



Bronchoscopic Balloon Dilation in Endobronchial Tuberculosis with Airway Stenosis: A Case Series

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Introduction:

Endobronchial tuberculosis (EBTB) is an extra pulmonary tuberculosis form which defined as tuberculosis infection of the tracheobronchial tree with microbial and histopathological evidence. The most common complication of EBTB is airway stenosis. We report two cases of the role of bronchoscopic balloon dilation in EBTB.

Case 1:

A 31 years old woman with stridor, dyspnea, cough and weight loss. CT scan finding showed atelectasis in right superior lobe. Xpert MTB/RIF from sputum sample was negative. Histopathological finding from bronchus biopsy showed chronic granulomatous inflammation caused by MTB. Bronchoscopic finding showed cicatrix closing almost total mid trachea and total right main bronchus, right upper lobe and truncus intermedius. Balloon dilation and steroid injection were performed three times. Anti TB regiment with RHZE/RH was administered. She is now on fourth months of anti-TB drug. She experienced recurrent stridor and dyspnea one month after second balloon dilation and had to do emergency third balloon dilation, steroid injection and rigid scope dilation. She had complication of tracheal laceration in third ballooning resulting in pneumothorax which resolve after drainage.

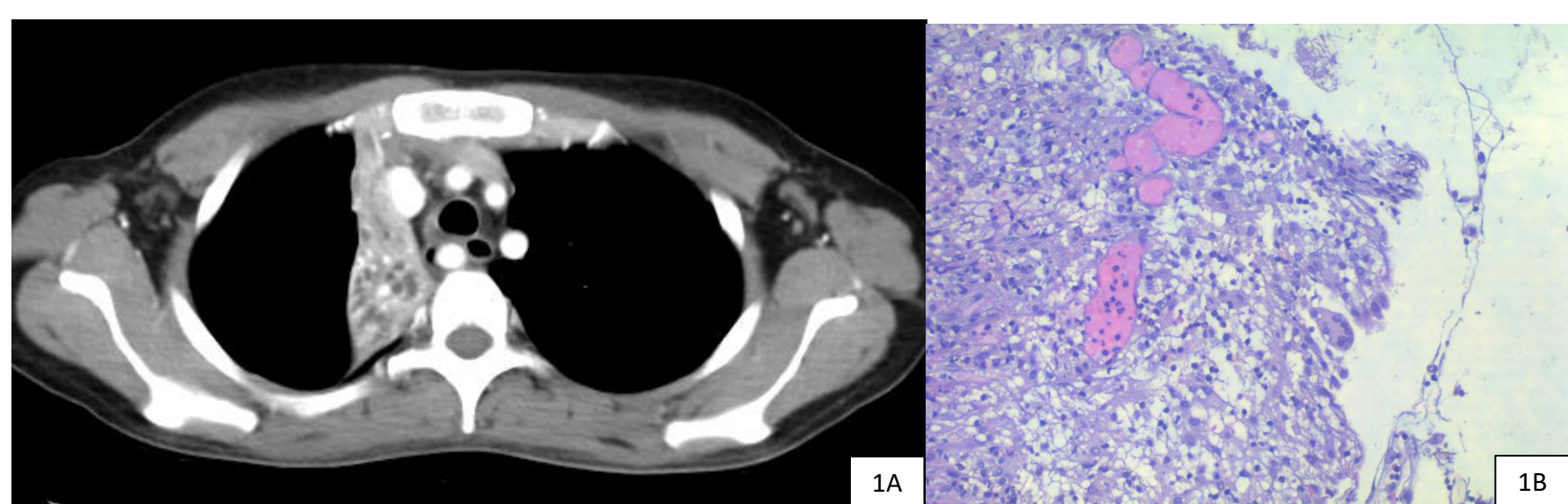


Fig 1A. Atelectasis in right superior lobe, 1B. Histopathological finding showed chronic granulomatous inflammation

