

Hemoptoe by tuberculosis in near term pregnant woman: a case report

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Summary

Tuberculosis (TB) is an important cause of morbidity and mortality in pregnancy because immunological changes in pregnancy make the activation of latent TB infection or de novo infection more likely than among non-pregnant women. The authors report the case of a pregnant woman referring for hemoptoe by TB infection. The patient showed a massive hemoptoe, because of it, the authors speculated that she was bleeding because of tubercular blood vessel erosion from bronchial or other systemic arteries supplying the lungs (high pressure system). Flexible or rigid bronchoscopy to identify the site of bleeding should be used. In the present case the authors preferred the flexible bronchoscopy because the cardiorespiratory status was stable and the bleeding was not ongoing. The flexible bronchoscopy permitted to make a diagnosis with microbiological exam on bronchial lavage.

Key words: Tuberculosis; Pregnancy; Hemoptoe.

Introduction

Resource-rich countries have seen a resurgence of TB over the past few years, especially as a result of an increase in immigrant population in these countries [1, 2]. The present TB increase is due to overpopulation, increasing poverty, poor compliance with drug treatment, the HIV epidemic, drug abuse, and the emergence of drug-resistant TB [3]. The recently published WHO Tuberculosis Report for 2014 states that in 2013 there were an estimated 3.3 million cases among women, with 510000 deaths; a third of these women were co-infected with HIV [4].

Sugerman *et al.* [2], in a recent epidemiological modeling study, estimated that there may have been 216,500 (95% uncertainty range 192,000-257,000) active TB cases among pregnant women globally in 2011, with the highest case burden (41.3% of cases) in the WHO African region.

The presentation of TB in pregnant women is similar to that in non-pregnant individuals such as malaise, fatigue, and pulmonary symptoms [5]. Pregnant women with latent TB infection are more likely to progress to developing active TB disease than men. It has been observed by obstetricians a more rapid progression of TB disease compared with non-pregnant state [6].

Case Report

Written informed consent was obtained from the patient for publication of this Case Report and any accompanying images. The ethics committee of Sassari University approved the study. Materials described in the manuscript, including all relevant raw data, will be freely available to any scientist wishing to use them for non-commercial purposes. Data are available in our Department.

A 28-year-old woman at 36 weeks of gestation was transferred into the Institute of Pneumology from the Gynecologic and Obstetric Clinic for the emergence of productive cough and two episodes of mild hemoptoe. The chest radiograph performed before transferring highlighted *“two excavate areas at the apex of left lung compatible with tuberculosis.”*

Three days later, slight hemoptoeic episodes continued with massive hemoptysis (200 ml/hour) that was treated with tranexamic acid i.v. A few hours after she had a further hemoptoeic episode (50 ml/30 minutes) with desaturation of hemoglobin of 90% but further administration of tranexamic acid i.v. induced disappearance of hemoptoe.

The next morning the woman underwent caesarean delivery. On the same day, urgent CT chest examination was performed and showed *“in several expansive lesions bilaterally apical, at least four right and two left, with diameters between 11 and 68 mm; these formations are in proximity to the bronchial structures, appearing polilobulated, mostly excavated, with irregularly thickened walls, suggestive of inflammation (tubercular type)”* (Figure 1). The patient was subjected to bronoscopic examination that showed widespread inflammation with severe bleeding from both

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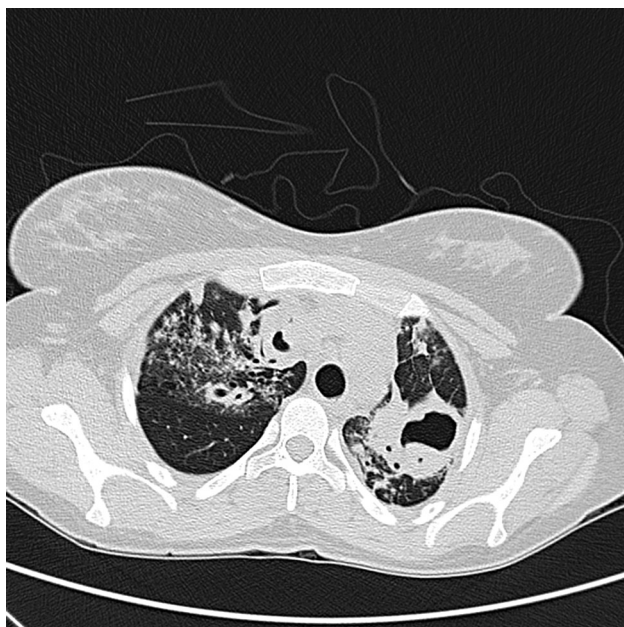


Figure 1. — CT image: presence of tubercular cave in left upper lobe of approximately 5 cm surrounded by inflammatory thickening air bronchogram; two other excavated lesions are present in the upper right lobe.

