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### Original Article

## Clinical study of pharyngeal and laryngeal tuberculosis

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#### ABSTRACT

Tuberculosis remains a major source of Morbidity and mortality in India. Every year, each sputum positive patient can infect approximately 10 to 15 persons. Aim and objectives : 1.To study clinical symptoms of pharyngeal and laryngeal Tuberculosis with respect to sputum positive and negative for acid fast bacilli. 2 To study the site of pharyngeal and laryngeal involvement in sputum positive and sputum negative patients. Tuberculosis is a common granulomatous disease in ENT.Larynx is commonly involved, but the pharynx is rarely becomes involved. Tuberculosis of pharynx and Larynx is usually associated with pulmonary involvement. The clinical data of 24 patients with Tuberculosis of Pharynx and Larynx from September 2006 to September 2009 were studied. Among 24 patients, one patient has got purely pharyngeal tuberculosis, two patients diagnosed as pharyngeal and laryngeal tuberculosis, rest of the patients were diagnosed as laryngeal tuberculosis.

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#### MATERIALS AND METHODS

The study conducted between September 2006 to September 2009 in ENT Department, HIMS, Hassan. Comprised 24 patients who visited the department, were evaluated.

These patients were evaluated as follows:

- Age, sex
- Chest symptoms and ENT symptoms
- Type of lesion involvement
- Erythrocyte Sedimentation rate involvement
- Sputum for AFB (early morning sputum)
- Chest X-ray finding
- Biopsy for Histopathology
- Treatment and follow up of 3 months

The results obtained were analyzed to illustrate the clinical manifestation of the disease in respect to previous literature of developing and developed countries. Those Patients who already had treatment were excluded from the study.

The patients were posted for Direct Laryngoscopic examination and biopsy taken in lesions for histopathology examination. The patients were started on ATT as per the Revised National Tuberculosis Control Programme (RNTCP) under the guidance of Chest Physician. In addition to ATT, voice rest and steam inhalation were included. During the follow up of patients evaluation as regards to reduction of symptoms, ESR and sputum for acid fast bacilli (AFB).

#### OBSERVATIONS AND RESULTS

The study included 24 patients, of that were Males and 17 were females aged between 18 yrs to 65 yrs old.

The patients presented to ENT department with Hoarseness of voice, cough with or without expectoration, which were commonest local and generalized symptoms respectively. In this study the patients presented with cough were 87.49% and hoarseness of voice was 21(83.20%).least symptoms is ear ache. The result show in Table I

Here 21 patients presented with Chest, Pharyngeal and Laryngeal symptoms. There is always time gap between chest symptoms and localized symptoms. This is usually between 1-6 months. In this study it was 66.64% (14 patients) presented between 1 to 6 months. In this study 3 patients were presented

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with haemoptysis (12.48%). The 3 patients had similar complaint of pulmonary Koch's in the past. Out of 3 patients 1 had taken regular treatment and 2 of them had discontinued the treatment. Time gap is shown in Table II.

Out of 24 patients, 1 patient had only Pharyngeal involvement. Two patients had Pharyngeal and Laryngeal involvement and remaining 21 patients had purely Laryngeal involvement.

One of the patient who had bilateral tonsillar enlargement presented with foreign body sensation in the Throat. Two patients, who presented with Pharyngeal and Laryngeal involvement, showed multiple ulcers in the nasopharynx, posterior Pharyngeal wall, and arytenoids, which were covered with slough. The pyriform fossa also showed multiple ulcers.

For the sites of involvement, I grouped the individuals into three groups for convenience and shown in table III. The commonest involvement group was "A" i.e. 41.60% (10 patients) in which number of sites involvement are 1 to 3. The other groups were group B-37.44% (9 patients) 4-6 sites involvement and group C-20.96% (5 patients)-more than 6 sites involvement.

The commonest site involvement was true vocal cords. i.e. 75% (in 18 patients). In that anterior 2/3rd cord involvement was 61.11% (11 patients). The next site involvement was ventricular folds i.e. 37.44% (9 patients). The patients who presented with Odynophagia were showing involvement of epiglottis or Arytenoids or both. In this study vocal cords weakness was present in 2 cases. But there was no vocal cord palsy. The sites of involvement are shown in table IV.

The most frequently encountered type of lesion was hypertrophied form or thickened form i.e. 41.6% (10 patients). The patients presented with Odynophagia had shown ulcerative form or hyperemic form over the Arytenoids or Epiglottis. The type of lesion involved showed in table V.

All patients investigate for routine blood investigation. These patients had shown erythrocyte sedimentation rate value was above 40mm at the end of 1st hour. These patients underwent sputum for AFB (Z-N stain) examination for which early morning sputum was taken.

Histopathology examination had been done in all patients. One Patient's histopathological examination revealed doubtful tubercular infection. But on treatment with ATT, patient was relieved from the symptoms and involved lesions subsided later on.

After starting of ATT, the patients showed dramatic improvement. In this study hoarseness of voice cleared after 4 wks to 6 wks after starting of treatment. Odynophagia, which is more bothering complaint was relieved with in 7 to 14 days after the start of treatment.

