment as HIV-negative TB patients.

Drugs	Recommended dose			
	Daily		3 times per week	
	Dose and range (mg/kg body weight)	Maximum (mg)	Dose and range (mg/kg body weight)	Daily maximum (mg)
Isoniazid	5(4-6)	300	10(8-12)	900
Rifampicin	10(8-12)	600	10(8-12)	600
Pyrazinamide	25(20-30)	-	35(30-40)	-
Ethambutol	15(15-20)	-	30(25-35)	-
Streptomycin*	15(12-18)	-	15(12-18)	1000

Table 2: Recommended doses of first-line antituberculosis drugs for adult

*Patients aged over 60 years may not be able to tolerate more than 500–750mg daily, so some guidelines recommend reduction of the dose to 10mg/kg per day in patients in this age group.¹⁰ Patients weighing less than 50 kg may not tolerate doses above 500–750mg daily (WHO Model Formulary 2008, www.who.int/selection_medicines/list/en/).

Intensive phase treatment	Continuation phase
2 months of HRZE *	4 months of HR

Table 3: Standard regimens for new TB patients¹¹ (presumed, or known, to have drug-susceptible TB)

*WHO no longer recommends omission of ethambutol during the intensive phase of treatment for patients with non-cavitary, smear-negative PTB or EPTB who are known to be HIV-negative. In tuberculous meningitis, ethambutol should be replaced by streptomycin. H=isoniazid, R=rifampicin, Z=pyrazinamide, E=ethambutol, S=streptomycin.



Fig. 1: Tubercular Abscess of the parotid



Fig. 2: Tubercular cyst of the parotid



Fig. 3: Fistula formation as a complication

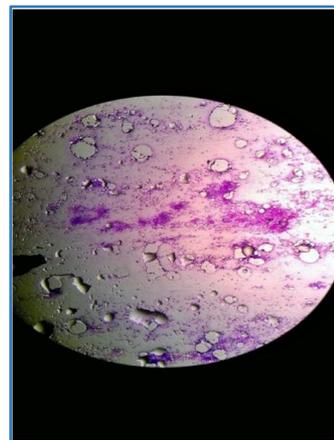


Fig. 4: HPE slide-tubercular granuloma of TB parotid

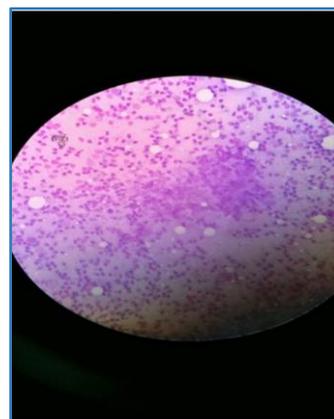


Fig. 5: Tubercular granuloma

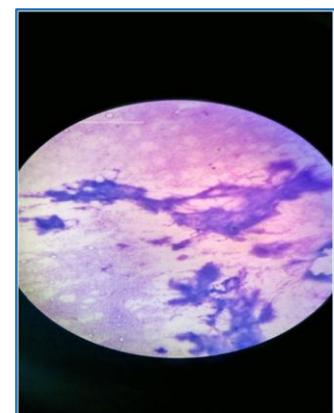


Fig. 6: Necrotic cells

DISCUSSION: Though, Tuberculosis is endemic in the Indian subcontinent,¹² tuberculosis of the parotid gland is rare and bilateral involvement is very rare.⁶ The pathogenesis may be due to direct spread of mycobacteria from a nearby infected source, like tonsils or teeth and the spread may occur through direct inoculation by sputum, retrograde spread of bacilli through duct or by afferent lymphatics. Another cause may be by haematogenous or lymphatic spread from the lungs.¹³

Among the major salivary glands, parotid is the most commonly involved one by primary/pulmonary tuberculosis, whereas the submandibular glands are the most commonly involved in systemic tuberculosis.^{6,1,14,15}

Clinically it presents as a slow growing isolated parotid lump, painless, mobile, non-tender, diffuse or well circumscribed. It only presents as painful lump & tender, when there is abscess formation or fistula. Associated unilateral/bilateral cervical lymphadenopathy is almost frequently seen in cases of Tuberculosis of parotid. In advanced cases there may be abscess formation, fistula, sinus, and facial nerve involvement is a late feature.^{6,15,16}

Diagnosis is often difficult from other diffuse inflammatory disease of the salivary glands and also from neoplasm of the parotid.^{1,17,18} Hence diagnosis is mainly based on high degree of clinical suspicion, FNAC (USG guided) which is diagnostic, sputum for AFB, CT scan. Ultrasonography is highly sensitive for the 70–80% of tumours within the superficial parotid when compared with CT scan and USG guided FNAC gives 100% accuracy compared with CT (77–89%), MRI (88%), and US alone (83–98%).^{6,19,20,21} In tubercular lymph node, the FNAC has high sensitivity (80%) and specificity (93%) and both increases up to 100% in parotid lesions when there is associated cervical lymphadenopathy, which turns out to be TB lymphadenitis.¹ TB-PCR also have an immense diagnostic value. It can also differentiate various species of mycobacterium. Furthermore, the positivity of PCR is higher as compared with culture methods.^{16,22}

Treatment must be conservative and surgical procedures should be reserved for complications like fistula, sinus, facial palsy.^{15,23} Treatment includes prolonged administration of anti-tubercular chemotherapy as per RNTCP guidelines (DOTS therapy). The HIV patients associated with TB should be carefully monitored. In all HIV-positive TB patients, co-trimoxazole preventive therapy should be initiated as soon as possible and given throughout TB treatment. The first priority for HIV-positive TB patients is to initiate TB treatment, followed by co-trimoxazole and ART.⁸ TB treatment should be started first, followed by ART as soon as possible and within the first 8 weeks of starting TB treatment.⁹ MDR-TB should be evaluated and treated under DOTS plus regime. The differential diagnosis of granulomatous parotitis in histopathology are foreign-body granuloma with cholesterol deposits, granulomatous fungal infections like cryptococci, sarcoidosis.²⁴

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DISCLOSURE: Prior to submitting this paper for publication, approval of the ethical committee was duly obtained from the institution authority. This paper is original and it, or any part of it, has not been previously published, nor it is under consideration for publication elsewhere. This paper has not been presented in any meeting. None of the authors has any conflict of interest, financial or otherwise.

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