



Case Report

Aphonia in pregnancy: Pulmonary TB with laryngeal involvement

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ABSTRACT

A primigravida 28 yr old female reported in gynaecology casualty at a period of gestation of 33 weeks and 4 days with complains of dry cough for 2 weeks, breathlessness for 1 month and aphonia for 4 months. On examination her vitals were stable, she had minimal crepitations on left side on chest auscultation. On per-abdominal examination the uterus was relaxed, of 32 weeks in size with cephalic presentation and fetal heart rate of 142 beats per minute. She had a chest x-ray suggestive of consolidation in left lower lobe. Medicine opinion was taken and she was treated for lower respiratory tract infection. Otorhinolaryngologist opinion was taken and on indirect laryngoscopy there was moth eaten appearance of vocal cords, arytenoids were bulky and congested, inter-arytenoid mamillation was present and congestion of aryepiglottic folds and posterior larynx was present. A provisional diagnosis of pulmonary T.B with laryngeal involvement was made. A diagnosis of Pulmonary T.B with laryngeal involvement was made and patient was started on prednisolone tablet 20 mg once daily along with ATT. Betamethasone cover was given and induction of labor was done at 35 weeks of gestation with cerviprime gel due to severe oligohydramnios. Then cesarean section was done in view of meconium stained liquor with fetal tachycardia. A male baby of 2.4 kg was delivered and baby was started on syrup isoniazid in prophylactic dose. On post-operative day 5 patient had severe breathlessness. Tracheostomy and intubation was advised but patient got relieved and maintained saturation on high flow oxygen. At post-operative day 8 patient regained her voice after 4 months, was able to communicate and was symptomatically better. She was discharged with baby with stable vitals on tablet prednisolone and ATT. Patient was asked to follow-up with the otorhinolaryngologist and medicine department.

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1. Introduction

Tuberculosis is caused by mycobacterium which causes chronic granulomatous infection by cell mediated immunity. It is one of the major health problems in developing countries like India. Most commonly it affects the lung; however it can affect other organs too. During pregnancy tuberculosis (T.B) rarely affects larynx.¹ Laryngeal T.B is most commonly associated with pulmonary T.B. Previously it was thought that the mode of infection was direct spread along airway mostly to the posterior larynx but any region of the larynx can be involved due to primary infection by

inhaled bacilli.^{2,3} Primary laryngeal involvement has been observed in 19% of cases and in 15-37% of the cases it is associated with pulmonary tuberculosis. Incidence of tuberculosis is now on a rise due to increase in incidence of immuno-suppressive states.³ The goal of this report is to describe a case of pulmonary T.B with laryngeal involvement in a pregnant patient highlighting the need for keeping a high degree of suspicion in lesion of upper airways for early diagnosis in high prevalence areas of T.B.

2. Case Report

A primigravida 28 yr old female reported in gynaecology casualty at a period of gestation of 33 weeks and 4 days

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with complains of dry cough for 2 weeks, breathlessness for 1 month and aphonia for 4 months. She was un-booked, un-investigated and there was no history of tuberculosis in self or family or weight loss, anorexia, fever, halitosis, rhinorrhoea or hemoptysis. On examination her vitals were stable, she had minimal crepitations on left side on chest auscultation. On per-abdominal examination the uterus was relaxed, of 32 weeks in size with cephalic presentation and fetal heart rate of 142 beats per minute. She had a chest x-ray suggestive of consolidation in left lower lobe. Medicine opinion was taken and she was treated for lower respiratory tract infection. Otorhinolaryngologist opinion was taken and on indirect laryngoscopy there was moth eaten appearance of vocal cords, arytenoids were bulky and congested, inter-arytenoid mamillation was present and congestion of aryepiglottic folds and posterior larynx was present. A provisional diagnosis of pulmonary T.B with laryngeal involvement was made. Patient was provisionally started on category 1 anti-tubercular treatment (ATT) after sending sputum for cartridge based nucleic acid amplification test (CBNAAT) which came positive, sensitive to rifampicin. The regimen is 2RHZE/4RH where R is rifampicin 15 mg/kg/day, H is isoniazid 10mg/kg/day, Z is pyrazinamide 35mg/kg/day, and E is ethambutol 20mg/kg/day. A diagnosis of Pulmonary T.B with laryngeal involvement was made and patient was started on prednisolone tablet 20 mg once daily along with ATT. Betamethasone cover was given and induction of labor was done at 35 weeks of gestation with cerviprimegel due to severe oligohydramnios. Then cesarean section was done in view of meconium stained liquor with fetal tachycardia. A male baby of 2.4 kg was delivered and baby was started on syrup isoniazid in prophylactic dose. On post-operative day 5 patient had severe breathlessness. Tracheostomy and intubation was advised but patient got relieved and maintained saturation on high flow oxygen. At post-operative day 8 patient regained her voice after 4 months, was able to communicate and was symptomatically better. She was discharged with baby with stable vitals on tablet prednisolone and ATT. Patient was asked to follow-up with the otorhinolaryngologist and medicine department.

