

# A nutritional approach to esophageal tuberculosis - case report

## Abstract

Esophageal tuberculosis is a rare event, but when present, it presents an important repercussion on the nutritional status of the affected individuals. We report a case of a 47-year-old woman with a history of progressive dysphagia and associated weight loss, diagnosed with esophageal tuberculosis, possibly infected by food inoculation of the bacilli. Being the nutritional monitoring essential for the good outcome of the case.

**Keywords:** tuberculosis, oesophagus, nutrition, dysphagia

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## Introduction

Tuberculosis is a serious infectious disease caused by the bacterium *Mycobacterium tuberculosis*. The disease is characterized by a long period of latency between the initial infection and its clinical presentation.<sup>1</sup> According to data from the World Health Organization (WHO), around 10.4 million new cases of tuberculosis worldwide occurred in 2015, including 56% in men, 34% in women and 10% in children. HIV-positive individuals accounted for a total of 11% in all new cases.<sup>1</sup>

Access to adequate treatment has made it possible to reduce the number of deaths due to the disease, but there are still gaps in diagnosis and treatment, requiring the development of strategies for its control, considering humanitarian, economic and public health aspects.<sup>1,2</sup>

The most common presentation of the disease is the pulmonary form, but can affect other organs of the body. The main source of infection is in the individual with the pulmonary form of the disease, which exteriorizes bacilli. In some regions, diseased cattle may also be a source of infection. Rarely, birds, primates and other mammals serve as reservoirs.<sup>2</sup>

Frequently, tuberculosis presents with different clinical presentations, which may be related to the affected organ.<sup>3</sup> Esophageal tuberculosis is a rare event, the gastrointestinal tuberculosis the sixth most common in extrapulmonary tuberculosis. These forms are often involved in changes in swallowing, reduced food intake, weight loss and consequently affect the nutritional status of patients.<sup>4</sup>

Its symptoms accompany the degree of impairment of the esophagus, including dysphagia, retrosternal pain and odynophagia. Several mechanisms seem to be involved in this form of infection, such as direct extension of pharyngeal tuberculosis, dissemination of a distant site and inoculation of bacilli.<sup>5,6</sup> In this context, it is important to present and discuss the clinical manifestations of extrapulmonary forms of tuberculosis, as well as its repercussions on the nutritional status of the patients affected.

## Case report

Patient white woman, 47 years old, Brazilian. He began clinical presentation approximately one year before admission with gagging and dysphagia to solid, with progressive worsening, vomiting after meals, especially at bedtime, evolving with dysphagia also for liquids and odynophagia. She sought medical attention and was hospitalized for follow-up research by the gastroenterology department of the University Hospital of the Federal University of Juiz de Fora (HU-UFJF).

At the physical examination, she was stained, hydrated, anicteric, acyanotic, with flat abdomen, RHA present, painful palpation. His current weight of 63kg, height of 1.6meters, with Body Mass Index (BMI) of 24.6kg/m<sup>2</sup>. Laboratory tests showed negative HCV and HIV serology (tests for hepatitis C virus and HIV, respectively), preserved renal function, normocytic and normochromic anemia, and hypoalbuminemia (2.3g/dL) (Table 1).

**Table 1** Serum albumin evolution

Biochemistry	Initial	Intermediary	Last
Albumin (g/dL)	2,3	2,6	3,0

The initial clinical hypothesis was esophageal neoplasia. However, diagnostic investigation by biopsy showed a stenotic lesion of the esophagus, and absence of neoplasia. In the upper digestive endoscopy, obstructive lesions were found in the distal esophagus occupying 40% of the light. On admission, a nasogastric catheter was passed through endoscopy for an alternative nutritional route, being followed up by the Hospital's Nutrition Therapy Team.

During nutritional monitoring, a nutritional screening tool (NRS 2002) and food anamnesis were used as a means of detecting changes in nutritional status. From this evaluation the patient presented eutrophy according to BMI classification, and significant weight loss considering percentage of weight loss.

For the calculation of nutritional requirements, a pocket formula was used, considering 35Kcal/Kg weight/day and 1,5g of protein per kg/day using the current weight. During the nutritional follow-up the patient initially remained in exclusive enteral nutrition via a nasogastric catheter with a polymeric, hypercaloric and normoprotein formula, associated with a protein modulus to reach nutritional needs.

With clinical evolution and improvement of odynophagia and dysphagia, an oral diet with pasty consistency was associated with moderate acceptance of the same. To reach the nutritional needs orally and weaning enteral nutrition, the nutritional team began nutritional supplementation liquid oral, 200mL bottle, hypercaloric and hyperproteic, and oriented the fractional intake of the volume for better acceptance (Table 2).