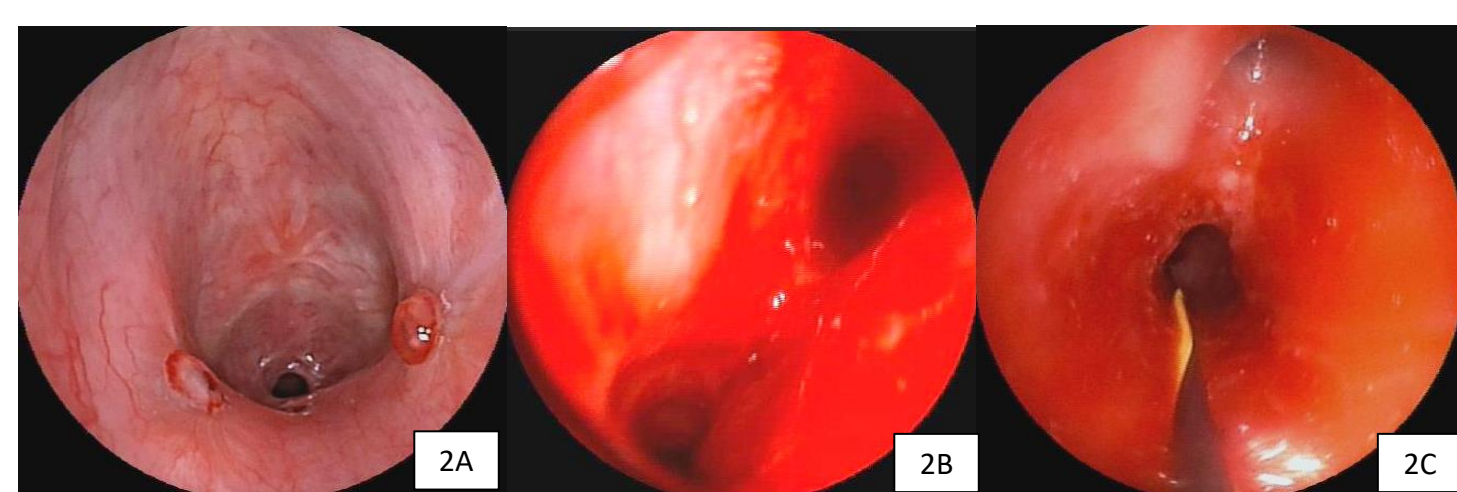


Fig 2A. First bronchoscopic showed cicatrix closing almost total mid trachea, 2B. Closing total right main bronchus, 2C. Closing total right upper lobe and truncus intermedius



Fig 3A. Immediate finding after balloon dilation showed the diameter of mid trachea got bigger, 3B. Right main bronchus was open, 3C. Truncus intermedius was open, so therapeutic scope could go through

Case 2:

A 17 years old girl with dyspnea, productive cough and mild fever. Xpert MTB/RIF from bronchial washing sample was MTB positive with Rifampicin sensitive. CT scan finding showed atelectasis in right lung. Bronchoscopic finding showed cicatrix closing almost total right main bronchus. Balloon dilation were performed twice. She is now on eight months of anti TB drugs. Immediate symptoms improvement was experienced in both cases.