The Erythrocyte sedimentation rate is a good prognostic factor. In this study all patients showed reduced value of ESR with in 4 wks of treatment, i.e. less than 30mm at the 1st hour. And also all patients showed sputum AFB negative after 4 wks of ATT.

**TABLE I : SEX DISTRIBUTION**

SEX	NO OF PATIENTS	PERCENTAGE(%)
MALE	17	70.83
FEMALE	7	29.17

**TABLE II**

SYMPTOMS	NO OF PATIENTS	PERCENTAGE (%)
COUGH	21	87.49
HOARSENESS	20	83.20
WT LOSS	17	70.72
DISCOMFORT IN THROAT (INCLUDING FB SENSATION	10	41.60
FEVER	10	41.60
ODYNOPHAGIA	8	33.28
BERATHLESSNESS	5	20.80
HAEMOPTYSIS	3	12.48
EARACHE	3	12.48

**TABLE III**

GROUP	NO OF PATIENTS	PERCENTAGE (%)
A	10	41.60
B	9	37.44
C	5	20.80
TOTAL	24	100

**Sites**

<b>GroupA-1-3 sites</b>	<b>Epiglottis</b>
<b>GroupA-4-6 sites</b>	<b>Tonsils</b>
<b>GroupA-&gt; 6sites</b>	<b>Arytenoid</b>
	<b>Aryepiglottic fold</b>
	<b>False Vocal cord</b>
	<b>True Vocal Cord</b>
	<b>Posterior pharyngeal wall</b>
	<b>Nasopharynx</b>

TABLE IV

SITES	NO OF PATIENTS	PERCENTAGE (%)
Vocal Cords	18	74.9
Ventricular Folds	9	37.4
Arytenoids	9	37.4
Aryepiglottic Folds	7	29.1
Epiglottis	6	24.9
Posterior Pharyngeal Wall	2	8.3
Tonsils	1	4.1
Naso Pharynx	1	4.1
Pyiform Fossa	1	4.1

TABLE V

TYPE OF LESION	NO OF PATIENTS	PERCENTAGE (%)
OEDEMA HYPERMIA	6	24.96
ULCERATIONS	2	8.48
THICKENED(FIBROTIC)	10	41.6
COMBINED	6	24.96

## DISCUSSION

At the end of the 20th century, tuberculosis has taken several decades of backwards. As in 1993, it was declared a global emergency. Having become again the world's leading cause of death single infective agent<sup>2</sup>.

In the past, typical patient with laryngeal tuberculosis was 20-40 yr old with advanced cavity lung disease<sup>3</sup>, but recent studies<sup>4</sup> found to be commonest in the 4th to 6th decades. However in this study, the maximum patients occurred in between 4th to 6th decades

### Distribution:

The Patients involved in TB were belonging to poor socio-economic status.

Tuberculosis is the most common granulomatous disease but the pharynx rarely becomes involved<sup>6</sup>. Progression of laryngeal tuberculosis can involve the Oropharynx. In this study one patient presented with pure pharyngeal involvement (4.16%). Two patients presented with pharyngeal and laryngeal involvement (8.32%) and more common 21 patients presented with laryngeal involvement. (87.51%)

### On Symptoms wise:

Tuberculosis of pharynx is, as a rule, associated with a great deal of pain, which is often excruciating in character. The pain is constant, radiates to the neck and severe upon swallowing<sup>7</sup>. In this Study, pure tonsil involvement presented to us with foreign body sensation. Pharyngeal and laryngeal involvement mostly presented with pain in the throat along with odynophagia in our study. These patients also had referred otalgia.

Hoarseness, an early symptom of tuberculosis affecting the vocal cords was present in 90% of the cases seen. In this study 66.64% of patients had pharyngeal and laryngeal symptoms 6-12 months after pulmonary symptoms like cough (with or without sputum) breathlessness, fever. Hoarseness of voice as 83.20% our cases had commonest symptoms of tuberculosis larynx. The commonest chest symptoms was cough 87.49% (21 patients). Breathlessness is another chest symptom commonly presented in our patients (20.80%). Other constitutional symptom like haemoptysis, loss of weight, otalgia are seen our cases.

### Site involvement:

Tuberculosis infiltration of the vocal cords & ventricular folds in this study had immobility of the vocal cords in 2 patients, due to adductor weakness. Also it could be result of recurrent laryngeal nerve palsy. But this study did not show nerve palsy.

Odynophagia is a prominent symptom in the series of Rohwedaler(1974) and Hunter et al, 8 was seen in only 53.8%. In this study Odynophagia presentation was only in 33.28%. It may be produced by ulceration, sub mucosal infiltration, perichondritis or ulceration of epiglottis, arytenoids or both. This shows the mode of spread is by haematogenous spread.

HIV has changed the clinical course of this disease. High rates of extra pulmonary tuberculosis are characteristic of HIV infected patients, occurring up to in 80% of cases. In this study no one presented with HIV.

There were different sites involved. Bilateral tonsillar enlargement was seen present in one case that presented with compliant of foreign body sensation in throat associated with multiple cervical lymphadenopathy. No h/o odynophagia was present. This shows lymphatic obstruction by tubercular granuloma.

