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A Rare case of Eventration of Left Diaphragm in Adult – Case Report

Dr. Aravind Kumar .KR(Postgraduate), Dr.K. Ramasubramanian(Professor) ,Dr.K. Vivekananda Subramania Nathan(Professor) , Dr. Mohamed Zakariya(Associate Professor)

Department of General Surgery, Chettinad Hospital and Research Institute, Kelambakkam.

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ABSTRACT

Diaphragmatic eventration in adult is a rare condition with all left sided abdominal contents into the left thoracic cavity without respiratory symptoms. Hereby we discuss a case of 27-year male with complaints of pain in right iliac fossa for 10 days

I. INTRODUCTION

There are four types of congenital diaphragmatic defects:

Posterolateral Bochdalek diaphragmatic hernia, Morgagni-Larrey parasternal diaphragmatic hernia, peritoneal-pericardial diaphragmatic hernia, and diaphragmatic eventration [1]. It consists of the elevation of one, or less likely, both hemidiaphragms causing protrusion of the intra-abdominal viscera to the affected hemithorax. Diaphragmatic eventration is a congenital developmental defect of the muscular portion of the diaphragm. It has been attributed to abnormal myoblast migration to the septum transversum and the pleuroperitoneal membrane. Macroscopically, the affected diaphragm is attenuated, abundant, and membranous without muscular appearance. Microscopically, there is paucity or absence of muscular fibers and diffuse fibroelastic changes. The difference between diaphragmatic hernia and eventration is important; in the latter, there is no true defect. The incidence of diaphragmatic eventration is <0.05% [2]. The treatment must restore an active and effective contraction and improve the respiratory activity. This is achieved with diaphragmatic plication can be performed. Plication can be done through the abdominal or thoracic route.

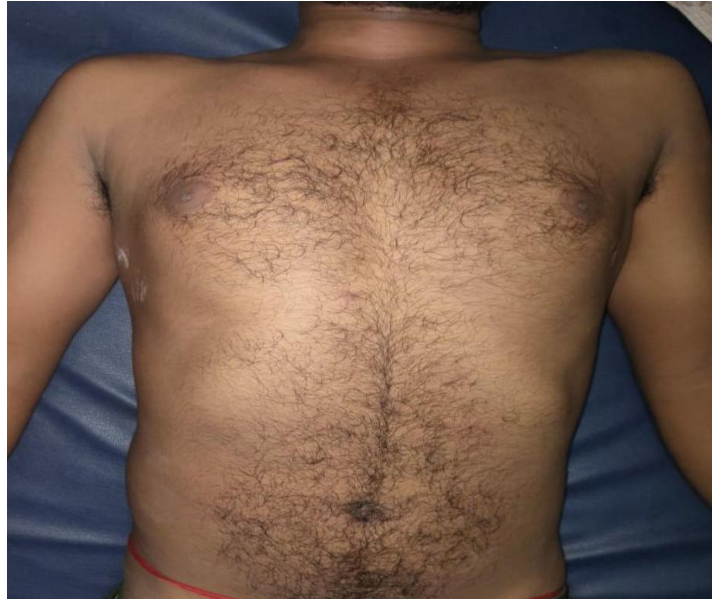
Thoracic renal ectopia is rare, with a prevalence of 1 in 10,000 cases of ectopic kidneys. There are about 200 published cases, mainly in male adults with the involvement of the left kidney [4]. These are discovered incidentally with imaging studies. These are usually asymptomatic, with normal renal anatomy, and do not require any intervention. The embryological cause is related to accelerated ascent of the kidney to the upper region before closing the diaphragm with delayed closure of the pleuroperitoneal membrane. However, none of these mechanisms is completely clear.

We consider it important to report this case due to the inaccurate diagnosis of diaphragmatic eventration without any respiratory complaints and mimicking Acid peptic disease, along with the coexistence of an intrathoracic ectopic kidney, and the age of the patient at the time of diagnosis.

Case presentation

27-year-old male came with complaints of Right lower abdominal pain for 10 days and vomiting for 3 days→ 1-2 episodes per day, immediately after food intake, containing food particles, non blood stained or non bilious. Known case of Right foot equino varus deformity since birth. History of Jaundice and right renal calculus 10 years back, conservatively managed. History of open reduction and internal fixation for femur fracture 3 years back.

