

## CASE REPORT

## Esophageal Bronchus: A Case Report

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## ABSTRACT

Esophageal bronchus has communication with esophagus instead of trachea. We report a case of esophageal bronchus in a 12-day-old term neonate who presented with respiratory distress. Chest radiograph showed opacification in parts of lower lobe of right lung. Computed tomography (CT) revealed an abnormal bronchus arising from the lower third of esophagus and communicating with affected part of right lung. Subsequently, a right posterolateral thoracotomy was done, esophageal bronchus was divided and the affected collapsed part of lung was excised. Post-operative recovery was uneventful.

**Key words:** Esophageal bronchus; Esophageal lung; Bronchopulmonary foregut malformation

## INTRODUCTION

Esophageal bronchus is a rare anomalous fistulous tract between respiratory epithelium (lung) and esophagus or stomach. It is classified as an extremely rare type of communicating bronchopulmonary foregut malformation, with very few cases reported in the literature. This anomaly manifests mainly in the neonatal period, and the patient presents with recurrent respiratory infections and respiratory distress.[1-3] We report a case of esophageal bronchus in a neonate that was managed successfully.

## CASE REPORT

A 12-day-old term neonate referred with persistent fever and respiratory distress. Physical examination revealed tachypnea. The apex beat of heart was on the left side, and there were bilateral subcostal retractions. On auscultation, there was diminished entry of air on lower the right side of the chest. Chest radiograph showed opacification in lower part of right lung. Blood investigations revealed an elevated total leukocyte count of 15900 cells/cu.mm, Haemoglobin level of 13.5gm%, and Platelet count of 1.6 lacs/cu.mm. C reactive protein was 26mg/L. Computed tomography revealed an abnormal tract arising from the lower third of esophagus and

communicating with right lung lower lobe (esophageal bronchus).

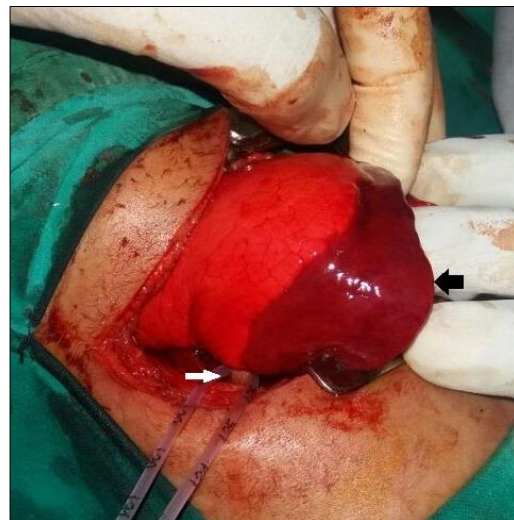


Figure 1: Intraoperative photograph showing hypoplastic and non-oxygenated lower part of right lung (black arrow) with an abnormal tract connecting it (white arrow).

A right posterolateral thoracotomy revealed that the lower part of right lung was non-aerated, collapsed with liver-like consistency (hepatization) (Fig.1). There was no abnormal vasculature. The bronchus from this collapsed part of lung was seen communicating with lower third part of esophagus. This

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esophageal bronchus was divided close to esophagus and resected along with the affected collapsed part of lung. Histopathology showed a hypoplastic lung with bronchus lined by respiratory epithelium. Postoperative recovery was uneventful. He was off oxygen requirement on second day and discharged on seventh postoperative day. Patient is asymptomatic at 1-year follow-up.

## DISCUSSION

Esophageal bronchus can be defined as an anomalous origin of a segmental bronchus from the esophagus.[1,2] This is a rare entity in the group of congenital communicating bronchopulmonary foregut malformations (BPFM) and thought to occur due to defective budding, differentiation, and separation of primitive foregut and esophagus.[3] If the esophagus is joined by the primitive mainstem bronchus, the resultant anomaly is known as esophageal lung. On the other hand, when only a lobar bronchus arises from the esophagus, the anomaly is called esophageal bronchus.

Keely et al first described these anomalies in 1960, and since then, as few as 20 cases of pulmonary tissue connected with the esophagus instead of trachea have been reported in world literature.[1] This condition has been reported to be much more common on the right side than the left with slight female preponderance.[4-8] Srikanth et al, [4] proposed an embryological classification of Communicating BPFM; our case can be classified as Group 3 (isolated anatomic lung lobe or segment communicated with the esophagus). Esophageal bronchus is frequently associated with other congenital anomalies, amongst which esophageal atresia with tracheo-esophageal fistula is found to be present in about half of the cases (Group 1)[4]. Other commonly occurring congenital anomalies are cardiac anomalies such as patent ductus arteriosus, dextrocardia etc. Presence of associated cardiac anomalies significantly worsen the outcome of such patients.[9]

The patients usually present in the early neonatal period with non-resolving or recurrent chest infections, especially when entire lung is involved. However, if a single lobe or segment is involved, the patient may present later and picked up while being investigated for other associated anomalies. Patients with esophageal lung or bronchus can sometimes be confused with pulmonary sequestration, but the latter is supplied by the systemic circulation, commonly the aorta.

Treatment usually involves surgical resection of the involved lung portion that is already hypoplastic and collapsed along with closure of the esophageal communication, as we did in the index case. Rarely, successful reimplantation of the lung to the trachea with subsequent good post-operative function has been reported in cases that were diagnosed early in the neonatal period.[5]

## Conclusion

Esophageal bronchus is an extremely rare congenital malformation, which needs a high index of suspicion to establish a diagnosis. It should be considered a possibility in all patients with tracheo-esophageal malformations with persistent respiratory symptoms. The prognosis of the disease depends upon the presence of associated cardiac anomalies. Early identification and surgical excision is instrumental in managing the patient successfully.

**Consent:** Authors declared that they have taken informed written consent, for publication of this report along with clinical photographs/material, from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient however it cannot be guaranteed.

**Author Contributions:** All the authors contributed fully in concept, literature review, and drafting of the manuscript and approved the final version of this manuscript.

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