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COMPLETE THORACOSCOPIC EXCISION OF EXTRALOBAR LUNG SEQUESTRATION WITH REPAIR OF CONGENITAL DIAPHRAGMATIC HERNIA

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ABSTRACT

Extralobar pulmonary sequestration is a congenital anomaly of the tracheo-bronchial tree in which there is nonfunctional lung tissue lacking any connection to the bronchus and possessing a separate blood supply. It is frequently accompanied by other congenital anomalies like congenital diaphragmatic hernia (CDH). Our patient was a 2 month old male child, antenatally diagnosed case of CDH. Patient was asymptomatic, so operated for thoracoscopic repair at 2 months of age. He was incidentally detected to have extralobar pulmonary sequestration, which was excised in the same sitting. Both procedures were done entirely thoracoscopically.

Introduction

Pulmonary sequestration is a congenital anomaly of the tracheo-bronchial tree in which there is nonfunctional lung tissue lacking any connection to the bronchus and possessing a separate blood supply. Its incidence is 0.15-6.4%[1]. Extralobar sequestration (ELS) accounts for 25%, while intralobar sequestration (ILS) accounts for the rest. ELS has its own pleura and is more commonly associated with other congenital anomalies, while ILS is present within the visceral pleura of the lung and is not associated with other anomalies[2]. CDH is present in 16% of patients with ELS and is the commonest accompanying anomaly[3]. We describe a case where ELS was incidentally detected with CDH and its excision and CDH repair were done together completely thoracoscopically.

Case report

A 2 month old male child, antenatally diagnosed case of congenital diaphragmatic hernia (CDH), was posted for thoracoscopic repair as he was asymptomatic at birth. His echocardiography did not show any abnormality. All routine blood investigations were normal.

Intra-operatively, it was found that the patient has an extralobar pulmonary sequestration lateral to the diaphragmatic defect (Fig. 1). Dissection was done to delineate its blood supply. After doubly clipping the vessel, it was cauterized and cut (Fig. 2). The diaphragm was then repaired with ethibond 2-0 suture and knots tied extra corporeally. Entire defect could be closed easily without the need for a mesh (Fig. 3).

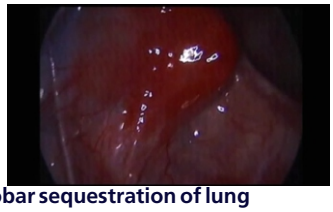

Fig 1: Extralobar sequestration of lung

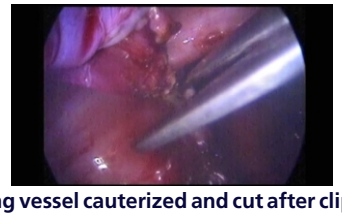

Fig 2: Feeding vessel cauterized and cut after clipping

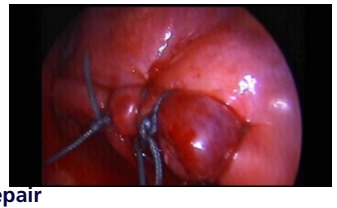

Fig 3: CDH repair

Patient was extubated on table. Inter-costal drain was kept in left hemithorax for 2 days and removed. Patient was stable and was discharged.

Discussion

25% of congenital diaphragmatic hernias have associated other congenital anomalies. Most of them are cardiovascular, urogenital, musculoskeletal and central nervous system4. The clinical presentation varies from asymptomatic to severe respiratory distress requiring ventilator support. Emergent management is mainly medical, managing the pulmonary hypoplasia and pulmonary hypertension.

CDH repair can be done by open method or minimally invasive method. Open method is either via abdominal approach or thoracic or thoraco-abdominal approach. Minimally invasive method is via thoracoscopy Thoracoscopic repair is now popular in most centres.

Approximately 5% of patients with CDH will have an ELS, occasionally detected incidentally[5]. There are other lung malformations like congenital cystadenomatoid malformations (C-CAM) and bronchogenic cysts, which might also rarely be associated. When a pulmonary sequestration is suspected, imaging like contrast enhanced computed tomography (CECT) is acquired to look for the sequestered or dysplastic lung tissue, any aberrant arterial or venous vasculature and to assess other possible congenital anomalies, if present.

Pulmonary sequestrations, if detected, warrant excision even if asymptomatic, as there is always a chance of developing pneumonia and eventually lung abscess. It is more common in intralobar than extralobar sequestration[5]. Generally, lobectomy is needed. ELS are supplied by separate systemic arterial supply direct from the aorta and venous drainage via azygous system, pulmonary veins or inferior vena cava (IVC)[6]. Thoracoscpic resection is the treatment of choice. It is mandatory to identify and ligate the feeding arterial vessels, which are usually found in the inferior pulmonary ligament[5].

Our patient had an incidentally detected CDH in neonatal life which was completely asymptomatic. The patient was electively posted for thoracoscopic repair at 2 months of life, at which time, ELS was incidentally detected. The feeding vessel was ligated, and the ELS resected after which CDH repair was performed. Patient is now doing well and on regular follow-up.

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