

Case Report

Integrative Gastroenterology and Hepatology

Miliary Tuberculosis with Mediastinal and Cervical Lymph Node Involvement Complicated by an Eso-Mediastinal Fistula

Guglielmi S^{1*}, Guglielmi G², Mönig S³, Janssens JP⁴ and Spahr L¹

¹Division of Gastroenterology and Hepatology, Geneva University Hospital, Geneva, Switzerland

²Division of Radiology, Geneva University Hospital, Geneva, Switzerland

³Division of Visceral Surgery, Geneva University Hospital, Geneva, Switzerland

⁴Division of Pneumology, Geneva University Hospital, Geneva, Switzerland

***Correspondence:** Stefano Guglielmi, Division of Gastroenterology and Hepatology, Geneva University Hospital, Geneva, Switzerland, E-mail: Stefano.Guglielmi@hcuge.ch

Received date: July 29, 2019; Accepted date: Aug 28, 2019; Published date: Sept 02, 2019

Abstract

Esophageal involvement in tuberculosis is rare even in highly endemic areas for tuberculosis and is most often secondary to concomitant mediastinal lymph node infection. Endoscopy and imaging are essential for diagnosis. Conservative treatment is possible but the major risk is mediastinitis secondary to an eso-mediastinal fistula.

Keywords: Tuberculosis, Esophagus, Fistula

Case Report

A 19-year-old woman in good general health, originating from the Indian subcontinent, consulted her general physician because of odynophagia, fever and right cervical lymphadenopathy. A two weeks symptomatic treatment with non steroidal anti inflammatory drugs had no effect. At clinical follow-up she mentioned persistent fever, night sweats and a 5 kg weight loss at day 0 + 1 month, leading to hospitalization. A thoraco-abdominal CT scan showed hilar, mediastinal and retroperitoneal lymphadenopathy, as well as pulmonary micronodules with a miliary pattern. Analysis of induced sputum and needle aspiration of the right cervical lymphadenopathy were both positive by PCR (GeneXpert, Cepheid®, USA) for *Mycobacterium tuberculosis*, with no mutation of the rpoB gene detected. Blood chemistry showed abnormal liver tests (ASAT 93 U/l, ALAT 108 U/l, ALP 137 U/l, and GGT 140 U/l). An ultrasound of the upper abdomen showed liver hilar lymphadenopathy, as well as millimetric hyperechogenic nodules. The diagnosis of miliary tuberculosis with lymph

Int Gast Hepatol, 2(1): 176-179 (2019)

node (mediastinal and cervical), pulmonary and hepatic involvement was confirmed and a quadritherapy of Rifampicin, Isoniazid, Pyrazinamide, Ethambutol was initiated.

At day 0 + 2 months, the patient reported progressive chest pain and dysphagia. Her chest pain was exacerbated by food intake with a few episodes of sensations of food blockage, which subsided spontaneously. Despite the fact that she had adapted the consistency of her diet, she noted a weight loss of 8-10 kg over two months. At day 0 + 3 months, an esophagogastroduodenoscopy was performed showing the presence of an esophageal ulcer at 27 cm from the upper dental arch (middle third of the esophagus) of a diameter of approximately 2 cm (Figure 1). Clinical assessment was completed by a thoracic CT scan which showed a paradoxical increase in the size of the mediastinal and cervical lymphadenopathy, as well as a pneumomediastinum with a suspicion of an eso-mediastinal fistula (Figure 2). Microscopic examination

of esophageal biopsies did not show any granulomas, but PCR was positive for *Mycobacterium Tuberculosis*. A videofluoroscopy showed an extra-luminal leakage of contrast medium, revealing an eso-mediastinal fistula of about 15 mm in length and 2 mm in diameter (Figure 3).



Figure 1: Esophagogastroduodenoscopy.



Figure 4: Second esophagogastroduodenoscopy.

