

Esophageal Bronchogenic Cyst in A Pregnant Patient: Treat or Wait

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Abstract

Bronchogenic cysts are the most commonly found mediastinal masses which is asymptomatic in most of the cases. They are mostly found in the mediastinum and location outside of the mediastinum is rare. This is a case of 25-year-old female who is found to have a paraesophageal mass discovered incidentally in pregnancy which was serially imaged until the delivery of the baby. This mass was later found to be an esophageal bronchogenic cyst.

Keywords: Bronchogenic cyst; Esophageal bronchogenic cyst; Posterior mediastinal mass

Introduction

Bronchogenic cyst is a rare congenital malformation although it is the most common cystic lesion of the mediastinum. It is formed from abnormal budding of the primitive foregut. Esophageal bronchogenic cysts are extremely rare but when present they are more common in young females (65.2%). We present a case of 25-year-old woman who presented with a posterior mediastinal mass which was a diagnostic dilemma because of pregnancy that was ultimately found to be an esophageal bronchogenic cyst.

Case Presentation

This is a 25-year-old female G2P1, 28 weeks pregnant, who presented with nonproductive cough, dyspnea, fever with chills, arthralgia for 2 days. Past medical history was significant for polycystic ovarian syndrome and intracranial hypertension. Complete blood count was normal except for mild anemia. Basic metabolic panel was essentially normal. She was started on broad spectrum antibiotics of vancomycin and zosyn due to an initial suspicion of pneumonia. Her nasopharyngeal swab was positive for Influenza A for which she was started on oseltamivir. Computer tomography angiography was completed to rule out pulmonary embolism which revealed a soft tissue density in posterior mediastinum, noted to be a possible esophageal or paraesophageal mass measuring 2.4 × 3.0 cm. The differential diagnosis of the mass included lung abscess, hydatidosis, fungal disease, tuberculosis, lymphoma, and bronchogenic cyst. Further review of systems at this time only revealed gastroesophageal reflux as an additional symptom without dysphagia or globus sensation. She was discharged home on oseltamivir to follow up as an outpatient with pulmonary. She underwent bronchoscopy with endobronchial ultrasound (EBUS) and transbronchial needle aspiration (TBNA) of the mass 1 week after discharge. The bronchoalveolar lavage grew *H. influenzae* for which she was treated with antibiotics. Fine needle aspiration cytology revealed an acellular sample with blood and necrotic tissue. Acid fast bacilli culture, fungal culture, special stains and flow cytometry were all negative. Because of

her pregnancy, more invasive diagnostic measures were not completed at that time. She subsequently underwent cesarean section delivering a healthy term infant. The mass was reimaged at that time with computer tomography (CT) which revealed the persistent mass with unchanged size. One month after her delivery, she underwent video assisted thoracoscopic surgery (VATS) resection of the paraesophageal mass and esophagogastroduodenoscopy (EGD) with biopsy of a gastric mucosal abnormality. The mass on pathology was found to be an esophageal bronchogenic cyst which was negative for malignancy. The EGD did not reveal any connection of the mass with the esophagus and biopsy of the mucosa demonstrated an area of *H. pylori* associated acute gastritis (Figure 1).



Figure 1: Posterior mediastinal mass depicting esophageal bronchogenic cyst.

Discussion

Bronchogenic cyst is a rare congenital lesion arising at early stage of gestation from the primitive foregut with abnormal budding along tracheobronchial tree [1,2]. The majority of bronchogenic cysts (36-90%) occur along the tracheobronchial tree and are often found in the mediastinum. Bronchogenic cysts have been reported to occur in unusual locations however as well such as the pericardium, thymus, diaphragm, retroperitoneum, or cervical region. In the presented case, the mass was in the posterior mediastinum abutting the esophagus. When the abnormal budding occurs at the basilar part of laryngotracheal groove, it becomes embedded in and brought down

along the esophagus creating an esophageal bronchogenic cyst (EBC). Although EBC is uncommon, a few cases of esophageal bronchogenic cysts have been reported in the literature (Figure 2).

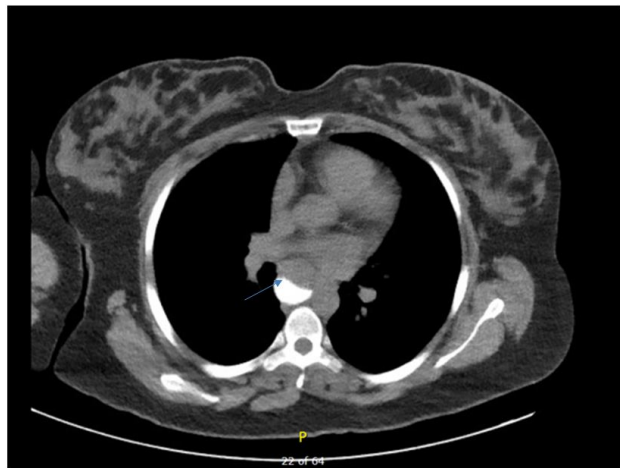


Figure 2: CT chest showing sub carinal periesophageal mass.