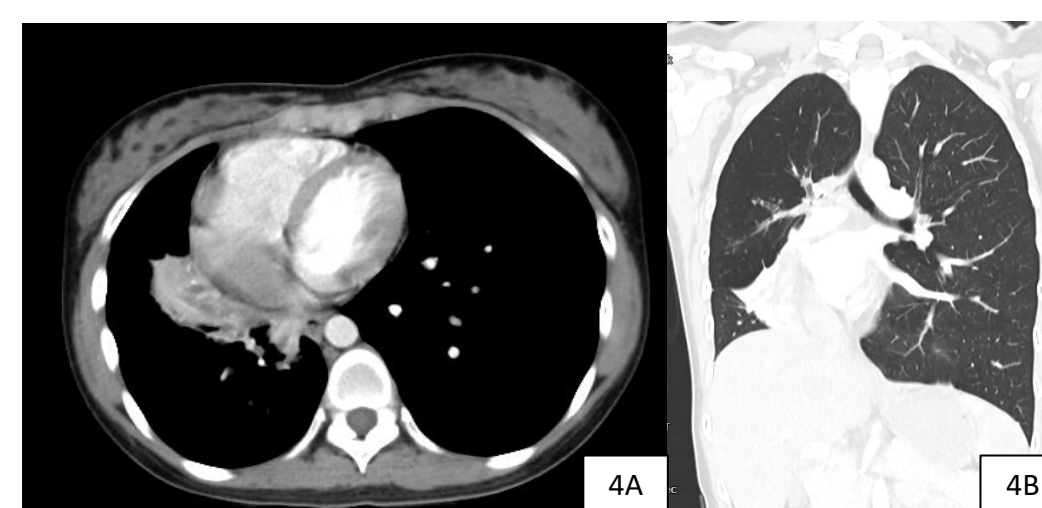


Fig 4A. Atelectasis in right lung, 4B. Right main bronchus were narrowing

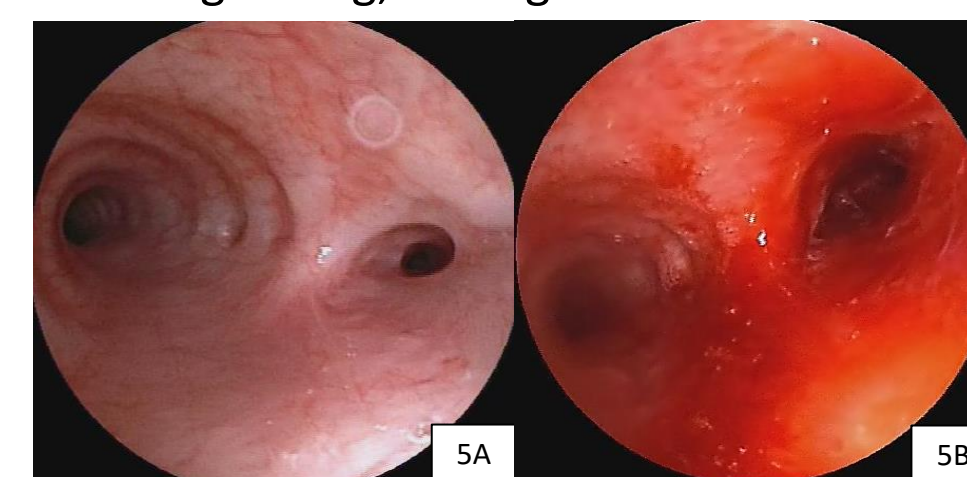


Fig 5A. Cicatrix closing almost total right main bronchus, 5B. After balloon dilation right main bronchus was open and therapeutic scope could go through

Discussion:

EBTB is hard to diagnose compared to lung tuberculosis. EBTB is common in younger age female. The most common symptom is cough. Dyspnea and stridor can also be seen if stenosis of airway present. Atelectasis is one of the most common radiological findings. Sputum smear and Xpert MTB/RIF from sputum sample can give negative result. Early diagnosis can be done using bronchoscopy. Cicatrix type stenosis is the common bronchoscopic finding of EBTB. Interventional bronchoscopy is one of the strategy in management of airway stenosis. There are various bronchoscopic techniques such as balloon dilation, rigid scope dilation, laser, cryosurgery, and stent insertion. Balloon dilation is the first choice we take in our hospital to treat EBTB airway stenosis because it is minimally invasive and can give immediate symptoms relieve. It is particularly appropriate for cicatricial stenosis. However, inflating balloon excessively could rupture bronchial wall, leading to pneumothorax complication. Balloon dilation need to be done periodically to give better result, however the effective duration of each procedure yet to be known. Although the role of systemic steroid is still controversial but the use of topical steroid injection directly through the lesion can help reduce the inflammation. Early detection and direct treatment of anti TB can give better prognosis dan lower airway stenosis complication.

Conclusions:

Bronchoscopic balloon dilation and anti TB drugs were main therapy in EBTB and airway stenosis. Bronchoscopic balloon dilation gave immediate symptoms relieve. Recurrent procedure might be performed to optimize the treatment.

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