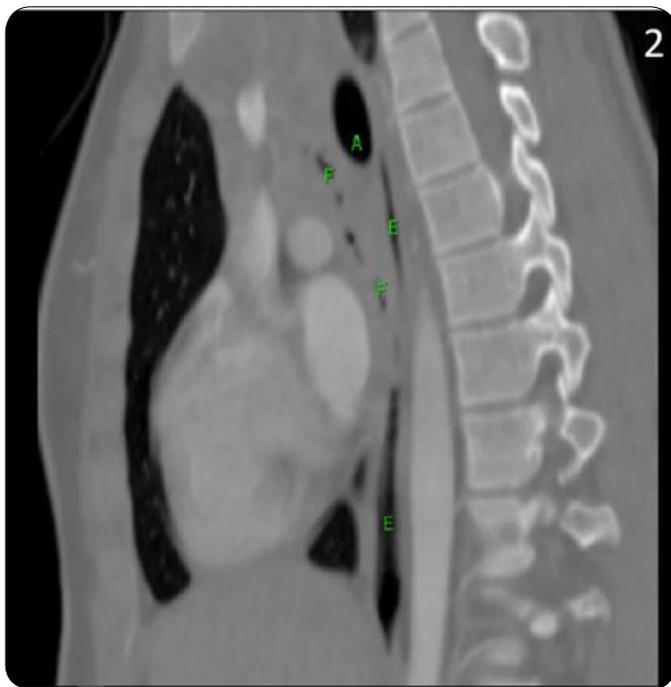


Figure 2: CT-scan: A: Airways, E: Esophagus, F: Fistula.

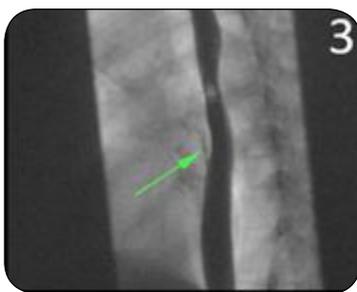


Figure 3: Videofluoroscopy.

After multidisciplinary evaluation, it was decided to manage this eso-mediastinal fistula conservatively (using an Eso-SPONGE® was considered but not implemented).

A prophylactic treatment of Co-trimoxazole and Omeprazole for 1 month was initiated to minimize the risk of mediastinitis. The local status was reevaluated by esophagogastroduodenoscopy at day 0 + 5 months: a slightly retracted ulcer scar with no mucosal involvement (Figure 4) was still visible. Subsequently, the patient also required an incision for surgical drainage of a cervical lymph node.

Clinical evolution was favorable with disappearance of the dysphagia, and CT-confirmed resolution of pneumomediastinum, eso-mediastinal fistula and lymphadenopathy.

Six months after the end of her treatment, the patient remains asymptomatic.

Discussion

With 9 million cases per year worldwide and 2 million deaths annually, tuberculosis is a major public health problem. In Switzerland, the incidence of tuberculosis is low (8/100 000) [1]. This infection, caused by *Mycobacterium Tuberculosis* typically affects the lungs with 20-40% of cases having extra-pulmonary involvement [2]. Esophageal tuberculosis is a rare entity and accounts for about 0.15% of TB-related deaths in an autopsy series collected more than 50 years ago [3,4]. A more recent study from Singapore reports two cases over a 16-year period resulting in a prevalence of 0.06% in total and 3.1% of the digestive cases [3]. Most cases are reported in India and Africa [5-8]. The largest series to our knowledge, which includes 31 cases, was compiled in the city of Chennai in India [8].

Primary involvement of the esophagus is very rare, probably due to rapid esophageal transit of swallowed mycobacteria and a protective stratified epithelium [9]. It has however been reported in high prevalence areas. In the Ramesh series (India) [8], 5 of the 31 cases described are considered as primary involvement⁸. Secondary involvement occurs when an adjacent infectious focus spreads to the esophageal mucosa or by hematogenous dissemination. Another mechanism

of secondary involvement is contamination by infected saliva swallowed in the presence of an altered esophageal terrain. The most common secondary mechanism is direct dissemination from a mediastinal lymph node and from pulmonary, vertebral or pharyngeal infection sites [9]. In 3 series of respectively 10, 11, and 31 cases, the majority of cases result from secondary involvement [5,6,8]. This case report also supports this finding: the initial mediastinal lymphadenopathy was followed by the subsequent appearance of dysphagia, and we hypothesize that the esomediastinal fistula is a natural drainage method of infected lymph nodes.

Main clinical symptoms are dysphagia, retro-sternal discomfort and upper gastrointestinal bleeding. From an endoscopic point of view, the most frequent presentation is that of esophageal ulcers in the middle third of the esophagus [10]. However, clinical symptoms can also result from extrinsic compression of the esophagus [8]. Cases of eso-tracheal fistulas, aorto-esophageal fistulas or stenosis are also described [6,8,10].

Diagnosis is challenging because the endoscopic and radiological presentations have characteristics in common with neoplastic disorders. The differential diagnosis must also include other infections (Cytomegalovirus, fungal infection) and Crohn's disease. Esophagogastroduodenoscopy is the recommended procedure and esophageal biopsies of the ulcerated zone find granulomas in 60%-100% of cases [5,10]. PCR on these samples should be interpreted with caution because of its high sensitivity; a patient with pulmonary involvement may have positive results caused by the presence of mycobacterial DNA in his/her saliva. Thoracic CT is very effective in detecting an adjacent infection, such as mediastinal lymph node involvement, and in detecting a possible fistula. It is also mandatory to test for an HIV co-infection [11].

