

CASE REPORT

# Communicating Tubular Duplication of Upper Esophagus—A Rare Occurrence

Jawahar Rathod, Amit Disawal, Kishor Taori, Meenakshi Agrawal, Prajwaleet P Gaur, Vijay Jadhav, Krishna Prasad, Kanchan Wankhede<sup>1</sup>

Departments of Radiodiagnosis and <sup>1</sup>Anatomy, Government Medical College and Hospital, Nagpur, India

**Address for correspondence:**

Dr. Jawahar Rathod,  
 Department of Radiodiagnosis,  
 Government Medical College and  
 Hospital, Nagpur 440 003, India.  
**E-mail:** [drjawahar\\_12@rediffmail.com](mailto:drjawahar_12@rediffmail.com)



**Received :** 11-04-2011

**Accepted :** 17-05-2011

**Published :** 21-06-2011

## ABSTRACT

Duplications of esophagus are commonly classified into two types, tubular and cystic. Tubular duplication of esophagus is a rare occurrence and is much less common than cystic duplication of foregut. Most esophageal duplications are located in the lower third of the esophagus. A cervical esophageal duplication is extremely rare. Esophageal duplications have been reported twice as commonly on the right as on the left. We report a case of incidental finding identified on computed tomography of communicating tubular esophageal duplication involving the left side of the upper esophagus in a tuberculosis patient that was subsequently confirmed on barium swallow test.

**Key words:** Individualized treatment, rare anomaly, tubular esophageal duplication

## INTRODUCTION

Duplications of the alimentary tract are rare congenital malformations. The ileum is the most commonly affected site, followed by the esophagus.<sup>[1]</sup> Duplications are commonly classified into two types, tubular and cystic. Tubular duplication of esophagus is a rare occurrence and is much less common than cystic duplication of the foregut.<sup>[2]</sup> They may or may not communicate with the

esophageal lumen. Most esophageal duplications are located in the lower third of the esophagus. A cervical esophageal duplication is extremely rare.<sup>[3]</sup> Esophageal duplication may lie centrally or more usually lie to one side and have been reported to occur twice as commonly on the right as on the left.<sup>[4]</sup>

We report a case of incidental finding on computed tomography of communicating tubular esophageal duplication on the left side of the upper esophagus, in a tuberculosis patient, that was subsequently confirmed on barium test.

## CASE REPORT

A 42-year-old man with complaints of dry cough and breathlessness for 15 days was referred to the Radiology Department for Computed Tomography of the thorax.

Access this article online	
Quick Response Code:	Website: <a href="http://www.clinicalimaging-science.org">www.clinicalimaging-science.org</a>
	DOI: 10.4103/2156-7514.82245

Copyright: © 2011 Rathod J. 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 author and source are credited.

This article may be cited as:  
 Rathod J, Disawal A, Taori K, Agrawal M, Gaur PP, Jadhav V, Prasad K, Wankhede K. Communicating Tubular Duplication of Upper Esophagus-A Rare Occurrence. J Clin Imaging Sci 2011;1:33. Available FREE in open access from: <http://www.clinicalimaging-science.org/text.asp?2011/1/1/33/82245>

His chest X-ray showed cavitation and fibrosis with patchy consolidation in the right upper zone. Patient was a diagnosed case of sputum-positive pulmonary tuberculosis and had received the complete course of antitubercular treatment 2 years earlier. On present Computed Tomography of the thorax (axial images), there were multiple thick-walled cavitary lesions in the posterior segment of right upper lobe with multiple parenchymal nodular opacities indicative of endobronchial spread of infection [Figure 1]. In addition to these findings, there was an air-filled tubular structure alongside the esophagus on the left side, beginning at the level of the T2 vertebra and communicating with the normal esophagus at the level of carina [Figure 2]. We considered a provisional diagnosis of pulsion diverticula or possibly proximal esophageal duplication as an incidental finding along with the findings of sequelae of post-primary pulmonary tuberculosis.

Barium swallow study [Figure 3] was done to rule out diverticulum. On barium study, a contrast-filled tubular structure was seen alongside the normal esophagus on the left side extending from the T2 to the T4 vertebral level and communicating with the esophagus both superiorly and inferiorly. Fluoroscopically, swallowing mechanism was normal with normal mucosa and presence of peristalsis in the duplicated segment. There was no evidence of any aspiration or gastroesophageal reflux. Gastroesophageal junction was normal. With these definitive findings, diagnosis of incomplete communicating tubular duplication of upper esophagus was considered.

## DISCUSSION

The duplication of the esophagus is one of two forms: (1) a cystic form that may or may not communicate with the esophageal lumen or (2) a tubular form. Embryologically, duplications result from a defect in the tubulation (vacuolization) of the esophagus, normally occurring in the sixth week of gestation. As the foregut epithelium develops, it elongates, develops a lumen, and undergoes dextrorotations. Thus, the majority of esophageal duplications occur distally and on the right. In the present case, the esophageal duplication was in the upper esophagus and on the left. In one study,<sup>[5]</sup> of 44 esophageal duplications only six tubular duplications were identified. In another review of alimentary tract duplications,<sup>[6]</sup> 22% were intrathoracic, and all were cystic rather than tubular. The present report reveals a case of an incomplete tubular duplication of the upper esophagus.