**Table 2** Evolution of caloric and protein adequacy (oral diet + supplement)

Nutritional adequacy	Week I	Week II	Week III	Week IV
Caloric (%)	88	74	95	114
Protein (%)	78	56	73	90

During hospital follow-up, the patient reported a history of consumption of small amounts of raw beef. Representing this, a possible vehicle for contamination with the tuberculosis bacilli. Thus, a new esophageal biopsy was performed, and a diagnosis of esophageal tuberculosis was concluded.

RIPE regimen (rifampicin+isoniazid+pyrazinamide+ethambutol) was then started. After the introduction of the tuberculostatics, the patient presented with nausea and vomiting, associated with diffuse abdominal pain and altered liver enzymes: AST=119U/L (normal value: up to 40) and GGT=168U/L (normal value: up to 41). Needing the suspension of the same, with later introduction step, and better tolerance. Patient was discharged with exclusive oral feeding, followed in outpatient follow-up.

## Discussion

The diagnosis of extrapulmonary forms of tuberculosis is challenging, since it presents the same clinical characteristics as other conditions. The difficult access to most lesions and the fact that they are usually paucibacillary, a situation in which smears microscopy may be negative. The histopathological findings of granulomatous reaction, in turn, do not exclude the possibility of other pathologies. The study of the image brings important information for the establishment of the diagnosis of extrapulmonary tuberculosis, although in none of its locations there are specific radiological patterns.<sup>7</sup>

The diagnosis of esophageal tuberculosis is based on the analysis of esophageal biopsy when other etiological agents are ruled out and the growth of *Mycobacterium tuberculosis* in culture.<sup>6</sup>

As observed in the case, the nutritional status of the hospitalized patient manifests therapeutic relevance, since it interferes directly in the evolution of its clinical picture. Malnutrition is a very frequent nutritional problem, and it still presents high hospital prevalence in Brazil.<sup>8</sup> However, this nutritional condition may be present in patients at the time of admission, or develop during the hospital stay.<sup>9</sup>

Thus, risk assessment and nutritional status is an essential tool for monitoring these individuals. Is fundamental not only to identify malnutrition, but also to assess the risk of nutritional worsening of patients in vulnerable situations. It is important to perform a complete

nutritional assessment, including anthropometry, biochemical exams, physical and functional markers.<sup>10</sup>

The presence of dysphagia, as presented, may compromise nutritional status, leading to weight loss due to dietary inadequacy, since the individuals present food consistency restrictions, as an attempt to adapt to the symptom, thus reducing the intake necessary for the adequate nutrition, a factor that can directly interfere with the recovery process.<sup>11</sup>

Various works emphasize that the dietary orientation should be individualized, precaution regarding the risk of aspiration and the adequate choice of access route for food help to prevent malnutrition in patients with dysphagia, where care of a multidisciplinary team are necessary for an effective recovery, so that the association of nutritional and speech therapy will allow better results for the recovery process of the patient as a whole.<sup>12,13</sup>

The symptoms commonly present in digestive tract disorders, as observed in the case, are related to food intake, such as: nausea, vomiting, diarrhea, early satiety, intestinal constipation, xerostomia, dysgeusia and dysphagia, and may contribute significantly to the nutritional status and, therefore, should be constantly monitored.<sup>10,14</sup>

In view of the above, nutrition plays an important role in the management of acute and chronic diseases, influencing the response of the organism to the pathogen. Several nutrients, including macro and micronutrients, are associated with increased host immune capacity against intracellular pathogens including *Mycobacterium tuberculosis*. These nutrients have immunomodulatory effects on infection control, inflammatory process and nutritional deficiency.<sup>15</sup>

The nutritional status deficit together with the loss of muscle mass may be directly related to the increase of comorbidity factors, among which the reduction of immunity, increase of infections, losses in the healing processes and muscular weakness, such fact can be related to the increase in hospitalization time.<sup>16</sup>

Therefore, an individualized nutritional monitoring, considering the specific nutritional deficiencies and objectifying the adequate nutritional supply seems to present itself as an efficient strategy for the better clinical performance of the patients.

## Conclusion

The impact of nutritional risk on the dysphagic patient is evident, and the choice of alternative feeding path may be essential for adequate dietary planning. Early nutritional therapy benefits patients who have an inadequate oral intake because of the symptoms of the treatment or the underlying disease itself. In this way, the individualized follow-up favored the evolution of the patient, who presented improvement in their nutritional status, as well as the weaning of enteral nutrition and the reintroduction of the oral diet.

## Acknowledgments

None.

## Conflicts of interest

The authors declare no conflicts of interest.

## Patient consent

Patient signed an informed consent and gave her permission to publish the related data.

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