3. Discussion

The World Health Organization (WHO) estimated that T.B affected 8.8 million people and caused 1.4 million deaths globally in 2010, including a half-million women and at least 64,000 children.⁴ T.B is one of the leading non-obstetric causes of maternal mortality, with about one-third of deaths in women of child-bearing age in resource limited countries.⁵ Immunologic changes of pregnancy increases the risk of primary infection with T.B and reactivation of latent infection.⁶ T.B is caused by *Mycobacterium tuberculosis* and commonly involves the lung. However a marked increase in head and neck infections is seen

especially in developing countries.⁷ When inhaled, alveolar macrophage phagocytize the bacteria but are unable to digest them, hence allowing multiplication of the bacteria and disease manifestation by direct infection as well as hematogenous and lymphatic spread. The larynx is rarely the primary site involved. It is usually infected via expectoration of sputum or from hematogenous spread or less frequently via lymphatic spread. If associated with pulmonary T.B clinical manifestations are not specific such as fever, weight loss, night sweat, fatigue and hemoptysis. Symptoms suggestive of larynx involvement are hoarseness, dysphonia, odynophagia, stridor and dysphagia. Dysphonia is the most common symptom of laryngeal T.B, is rapidly progressive and sometimes intense resulting in aphonia.^{6,8} Dry cough, dyspnea and hemoptysis can also be present.⁷⁻⁹ Our patient presented with cough, breathlessness and difficulty in speaking. In laryngeal T.B based on macroscopic appearance four predominant patterns are described granulomatous, polypoid, ulcerative and nonspecific. Granulomatous lesions are more common in patients with pulmonary T.B.⁷ However in our case the lesions were ulcerative as shown in the Figure 1. Since direct laryngoscopy is not available in our setup images shown are based on indirect laryngoscopy. Sputum microscopy for acid-fast bacilli, culture of sputum and other specimens for *M. tuberculosis* and molecular DNA detection (GENEXPERT) remain the mainstay of diagnosis. Concern about radiation limit the use of chest radiography during pregnancy.⁴ Latent T.B infection can be diagnosed by Interferon- gamma release assays and the QuantiFERON-TB Gold In-Tube assay. They have increased specificity and diagnostic accuracy, and are not affected by previous bacillus Calmette– Guérin (BCG) vaccination or infection with non-tuberculous mycobacteria.⁵ It is difficult to differentiate laryngeal tuberculosis from other inflammations and neoplasms based solely on physical examination and hence biopsy is confirmatory. Histological findings such as the presence of caseating granulomas in sub-epithelial stroma with a central caseous necrosis, surrounded by epithelioid macrophages, Langhans-type giant cells, and lymphocytes is diagnostic.⁹ WHO recommends that the treatment of TB in pregnant women should be the same as that in non-pregnant women. Maternal exposure to these drugs showed no risk of congenital anomalies in fetus.⁴ The only exception is that streptomycin, as it is ototoxic to the fetus.⁵ Pre-treatment liver function testing and frequent monitoring is important. Pyridoxine supplementation is recommended for breastfeeding mothers and infants, when taking isoniazid and vitamin K should be administered at birth to the infant of a mother taking rifampicin because of the risk of postnatal haemorrhage.^{4,6} A 6-month treatment is usually sufficient and results in complete recovery.^{10,11} Corticosteroids may also be prescribed such as in the presence of lymphadenopathy or

as a complement in secondarily infected forms in presence of laryngeal oedema.^{8,12} Methylprednisolone which crosses the placenta poorly should be considered. In our case the same regimen was started along with prednisolone. Surgery is no longer a part of the current treatment options except for tracheotomy in patients with very severe dyspnea or to treat sequelae after medical treatment.⁸ In our patient also tracheostomy or intubation was advised when patient was complaining of breathlessness on post-operative day 5. However, as her complaints resolved tracheostomy was not performed. Non-specific symptoms, pain and odynophagia are the first to resolve, while dysphonia resolves in parallel with the glottic lesions. Radiological and endoscopic signs then resolve after a period of several weeks.⁸ Mother-to-child transmission of TB may occur in utero through haematogenous spread and aspiration of infected amniotic fluid. In the intrapartum period through contact with infected amniotic fluid or genital secretions and in postpartum period through aerosol spread, or through infected breast milk from an active tuberculous lesion in the breast. Hence, isoniazid prophylaxis should be given to the baby followed by BCG vaccination.⁵ In our case the baby was given isoniazid prophylaxis.

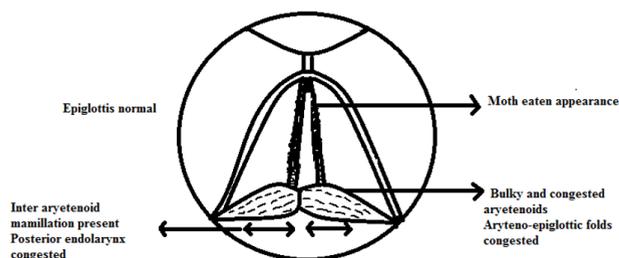


Fig. 1: Indirect laryngoscopy findings in our case

4. Conclusion

T.B is one of the leading non-obstetric causes of maternal mortality. During pregnancy T.B rarely affects larynx and Laryngeal involvement is most commonly associated with pulmonary T.B. Non specific symptoms such as fever, weight loss, night sweats, fatigue and hemoptysis may be present but hoarseness, dysphonia, odynophagia, stridor and dysphagia points toward laryngeal involvement. This was a case of pulmonary T.B with laryngeal involvement and it highlights the need for keeping a high degree of suspicion in lesion of upper airways for early diagnosis and treatment

in high prevalence areas of T.B.

5. Source of funding

None.

6. Conflict of interest

None.

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