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Case Report

Esophageal Tuberculosis: Case Presentation and Literature Review

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Abstract

Esophageal tuberculosis is a form of extrapulmonary tuberculosis considered a rare entity. It represents 2.8% of all cases of gastrointestinal tuberculosis, and it can be primary or secondary, the former being most frequent in adults in developed countries and the latter representing the majority of cases of esophageal tuberculosis. Being a rare disease, these results in unspecific clinical, radiological and endoscopic characteristics. We present the case of a patient with esophageal tuberculosis diagnosed at Hospital Universitario del Caribe, Cartagena de Indias, Bolívar, which was confirmed with a histopathological study of the lesion.

Keywords: *Esophageal Tuberculosis; Pulmonary and Extrapulmonary Tuberculosis*

Abbreviations

TB: Tuberculosis; PTB: Pulmonary Tuberculosis; EPTB: Extrapulmonary Tuberculosis; ETB: Esophageal Tuberculosis

Introduction

Tuberculosis (TB) is a prevalent disease that has impacted society worldwide, becoming one of the top ten causes of death in the world [1]. By 2018, 20 million people became ill with TB, 1.5 million died from the disease, and among these 251,000 people were infected with the Human Immunodeficiency Virus (HIV) according to the World Health Organization (WHO). In addition, TB is the leading cause of death in HIV-positive people. TB mainly affects patients with risk factors such as immunosuppression, poverty, and overcrowding, becoming a public health problem [2]. The most common presentation is pulmonary TB (PTB), followed by extrapulmonary TB (EPTB), which is more frequently found in lymph nodes (35%), pleurae (20%), bones and joints (10%), among others [3]. The digestive system occupies the fourth most common place of appearance, being predominant in the ileocecal region [4]. In the case of esophageal TB (ETB), its presentation is uncommon, representing 2.8% of all cases of gastrointestinal tuberculosis, most of which are infections secondary to infection in other parts of the body [5]. The following is a case of a patient with PTB and subsequent esophageal involvement. In addition, we conducted a review of the literature.

Case Presentation

This is a 52-year-old male patient with a history of PTB confirmed by smear tests. The patient was in homeless situation and had protein-calorie malnutrition.

Later, he presented with a chief complaint of two months of evolution of mass sensation in throat, associated to dysphagia, dysphonia, hemoptysis and fever.

Initial studies were carried out to confirm PTB, baciloscopies, chest radiography with presence of reticular opacities towards the apices of both lungs, which suggest possible granulomatous disease and High-Resolution Computed Tomography of the lungs (Figure 1 and 2).

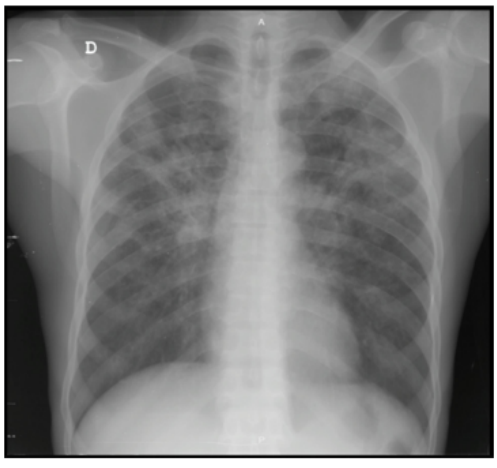

Figure 1: *Chest radiography.*

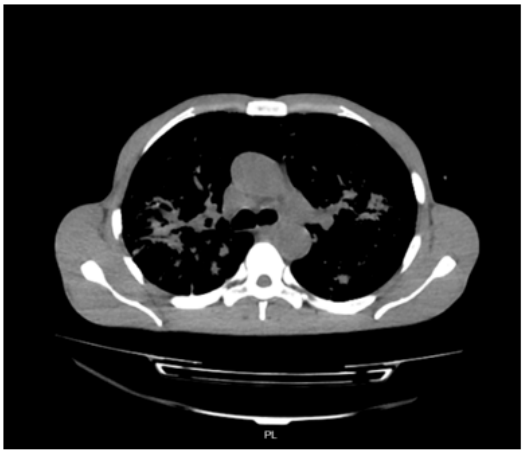

Figure 2: *High-resolution computed tomography of the lungs.*

In addition, an endoscopic biopsy of the larynx was taken, where multinodular lesions of granulomatous appearance that involve right vocal fold, towards the anterior commissure and in the posterior third of the fold (Figure 3) with suspicion of involvement by EPTB Vs neoplasia, were macroscopically recognized.