Drug therapy according to WHO guidelines [12] leads to a favorable outcome in the majority of cases [5,6,8]. It is important to recognize esophageal involvement as soon as possible to avoid serious complications. In the hypothesis of a natural drainage of an abscess in case of mediastinal lymph node involvement, a covered stent seems inappropriate to us. In case of an esotracheal fistula with pulmonary symptomatology, the indication for interventional management (endoscopic stent or surgery) must be evaluated [8]. A follow-up endoscopy seems appropriate to ensure the correct evolution [11]. Indeed, a traction diverticulum or a stenosis may

be residual findings requiring specific treatment (for example a balloon dilatation in case of stenosis) [13].

In conclusion, the diagnosis of esophageal involvement in tuberculosis is difficult. It is a rare entity with poorly codified management. It results most often from the spread of an adjacent mediastinal lymph node infection. Antituberculous drug treatment is the mainstay of management with a favorable evolution in most cases.

Declaration

The patient gave her consent for this publication.

Conflict of Interest

The authors have no conflict of interests regarding this publication.

References

1. Kherad O, Herrmann FR, Zellweger JP, et al. Clinical presentation, demographics and outcome of tuberculosis (Tb) in a low incidence area: a 4-year study in Geneva, Switzerland. *BMC Infect Dis*. 2009;9(1):217. Doi: <http://dx.doi.org/10.1186/1471-2334-9-217>
2. Mazza-Stalder J, Nicod L, Janssens JP. La tuberculose extrapulmonaire. *Revue des Maladies Respiratoires*. 2012;29(4):566-578. Doi: <http://dx.doi.org/10.1016/j.rmr.2011.05.021>
3. Momin RN, Chong VH. Oesophageal tuberculosis: rare but not to be forgotten. *Singapore Med J*. 2012;53(9):e192-194. <https://www.ncbi.nlm.nih.gov/pubmed/23023913>
4. Mönig SP, Schmidt R, Wolters U, et al. Esophageal tuberculosis: a differential diagnostic challenge. *Am J Gastroenterol*. 1995;90(1):153-154. <https://www.ncbi.nlm.nih.gov/pubmed/7801924>
5. Devarbhavi HC, Alvares JF, Radhikadevi M. Esophageal tuberculosis associated with esophagotracheal or esophagomediastinal fistula: report of 10 cases. *Gastrointestinal Endoscopy*. 2003;57(4):588-592. Doi: <http://dx.doi.org/10.1067/mge.2003.140>
6. Mokoena T, Shama DM, Ngakane H, et al. Oesophageal tuberculosis: a review of eleven cases. *Postgraduate Medical Journal*. 1992;68(796):110-115. Doi: <http://dx.doi.org/10.1136/pgmj.68.796.110>
7. Chaabane NB, Ben W, Hellara O, et al. La tuberculose gastro-intestinale. *Hepato Gastro*

Oncol Dig. 2012;19:28-35.

8. Ramesh N. Management of esophageal tuberculosis: a single center experience. August 2014. <http://repository-tnmgrmu.ac.in/2223/>.
9. Manuel TR, Carl LR, Gail MC. Esophageal tuberculosis. *Dig Dis Sci.* 1989;34(8):1281-1284.
10. Abid S, Jafri W, Hamid S, et al. Endoscopic features of esophageal tuberculosis. *Gastrointestinal Endoscopy.* 2003;57(6):759-762. Doi: <http://dx.doi.org/10.1067/mge.2003.205>
11. Bonthala L, Wood E. Oesophageal tuberculosis. *Case Reports.* 2011;30(2):1-4. Doi: <http://dx.doi.org/10.1136/bcr.09.2011.4883>
12. Ebert RH. Treatment of tuberculosis. *Disease-a-Month.* 1956;2(4):1-39. Doi: [http://dx.doi.org/10.1016/S0011-5029\(56\)80012-6](http://dx.doi.org/10.1016/S0011-5029(56)80012-6)
13. Rasheed S, Zinicola R, Watson D, et al. Intra-abdominal and gastrointestinal tuberculosis. *Colorect Dis.* 2007;9(9):773-783. Doi: <http://dx.doi.org/10.1111/j.1463-1318.2007.01337.x>



Copyright: © **Guglielmi et al.** This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.