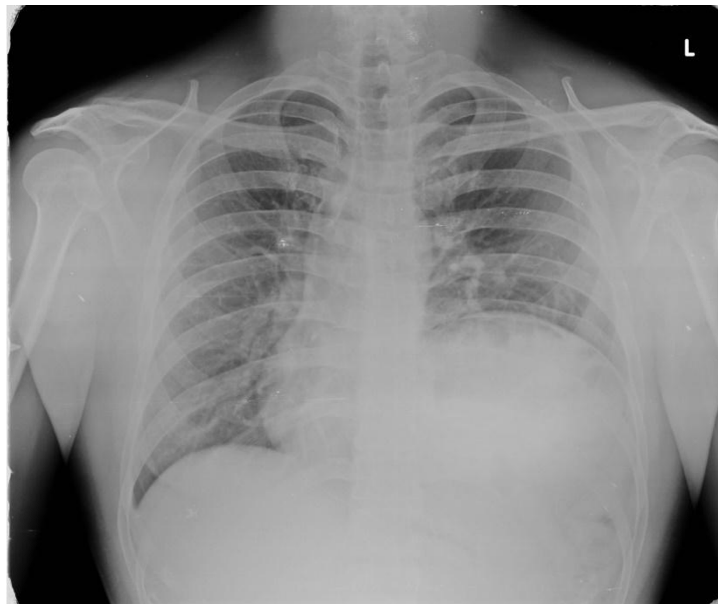
On physical examination there was decreased breath sound in the left thorax with note of gurgling bowel sound.



The cardiac examination with regular cardiac rate, rhythm and no murmurs were noted, Apical impulse shift to 4th intercostal space 2 cm to midclavicular line and mitral area displaced.

Abdominal examination reveals soft, mild tenderness in right Iliac fossa region and no organomegaly.

Chest X-ray showed the presence of bowel loops in the left thorax and the cardiac shadow shifted to the right.



CECT Abdomen shows Left Diaphragmatic hernia on left side with bowel loops, spleen and left kidney as its contents.

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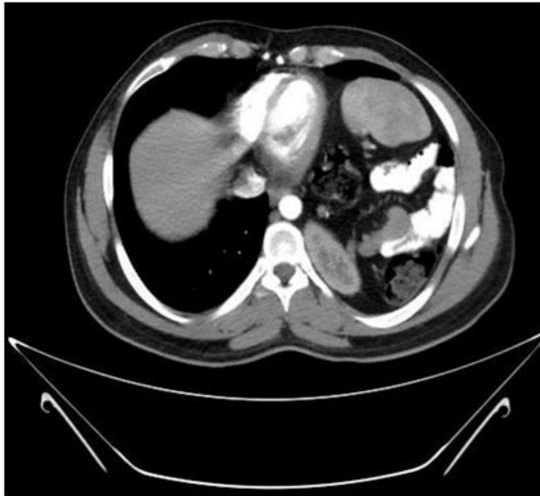
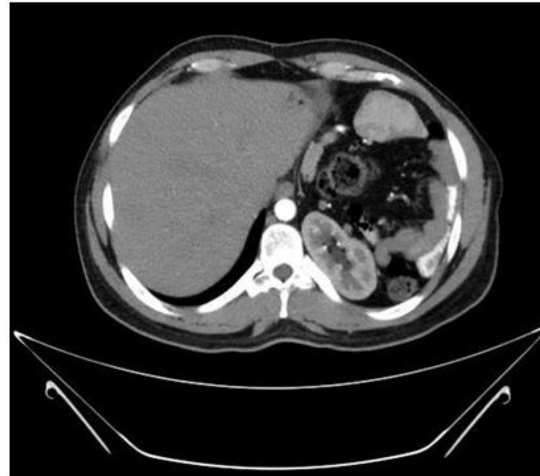
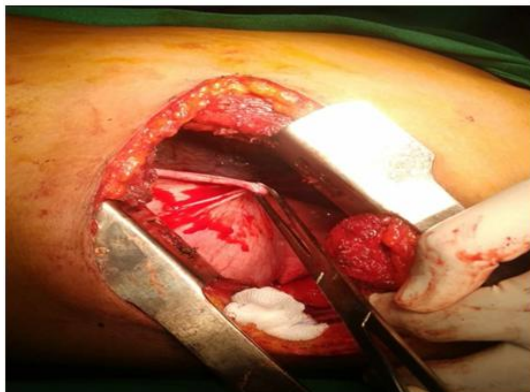
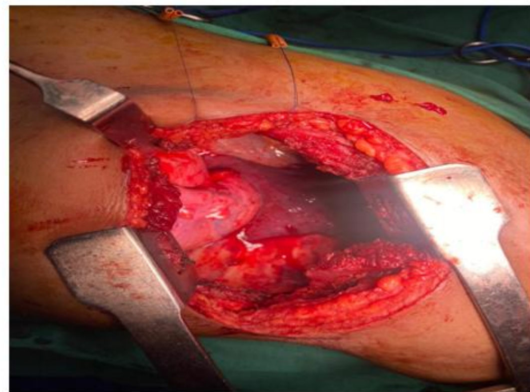


