

Case Report

Concomitant Repair of a Giant Bochdalek Hernia With Coronary Artery Bypass Grafting

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Introduction

Congenital diaphragmatic hernias resulting from the failure of posterolateral diaphragmatic foramina to close, was first described by Bochdalek in 1848¹. Presentation in adults is rare, usually they present with mild respiratory or gastrointestinal symptoms¹. We present an adult patient who underwent simultaneous coronary artery bypass grafting and hernia repair through a median sternotomy. There have been no similar reports of combined procedure.

Case Report

A 42 year old patient, diagnosed to have coronary artery disease after having an anterior wall Myocardial Infarction, presented to us with history of recurrent angina and dyspnea on exertion NYHA class III. His chest x ray (fig.1a & 1b) showed bowel loops occupying the right lower and middle zones with cardiomegaly. Computed tomography confirmed the presence of a Bochdalek hernia with herniated bowel loops and mesocolon (fig 2 & 3). He underwent coronary Angiography that showed completely occluded left anterior descending artery. His vitals were normal and blood work up was within normal limits. On examination, bowel sounds were heard across the entire right hemothorax.

He was taken up for surgery. A double lumen endotracheal tube and monitoring lines were inserted. He underwent coronary artery bypass grafting using the off pump technique, using a suction stabilizer device and mister blower through a median sternotomy. After completion of the left internal thoracic artery to left anterior descending artery bypass, the chest retractor was removed and an internal mammary artery harvesting retractor was used to elevate the right hemisternum, to aid exposure to the right posterolateral recess. The right lung was collapsed by clamping the double lumen endotracheal tube. Bowel loops and mesocolon were seen enveloped by a thin peritoneal layer. A large 5x5 cm defect was found in the right posterolateral recess. The hernia was reduced and the defect was closed with a polypropylene mesh using 4-0 polypropylene sutures. Patient made an uneventful recovery and was discharged on fourth post operative day.



Fig 1a: Pre op Chest X-ray showing bowel loops occupying the Right lower and middle zones with cardiomegaly



Fig 1b: Post op Chest X- ray showing small pleural effusion and clear lung fields

Discussion

Bochdalek hernias were described in 1848¹. They occur due to failure of the pleuroperitoneal canal to close during the tenth week of gestation². They normally present in early infancy with severe respiratory symptoms³. They are usually asymptomatic in adults, but older patients can present with mild respiratory and gastrointestinal symptoms. The incidence in adults is estimated to be about 0.17%⁴.



Fig 2: Coronal view showing bowel loops and mesocolon in right thorax



Fig 3: Sagittal view showing bowel loops and mesocolon in right thorax

Gopala Krishnan et al have described a combined morgagni hernia repair with coronary artery bypass surgery, as the hernia is located in the middle mediastinum, access through a median sternotomy is ideal⁵, a Bochdalek hernia however is not easy to access though a sternotomy due to its lateral and posterior location.

Repair of Bochdalek hernias can be accomplished through a thorcotomy, laparotomy or laparoscopically, depending on the size of the defect and the amount of herniated tissue. The sternotomy approach has not been used to repair these hernias due to the difficult access, however if the patient requires the concomitant cardiac or anterior mediastinal procedures, the surgery can be performed adequately through a sternotomy. Use of a double lumen endotracheal tube and an internal mammary retractor greatly enhances the approach to the defect, minimally invasive cardiac surgery instruments maybe invaluable in deep chest cavities.

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