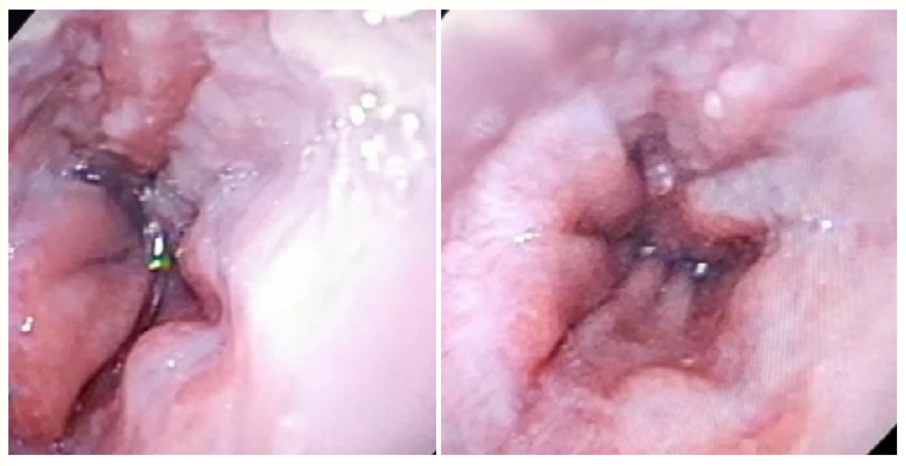

Figure 3: *Upper gastrointestinal endoscopy.*

Histopathological studies revealed fragments of squamous epithelium with reactive changes without dysplasia, associated to the formation of multiple granulomas with multinucleated giant cells surrounded by a necklace of lymphocytes, with caseous necrosis, suggesting tuberculosis infection.

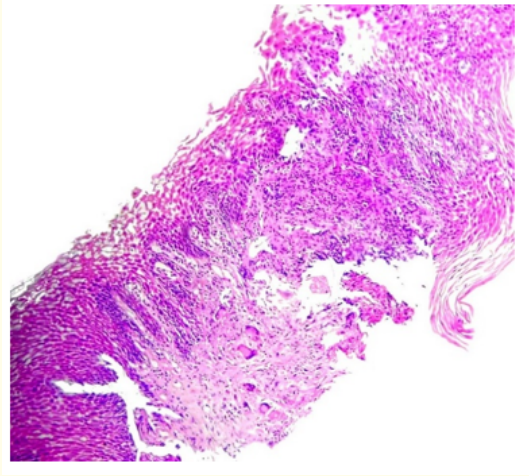

Figure 4: *Esophageal mucosa with mixed inflammation and reactive changes. 10X.*

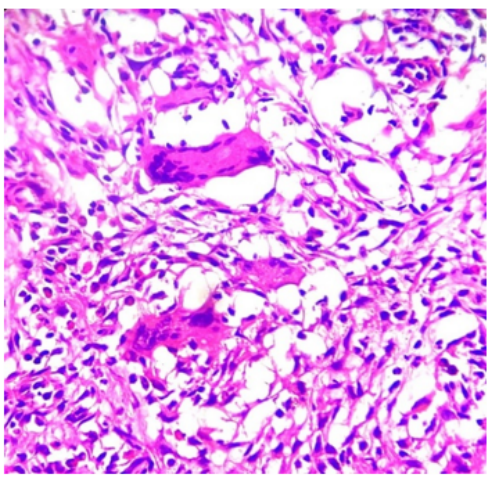

Figure 5: *Presence of multinucleated Langhans type giant cells. 40X.*

Discussion and Conclusion

ETB is a form of EPTB considered a rare entity. It represents 2.8% of all cases of gastrointestinal tuberculosis, and it can be primary or secondary, the former being most frequent in adults in developed countries and the latter representing the majority of cases of ETB [2,6]. Being a rare disease, this results in unspecific clinical, radiological and endoscopic characteristics [7].