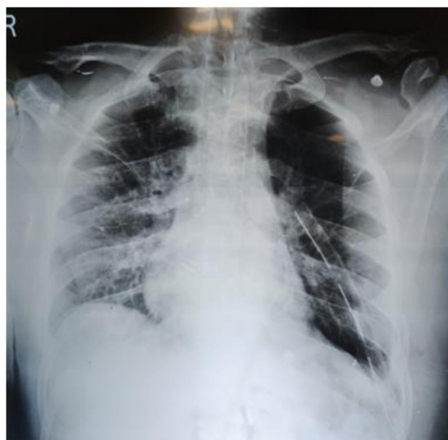


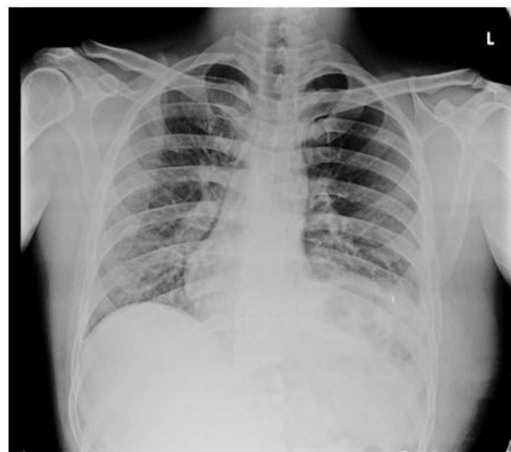
Patient underwent Left Posterolateral thoracotomy. Intraoperatively, complete absence of left diaphragm, peritoneal contents occupying the left thoracic cavity and hypoplastic of left lung. Peritoneal cavity with contents was opened and reduced into the abdomen, double breasting of peritoneum done using pledget 4-0 Prolene sutures. ICD drain kept insitu.





Post-operatively patient was started on incentive spirometry and deep breathing exercises. Patient was started of feeding and POD # 4 ICD removed and discharged 1 week postoperatively with the lungs fully expanded.





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II. DISCUSSION

Diaphragmatic eventration was first identified by Jean Louis Petit in 1774, the term was first used by Beclard in 1829, and the first surgical repair was described in 1923 by Morrison. The prevalence is 5 per 10,000 births (<0.05%), mostly affecting the male sex, and it is frequent in the left hemidiaphragm. It is a relatively rare anomaly in adults.

Groth and Andrade [2] differentiated the congenital etiology of true eventration from the acquired one. The embryological changes involve abnormal migration of myoblasts from the upper cervical somites to the transverse septum (4 weeks of gestation) and pleuroperitoneal membrane (8 to 12 weeks); microscopy shows diffused fibroelastic changes and lack of fibers. Eventration is detected at birth or later according to its symptoms and is associated with prematurity, chromosomal anomalies, and developmental defects.

Management of diaphragmatic eventration varies greatly on the symptoms of the patients. Simple cases of diaphragmatic eventration may not require intervention when not associated with adverse symptoms. It is rare that congenital diaphragmatic eventration can present among adults. Most adult patients with diaphragmatic eventration remain asymptomatic, and the diagnosis is made incidentally after chest radiography. Among symptomatic patients, the most common symptom is progressive dyspnea, orthopnea, chest pain, palpitations, or severe respiratory distress.

A chest radiograph shows the elevation of the affected hemidiaphragm, mediastinal deviations can be observed. Bowel loops can be seen in the thorax if a radiopaque contrast agent is used.Both chest radiography and ultrasonography are not useful in the differentiation of eventration and diaphragmatic hernia.

Computed tomography and magnetic resonance imaging can be used to accurately determine the elevation of the dome, the viscera in the intrathoracic position, and associated injuries; tumors can be seen in the base of the pulmonary, cervical, or renal ectopia, as in the present case.

Surgical approaches for eventration include thoracotomy, laparotomy, and thoracoscopy or laparoscopy

Plication is indicated if there are symptoms of dyspnea which can be due to decrease ventilation and oxygenation because of paradoxical motion of the affected diaphragm during inspiration and expiration.

In our case, no respiratory symptoms, Complete absence of left diaphragm and muscle fibres of diaphragm,peritoneal layer was opened ,contents are pushed down and double breasting of peritoneum was done.

III. CONCLUSION

Diaphragmatic Eventration in adult is a rare condition,Inspite of having all left intra abdominal contents including left kidney inside left thoracic cavity with left pulmonary hypoplasia patient doesn't have respiratory symptoms presented as Acid peptic disease.

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