Associated anomalies of the thoracic spine ranging from spina bifida and hemivertebra to vertebral fusion

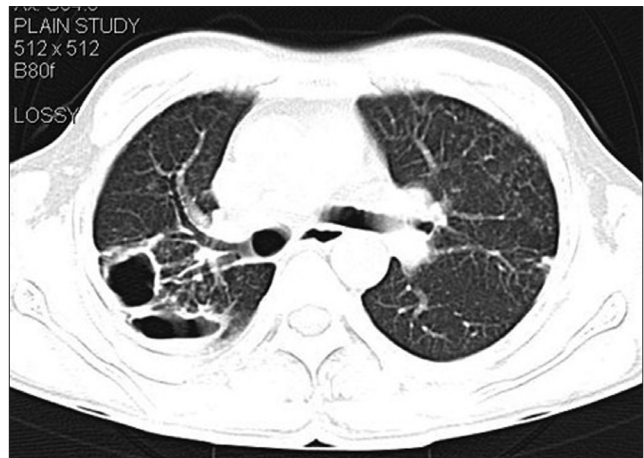


Figure 1: Plain CT upper thorax lung window shows multiple cavitary lesions in the right upper lobe.

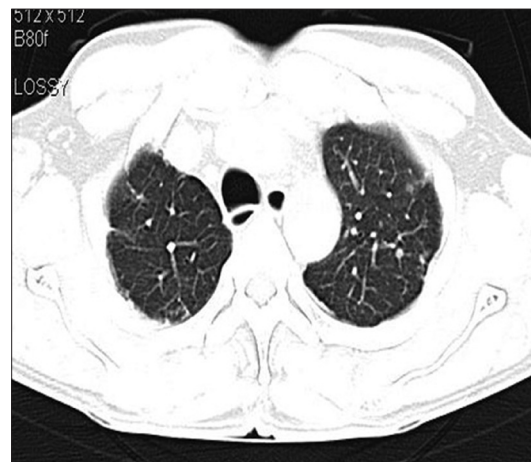


Figure 2: Plain CT upper thorax lung window shows air-filled structure on the left side alongside the normal esophagus.

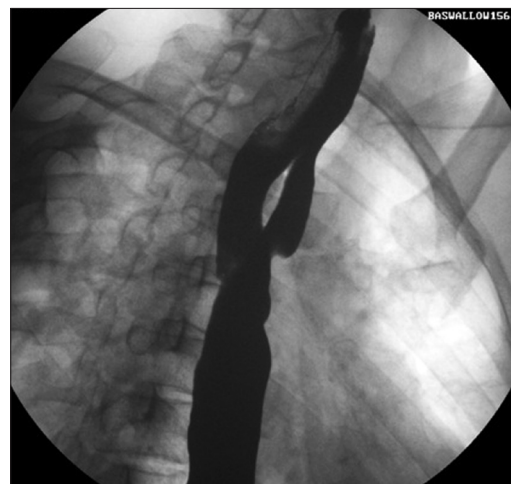


Figure 3: Barium test shows incomplete communicating tubular duplication of the upper esophagus.

defects have been described.<sup>[1]</sup> In our case, there were no associated vertebral anomalies. Esophageal duplications are found incidentally in asymptomatic patients. However, they become symptomatic when complications such as hemorrhage, rupture, pain, vomiting, displacement

of adjacent organs, obstruction, respiratory distress, infection, or perforation occur.<sup>[3]</sup> Tubular duplications are rare and most tubular duplications reported seem to present in late childhood or in adults which indicates their relative asymptomatic nature. Because of the asymptomatic nature of this abnormality, the possibility of a greater frequency of its occurrence than clinically apparent has been suggested.<sup>[7]</sup> Computed tomography and magnetic resonance imaging have been used to demonstrate esophageal duplication and vertebral anomalies. A barium swallow test is effective for the detection of a tubular duplication. Endoscopy may reveal the opening in tubular duplications, while cystic duplication may show only esophageal obstruction, due to extraluminal compression. Esophageal ultrasound may demonstrate a lesion, or a technetium pertechnetate scan can demonstrate gastric mucosa in the duplication.

Treatment of this condition must be individualized according to the presenting symptoms and type of lesion. Various procedures that have been reported range from excision, enucleation, marsupialization, and internal drainage. Cauterization of mucosa, needle aspiration, and division of septum have also been performed. In our patient, further investigations were not advised as the

esophageal duplication was an incidental finding, the anatomy of which was well demonstrated on computed tomography and barium swallow test. No treatment for this condition was needed as no symptom due to esophageal duplication was present.

## REFERENCES

1. Macpherson RI. Gastrointestinal tract duplications: Clinical, pathologic, etiologic, and radiologic considerations. *RadioGraphics* 1993;13:1063-80.
2. Mehta R, Unnikrishnan G, Sudheer OV, John A, Dhar P, Sudhindran S, *et al.* Incidental detection of tubular esophageal duplication in gastric cardia malignancy. *Indian J Gastroenterol* 2004;23:192.
3. Piyawan C, Sakda P, Chareonkiat R, Piyawan C, Vorawit C, Surasak S. Incomplete duplication of the esophagus. *J Med Assoc Thai* 2005;88:1123-7.
4. Ratan ML, Anand R, Mittal SK, Taneja S. Communicating oesophageal duplication: A report of two cases. *Gut* 1988;29:254-6.
5. Peiper M, Lambrecht W, Kluth D, Huneke B. Bleeding esophageal duplication detected in utero. *Ann Thorac Surg* 1995;60:1790-1.
6. Bajpai M, Mathur M. Duplications of the alimentary tract: Clues to the missing links. *J Pediatr Surg* 1994;29:1361-5.
7. Naeem-uz-Zafar Khan, Col. Mansoor, Anwar-ul-Haq, Abid Qazi. Tubular duplication of esophagus: Rare congenital malformations require individualized and innovative procedures. *Pak J Med Sci* 2006;22:465-7.

**Source of Support:** Nil, **Conflict of Interest:** None declared.