There were multiple sites involved. Lesions in these study 2-3 sites were commonly involved (41.6%). In this commonest involvement site was vocal cords (74.99%) in our study. In that anterior 2/3rd portion commonly involved i.e. 61.11% (11 patients). The laryngeal lesions are described in the older studies as being sited chiefly in posterior commissure. Most of the recent studies<sup>9</sup> including this study show the anterior parts of the true vocal cords were the chief areas affected. This is probably because this part of the larynx is subject maximally to vocal abuser and other irritants. Soda et al: in an analysis of clinical aspects of tuberculosis of the larynx, also reported a predominant anterior laryngeal involvement. This they attributed to a predominance of lymphatic and blood stream spread. In the past epiglottis is rarely involved except as a late finding in a diffusely diseased larynx<sup>10</sup>. In constant to this finding, in our study 6 patients i.e. 24.96% showed involvement of epiglottis. These findings are due to lymphatic or hematogenous spread like in the recent study.

### Types of involvement:

The pharyngeal infection usually progressive and presents as a chronic nodular irregularity of mucosal surface<sup>11</sup>. Our patients presented with same finding, the patients presented with pharyngeal and laryngeal involvement showed ulcerative form. although an ulcerated larynx can still be encountered<sup>12</sup>, the recent literature suggests that in the majority of cases the lesions is hypertrophied or thickened<sup>13</sup>. In this study, 41.6% i.e. 10 patients presented with thickened type of lesion similar to recent literature<sup>14</sup>.

#### Lymphadenopathy:

Cervical lymphadenopathies are not prominent exception to this, are occasionally seen in tuberculosis tonsillitis. Tubercular cervical lymphadenopathy develops approximately in 5% of all patients with tuberculosis<sup>15</sup>. In this study 24.96% i.e. 6 patients presented with cervical lymphadenopathy along with pharyngeal and laryngeal tuberculosis.

#### Investigations:

All patients investigated for routine blood investigations. The ESR was raised in almost all cases. Out of 24 patients, 19 patients were sputum AFB positive i.e. 79.20%. The sputum was being taken in early morning. As the positivity increases, the sites of involvement along with involvement of ulceration and fibrotic type also increase.

Radiological evidence of pulmonary involvement is found in all patients with pharyngeal and laryngeal tuberculosis. In the past this disease was always secondary to very advanced pulmonary tuberculosis and its presence was a sign of poor prognosis. In this series, the pulmonary lesions were from minimal to advanced stage. The most common chest radiological finding in this series are apical infiltration and or fibrosis (10%)<sup>16</sup>. One patient who presented with bilateral tonsillar enlargement showed no radiological involvement.

Histopathological examinations were done in all cases to rule out malignancy and to confirm the diagnosis. Histopathology provides the most conclusive evidence of pharyngeal and laryngeal tuberculosis. In our study, the histopathology came as doubtful in one patient. But on treatment with ATT, the patient was relieved of symptoms.

Follow up: The efficiency of modern anti tubercular chemotherapy in the treatment of pharyngeal and laryngeal tuberculosis is an indisputable fact. There is a prompt improvement in symptoms usually within few weeks of commencing of treatment<sup>17</sup>. Patients became invariably asymptomatic with a normal larynx within two months. In this study hoarseness of voice cleared within 8 to 10 weeks after the start of therapy. The most bothersome symptoms the odynophagia subsides within 10-14 days after starting of the treatment.

The Erythrocyte sedimentation rate is good prognostic factor. In this study, all patients showed reduced value of ESR within 4 weeks of ATT i.e. less than 30mm at the 1st hour. And also all patients showed sputum AFB negative after 4 weeks of ATT.

In this study, one pregnant lady of 6 months amenorrhea was diagnosed as having primary tuberculosis of tonsils and was put on ATT as per revised national tuberculosis programme. After one month, her weight was reduction of tonsillar size with cervical lymph nodes.

#### ON SUMMARY

The 24 patients were studied between September 2006 to September 2008, amongst those who visited ENT department, HIMS, Hassan. This study was taken up for clinical manifestations of tuberculosis pharynx and Larynx.

We have arrived at the following summary and conclusions

- Among 24 patients, one patient was diagnosed as pharyngeal tuberculosis (4.16%), two patients diagnosed as pharyngeal and laryngeal tuberculosis (8.33%), and 21 patients diagnosed as only laryngeal tuberculosis (87.51%)
- Common sites of involvement were vocal cords and tonsils in case of laryngeal, pharyngeal tuberculosis respectively.
- Common type of lesion involved was hypertrophied form or thickened form i.e. 41.6% (10 patients)
- Sputum positive cases showed increased involvement of more than one site and type of lesion ulcerative or fibrotic type.
- The odynophagia case showed the type of lesion either edema or ulceration and some times both, over the epiglottis arytenoids.
- Because patient's compliance is main for regular treatment, DOTS (Directly Observed Treatment Short Course) may reduce the incidence of tuberculosis in coming days.

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