Primary involvement of tuberculosis in the esophagus is the least common form, due to protective mechanisms such as stratification of the flat epithelium of the mucosa, mucus, saliva, peristalsis and upright posture, which are conditions that allow the bacteria to remain temporarily in the esophagus. However, pre-existing esophageal lesions such as reflux esophagitis, inflammation, ulceration, stenosis or carcinoma have been reported and are considered to be a predisposing factor for implantation of the microorganism [6,8].

On the other hand, most cases of ETB are secondary to tuberculosis infection in other parts of the body. In such cases, the most common etiology of esophageal infection is the spread of the infection from the respiratory and mediastinal tracts, through the lymph nodes adjacent to the esophagus, which are considered to be the main source of dissemination [2,6].

It has been shown that the most frequent etiological agent, both in the primary and secondary form, continues to be Mycobacterium tuberculosis. The mode of infection for the primary inoculation is by ingestion of infected material, while the direct extension of infected mediastinal structures has been attributed to the secondary type of infection [7]. Generally, the infection adopts a similar pattern that usually produces chronic granulomatous inflammation with giant cells and granuloma formation with areas of caseous necrosis. This is usually associated with mucosal ulceration which can be symptomatic and is often detected on endoscopy [7]. Erosion of the tracheobronchial tree with development of tracheo-esophageal fistula or perforation of the mediastinum may also occur. The most affected segment of the esophagus is the middle third due to its proximity to the tracheobronchial tree and the mediastinal nodes [7].

As for the symptoms it may cause, it is important to know that due to the infrequency of this disease, delays in its diagnosis may occur [7,9]. Dysphagia and retrosternal pain are the most frequent symptoms, the less common ones are odynophagia and bleeding. They can also be accompanied by constitutional symptoms such as fever, fatigue and loss of consciousness. Dysphagia is said to be the initial symptom due to esophageal neuromuscular dysfunction along with luminal compression, which lead patients to seek medical care [5,10,11].

Severe complications such as esophageal abscess, perforation, massive hematemesis, stricture and formation of esophageal-tracheal, esophagobronchial and esophagomediastinal fistulas have been reported [2].

The diagnosis through the isolation of the tuberculosis bacillus continues to be the Gold Standard. However, the infrequency of this entity and the forms of presentation can lead to a wrong clinical diagnosis and may even lead to unnecessary surgeries [6]. The presence of active PTB or other extrapulmonary disease should be examined and a history of chronic cough should be explored. The diagnosis of esophageal tuberculosis is usually made by esophagoscopy and biopsy, where histology shows epithelioid granulomas with multinucleated Langhan-type giant cells, central necrosis, and acid-resistant bacilli [7]. Endoscopic findings of esophageal tuberculosis include ulcerative, granular or hypertrophic types. The most common finding is linear ulceration with irregular margins and a grayish base with an irregularly infiltrated border in the mid esophagus. Sometimes, hypertrophic lesions present as tumors that grow with stenosis and therefore can be easily confused with malignant tumors [8,11].

Once the diagnosis of tuberculosis is established, a chest x-ray and an abdominal ultrasound are performed to rule out the presence of tuberculosis in other areas. Chest radiography can be normal in most patients, while upper gastrointestinal contrast studies often show stenosis that may mimic malignant stenosis [7]. Stenosis may be due to luminal, intramural, or extrinsic compression depending on the form of tuberculosis involvement. Contrast leakage in the mediastinum or tracheobronchial tree may also be demonstrated in the presence of fistulation [7].

Although endoscopic appearances of this disease have been described, clinical diagnosis, particularly in cases without predisposing factors, is generally difficult. In addition, histological diagnosis based on esophageal biopsies may not be definitive and often the bacillus is not isolated. Therefore, the diagnosis is based on the response to antituberculosis therapy [9,10].

In a series of cases it was shown that ETB should be included in the differential diagnosis of esophageal subepithelial lesion, especially if it is in the mid-esophagus. In addition, it should be distinguished from esophageal carcinoma, Crohn's disease, lymphomas, metastases, and other granulomatous diseases such as sarcoidosis, syphilis, and histoplasmosis, all of which can affect the esophagus [8,11].

The recommended regimen consists of pyrazinamide, isoniazid, ethambutol or streptomycin and rifampicin with adequate clinical response in 2 to 4 weeks. In general, the prognosis of these patients is good. Even complicated cases with tracheoesophageal tuberculosis fistulas have been successfully treated with chemotherapy [2,6].

Conflict of Interest

The authors declare no conflict of interest.

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