

Case Report

Late Presentation of Posterior Congenital Diaphragmatic Hernia in an Overweight 16-Year Old Patient after Engaging in Fitness Activity - Laparoscopic Mesh Repair

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Abstract

Diaphragmatic hernia is a type of a congenital defect that is mostly diagnosed in a newborn period, but an increasing number of publications report that up to a quarter of patients are diagnosed after the neonatal period [1-3].

This article presents a case of a 16 year old boy with a left sided Morgagni hernia who was admitted in our hospital due an abrupt onset of respiratory and GI symptoms.

A CT scan was performed and a diaphragmatic hernia with a protrusion of intraabdominal structures into a left chest cavity was confirmed. A gold standard laparoscopic repair was performed with non-absorbable sutures and a Symbotex composite mesh.

Presentation

A 16-year old boy, body weight 112 kg, BMI 37.1, SpO₂ 98%, heart rate 109/min, RR 140/80 mmHg, adipose, complaining with chest pain and persistent vomiting that started few hours ago was examined in an emergency paediatric ambulance. One year ago he was diagnosed with hypertension and had been on antihypertensive therapy since then. During that initial work-up a chest X-ray was done and showed no pathologies. During this examination patient reports an isolated lower left chest pain 3 months ago during an exercise (sit-ups), which subsided on analgesic therapy.

Auscultation revealed diminished left lower lobe sounds. Blood tests and chest x-ray was done and chest CT examination was indicated for detailed left chest side analysis (Figures 1-3). CT showed left intrathoracic herniation of abdominal viscera including the stomach, intestines, spleen and tail of pancreas, with atelectatic areas of left upper lobe and decreased clarity of pulmonary parenchyma, with a mild right mediastinal shift. Diaphragmatic rupture was suspected by the radiologist.

NG decompression was obtained, patient was stable, with good

vital signs and no pro-gression of symptoms. Surgical procedure was done 3 days later.

Differential Diagnosis

Traumatic rupture was slightly suspected due to no prior symptoms and a lack of detailed history of types of fitness exercises and incidental trauma, and by the radiologist report. Intraoperatively those suspicions were excluded.

Management

Laparoscopy showed no signs of ruptured diaphragm as the edges of a circumferential diaphragmatic defect were round and smooth. Defect was located left and posteriorly and approximately 6 cm in diameter. All structures were successfully repositioned and the defect was sutured with non-absorbable Ethibond sutures and strengthened with Symbotex composite mesh (video).

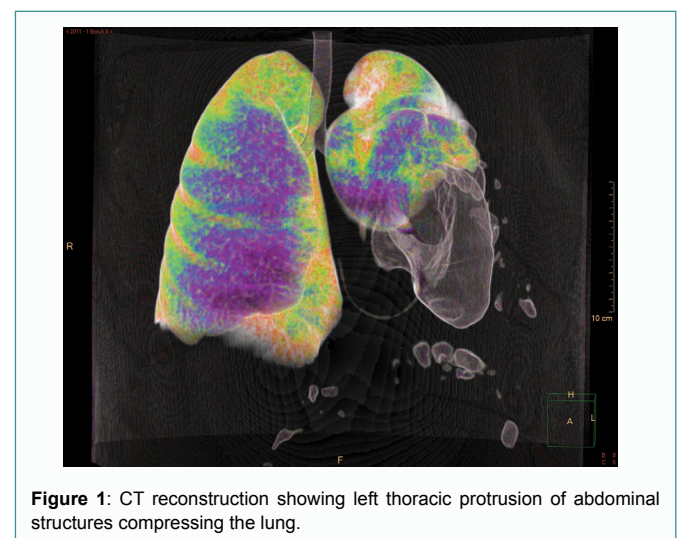


Figure 1: CT reconstruction showing left thoracic protrusion of abdominal structures compressing the lung.

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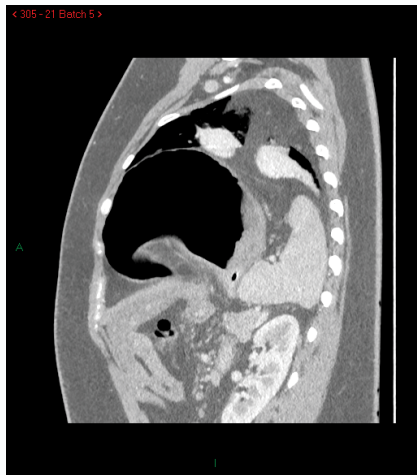


Figure 2: CT lateral view.

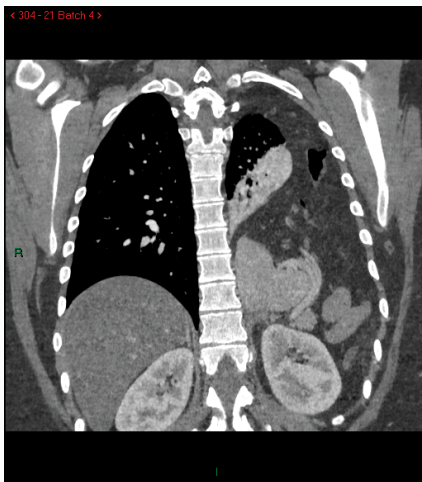


Figure 3: CT A-P view.

The patient recovered quickly, uneventfully and was verticalized on the 3rd postoperative day, and was discharged after 10 days. Up to now, monthly visits are obtained and there are no signs of complications. Control CT scan showed a normal manifestation of bilateral lungs and no signs of diaphragmatic pathology.

Discussion

Congenital diaphragmatic hernia is usually recognized during the neonatal period with respiratory compromise and pulmonary hypoplasia. An adult with CDH may present with a wide range of acute or chronic respiratory or gastrointestinal symptoms or may be completely asymptomatic [4].

In our case, we believe that the patient's obesity and engagement in sports activity could have caused an elevated intraabdominal pressure which led to gradual protrusion of abdominal organs through a congenital defect to the point of acute symptoms.

Video: Laparoscopic procedure

<https://youtu.be/tJ63JN0Qb7c>

Otherwise CDH could have stayed unrecognized, or could manifest itself in later years of life.

Conclusion

Hernia repair is typically performed through the thoracic or abdominal route. Small diaphragmatic defects, are usually repaired by primary repair with non-absorbable sutures. For large defects, prosthetic patches or tissue-engineered grafts are typically used to avoid excessive tension after repair [5]. With the development of surgical techniques, operations of CDH occur through minimally invasive techniques such as laparoscopy or thoracoscopy [6]. In our case the defect was of medium size but additional prosthetic patch was obtained due to lack of tissue and its friability in the posterocentral segments of the defect.

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