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Research Article

VIDEO ASSISTED THORACOSCOPIC SURGERY (VATS) FOR MANAGEMENT OF BRONCHOGENIC CYST – OUR EXPERIENCE

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A B S T R A C T

Bronchogenic cysts are a congenital foregut duplication anomaly and are rarely diagnosed in adults Although there is no consensus on the management of bronchogenic cyst, early removal is advocated, even in asymptomatic patient's due to increased risk of complications in long standing cysts. Surgical experience is limited particularly about video-assisted thoracoscopic surgery (VATS). VATS are safe and effective in the resection of the bronchogenic cysts. VATS excision should be considered the primary therapeutic option in the management of patients with bronchogenic cysts. In support of the thoracoscopic approach we report our single-centre experience in this rare entity.

INTRODUCTION

Bronchogenic cysts are congenital lesions arising from foregut. They are commonly found in mediastinum or within the lung parenchyma and rarely in extra thoracic location, with oesophageal bronchogenic cyst being rare entity. [1] Bronchogenic cysts are usually asymptomatic but can become symptomatic in case of compression when they increase in size or when they become infected. Surgical excision is always advised in view of high incidence of secondary complications in untreated cases. In this article, we report three cases of bronchogenic cyst managed by Video Assisted Thoracoscopic Surgery (VATS).

Case History

Three patients with paraoesophageal lesion were referred to our institute. Clinical presentation and investigations are mentioned in **table 1**. CECT Chest and upper GI endoscopy was done in all the patients. Endoultrasound was done in one of the patient, which revealed a lesion arising from muscularis propria of lower esophagus. Another patient also had preoperative FNAC done suggestive of bronchogenic cyst. Pulmonary function test was done to assess the fitness of the patients for VATS. Video Assisted Thoracoscopic Surgery (VATS) was attempted in all three patients.

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Single lung anaesthesia with a double lumen endotracheal tube was used in all cases. Two cases, where the lesion was in relation with lower esophagus, were approached from left side, and one with paratracheal location was approached from right side. Two 10mm ports, (one for telescope and one for lung retraction) and two 5 mm ports (for active instruments) were used.

Table 1 Clinical presentation and Investigation of the patients

Age/Sex	Symptoms	UGI scopy	EUS	CT scan	Treatment
43/M	Left chest pain radiating to back	Mild reflux gastritis	Not done	Soft tissue mass left paravertebral region along left lateral border of lower 1/3 esophagus.	VATS converted to open excision
47/M	Difficulty in swallowing,	normal	Not done	Mass right para tracheal region in supra azygous region	VATS excision
41/M	Chest discomfort, Dyspepsia	Smooth bulge in lower esophagus	Lesion arising from muscularis propria	Well defined solid lesion right lateral wall of esophagus	VATS subtotal excision& marsupialization

First case was a 43year old gentleman with a cystic lesion was seen arising from wall of the lower esophagus. Medially, the cyst was abutting the left main bronchus hence dissection could not be proceeded with VATS, and was converted to left posterolateral thoracotomy. Muscular layer of the esophagus was incised and complete excision of the cyst was done. Mucosa of the esophagus was intact, muscle layer re sutured. Histopathology of the cyst was suggestive of oesophageal duplication cyst with no evidence of malignancy.

Second case of 47-year-old male, paratracheal bronchogenic cyst was seen along the upper esophagus in supraazygous region. Cyst was dissected from oesophageal wall and complete cyst excision was done through VATS.

Histopathology was suggestive of benign bronchogenic cyst Third case was of a 41-year-old male with cyst in the wall of the lower esophagus. Intraoperatively while splitting the muscle of esophagus mucous collection was present in the Cyst and cyst wall was lined with smooth mucosa like membrane. Cyst wall was deroofed and edge marsupialized. Intra operative esophagoscopy did not reveal any breach in the mucosal continuity. Histopathology was suggestive of bronchogenic cyst.

After the surgery, no 24-intercostal drain was put in all cases. Duration of the surgery was 120 minutes in VATS converted to open case with blood loss of 100cc while for VATS approach was 50 & 60 minutes respectively in second and third cases with minimal blood loss. Length of hospital stay was 3 & 4 days in VATS cases and 6 days for open case.

DISCUSSION

Bronchogenic cysts are rare tumour of the mediastinum. Of the mediastinal bronchogenic cysts, 79% are in the middle mediastinum, 17% in the posterior mediastinum, and three per cent in the anterior mediastinum. [2] Aberrations in the process of ventral budding of the lung primordial from the foregut or aberrations during subsequent stages of development may result in duplication of esophagus or bronchi leading to formation of bronchogenic cyst. Maier has classified the cyst into: right paratracheal, left paratracheal, subcarinal, above right mainstem bronchus, above left mainstem bronchus, right paraesophageal, left paraesophageal, intraparenchymal, and above aortic arch [(3)]. Paraesophageal location is uncommon location of bronchogenic cyst and are difficult to differentiate from esophageal duplications. Most of the para oesophageal cysts are extramural. Some of them are in the wall of the esophagus without communicating with the lumen and termed as intramural para oesophageal bronchogenic cysts [(4, 5,).] However, the communication of the cyst and the oesophageal lumen is rarely found [(6).]

Clinical features may vary according to the site and size of the cyst, but chest pain and dysphagia are the most common presenting symptoms. In cysts communicating with oesophageal lumen symptoms may also be associated with intake of food. Resection of even the asymptomatic bronchogenic cyst is recommended because of the possibility of complications and the difficulty of operating on complicated cysts. Serious complications from bronchogenic cysts are rare, but can include SVC syndrome, tracheal compression, pneumothorax, pleurisy and pneumonia. [(7)] Very rarely malignant transformation has been reported. [(8)] Imaging will not be able to give definitive diagnosis, but it helps in precision of surgical approach. Definite diagnosis can only be obtained on histology.

Surgical excision is the primary treatment for bronchogenic cyst, which is conventionally done by open technique (thoracotomy). VATS offers an alternative approach for excision of cysts. Thoracoscopic resection of bronchogenic cysts was first performed in 1991, and thoracoscopic surgery is now widely accepted as the treatment [9]. Complications during VATS might be correlated with the location of the cyst rather than size of the cyst. Especially hilar or subcarinal cysts have more risk of complication than those at other sites because of the close anatomical relation between the sub-carinal area and the tracheobronchial tree. The potential complications from VATS resection of hilar or subcarinal cysts include injuries to the bronchial arteries, tracheobronchial tree and prolonged air leak, hemorrhage and atrial fibrillation. There may also be a risk of pulmonary edema by impairing the lymphatic backflow or chylothorax. Incomplete resection may lead to recurrence of the cyst, which can be reduced by destruction of the residual wall with electrocoagulation or laser [(10)]. VATS is associated with various advantages like reduced operative time and postoperative pain, better cosmesis with speedy postoperative recovery and shorter hospital stay than conventional surgery [(11).]

CONCLUSION

Resection of asymptomatic bronchogenic cyst is recommended because of the possibility of complications and the difficulty of operating on complicated cysts.
Excision of bronchogenic cyst by VATS is technically feasible and has many advantages over conventional surgery.

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