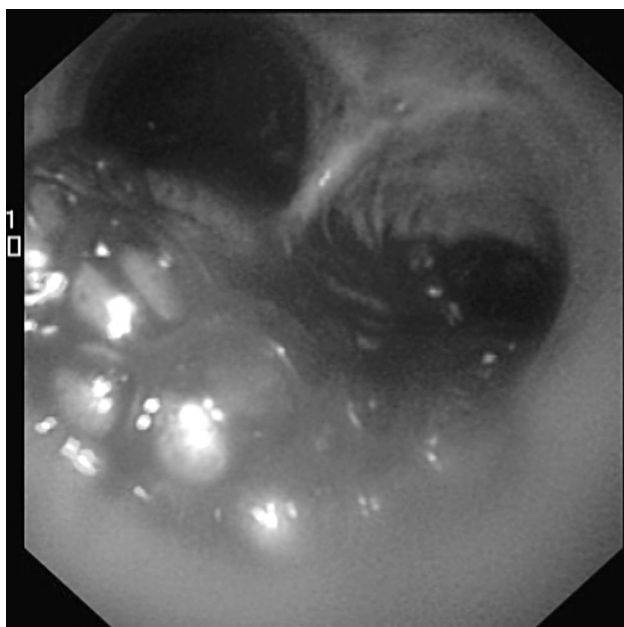


Figure 2. — Bronchoscopy: bleeding from both right and left upper bronchus can be seen.

left and right upper bronchus (Figure 2): about 300 ml of blood was aspirated and a bronchial lavage was performed.

The *Bacillus Acid-Alcohol Resistant* (BAAR) on bronchial lavage confirmed the clinical suspicion of radiological pulmonary

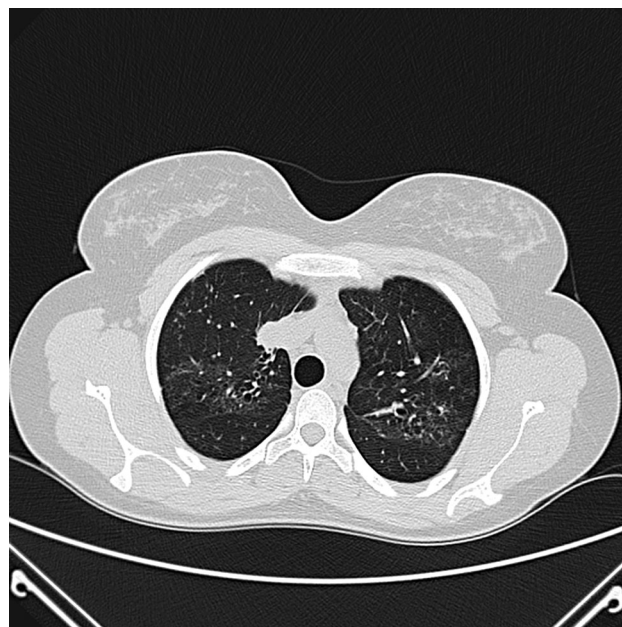


Figure 3. — CT image: follow-up computed tomography performed three months after therapy with isoniazid, ethambutol, and rifampin.

TB. Antitubercular therapy with isoniazid 300 mg/day, rifampin 600 mg/day, pyrazinamide 1,500 mg/day, and ethambutol 1,200 mg/day started.

Seven days later, the authors repeated bronchoscopic examination that revealed an endoscopic finding greatly improved compared to the previous control, characterized by moderate diffuse inflammation with sero-mucous secretion and total absence of bleeding and clots.

In the days immediately following childbirth itself, just two modest hemoptoe episodes occurred. One month later the authors repeated BAAR research on sputum and PCR negative microscopic examination and the woman was discharged. TC HR chest examination (Figure 3) before discharge was performed and showed no signs of TB.

Routine screening for TB in pregnancy is not standard practice in Italy but is recommended in setting of high HIV prevalence [7]. The diagnostic procedure such as sputum microscopy for acid-fast bacilli, culture of sputum, and chest radiography are the mainstay of diagnosis.

WHO recommends that the treatment of TB in pregnant woman should be the same as that in non-pregnant women: the standard treatment is ethambutol, isoniazid, rifampin, and pyrazinamide for two months as intensive phase followed by four months of isoniazid and rifampin as continuation phase [8].

Both pregnancy and TB can have adverse effects on each other and are linked with poor outcomes which are variable and extremely difficult to predict early in pregnancy, and management decisions should be made on a case-by-base basis.

The woman referred to the present Gynecologic and Obstetric Clinic for hemoptoe, i.e. the emission of blood from the respiratory tract, recognizes several distinct causes. The differential diagnosis of hemoptysis in pregnancy includes pulmonary causes, including infectious forms such as TB and not, including bronchiectasis, tumors, arteriovenous malformations, pulmonary embolism, LES, Wegener's granulomatosis, and amniotic fluid embolism.

Cardiovascular causes can be mitral stenosis or congenital heart disease, while among the haematological diseases CID, thrombocytopenia or Von Willebrand disease. Not to be forgotten are also the iatrogenic causes and those linked to drugs or toxic substances.

Discussion

During pregnancy hemoptoe reported cases are generally mild and in a small percentage have an undefined source. The present patient showed a massive hemoptoe; because of it the authors speculated that she was bleeding because of tubercular blood vessel erosion from bronchial or other systemic arteries supplying the lungs (high pressure system). Massive hemoptoe occurs in about 8% of cases of TB, with associated mortality ranging from 5% to 25% [9]. Massive hemoptoe is a medical emergency that requires a multiple disciplinary approach including interventional pneumologists, anesthesiologists, and interventional radiologists. The priority is airway management followed by diagnostic procedures to localize the site and cause of bleeding. Flexible or rigid bronchoscopy to identify the site of bleeding should be used. In the present case the authors preferred the flexible bronchoscopy because the cardiorespiratory status was stable and the bleeding was not ongoing. Flexible bronchoscopy is simple to use and the accuracy in patients with hemoptoe ranges from 10% to 43% [9]. It permitted the authors to make a diagnosis with microbiological exam on bronchial lavage.

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