Esophageal bronchogenic cyst presents with dysphagia as the most common symptom due to compression of the esophagus during eating. It is present in about 60% of the cases. Most bronchogenic cysts are asymptomatic and are found incidentally on imaging but 40% of the cases can present with symptoms. The most commonly reported symptoms include cough, dyspnea and chest pain but other symptoms of infection, heartburn, weight loss, respiratory distress and myocardial infarction due to compression of coronary arteries can also occur [2]. In this patient her concomitant influenza and pregnancy provided alternative explanations for her symptoms of cough, dyspnea, and heartburn and would generally not have prompted evaluation. Because of a suspicion of pulmonary embolism however, the chest CT incidentally demonstrated the lesion.

As the predominate location occurs in the mediastinum, CT is better in delineating the bronchogenic cysts which appear as sharply defined masses with water or soft tissue density [1]. They do not enhance with contrast enhancement. EGD with endoscopic ultrasound (EUS) is widely used as a modality of choice for evaluation of esophageal bronchogenic cysts since it helps to differentiate between solid and cystic lesions and also evaluates the surrounding structures. EBUS with TBNA, as performed in this patient, is not used to diagnose bronchogenic cysts since the diagnosis requires sampling of the cyst wall. This less invasive means of tissue sampling however did offer evaluation for more concerning etiologies such as lymphoma and infection.

Despite the value of various noninvasive diagnostic studies, definitive diagnosis is established only by surgical excision and tissue biopsy. Histologically, bronchogenic cysts are characterized by the presence of ciliated epithelium which can be columnar or cuboidal. They may also contain smooth muscle, respiratory type mucous glands and cartilage (Figure 3) [2].

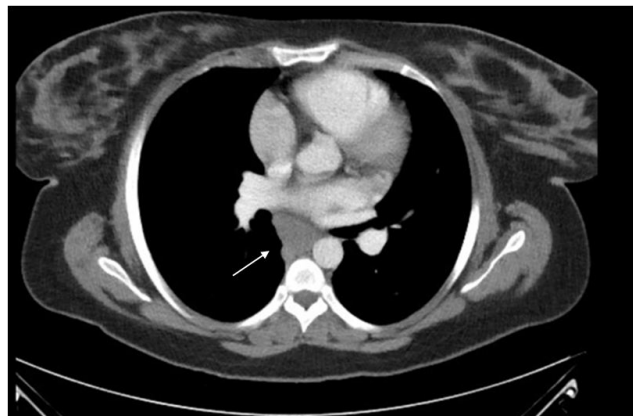


Figure 3: CT chest showing periesophageal mass.

Complications of all bronchogenic cysts, including those with bronchial, esophageal or other locations, do occur and include intracystic hemorrhage, perforation, and infection. Malignant transformation of bronchogenic cysts is tremendously rare [3]. Because of these complications and local symptoms associated with bronchogenic cysts, surgical resection with complete removal of the mucosal lining is the therapeutic procedure of choice [4]. Removing the epithelial lining is important as it prevents recurrence. Mouroux et al first reported the excision of the mediastinal cyst via VATS technique in 1991 [5]. VATS, as completed in this patient, has now become the procedure of choice for non-complicated cysts. However, due to increased operative risk in a pregnant patient, definitive treatment was delayed until the postpartum period after exclusion of immediately life threatening etiologies.

Conclusion

EBC should be included in the differential diagnosis of a posterior mediastinal tumor, as bronchogenic cysts are not uniformly associated with the tracheobronchial tree. Evaluation modalities include CT and EGD with EUS with additional studies of barium esophagogram, MRI, and bronchoscopy of possible utility. Less invasive means of diagnosis although may be of assistance in evaluating infection or malignancy, do not provide adequate diagnostic tissue for esophageal bronchogenic cysts. Full excision is the treatment of choice as definitive diagnosis can be achieved while reducing risk for reoccurrence and complications. VATS presents as a less invasive alternative to thoracotomy which has produced acceptable results in the literature and should be considered as the first-line approach. If EBC is suspected in a pregnant female, definitive surgical excision can be safely deferred into the postpartum period once life-threatening etiologies have been excluded.

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