Incidental Morgagni Hernia diagnosed after Blunt High Force Trauma

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Introduction

Congenital diaphragmatic hernia (CDH) is a rare differential compared with acquired or traumatic etiologies[1]. It results from a discontinuity in the fusion of the pleuroperitoneal membranes that form the diaphragm, a process usually complete by the twelfth week of gestation. The majority of cases are diagnosed prenatally through routine imaging[2]. Consideration for congenital etiology should be maintained when a diaphragmatic hernia is identified on imaging in various clinical settings. We present a 29-year-old male patient who presented with an incidentally diagnosed Morgagni hernia

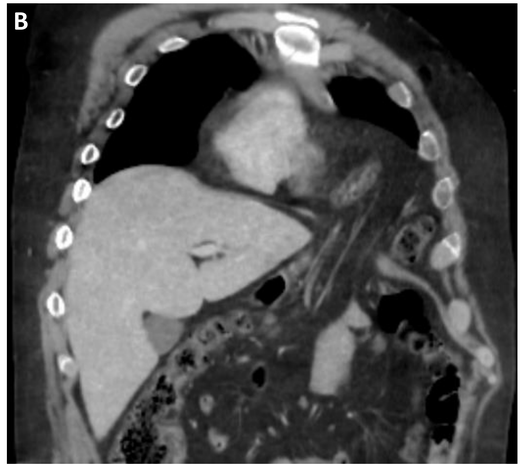
Presentation

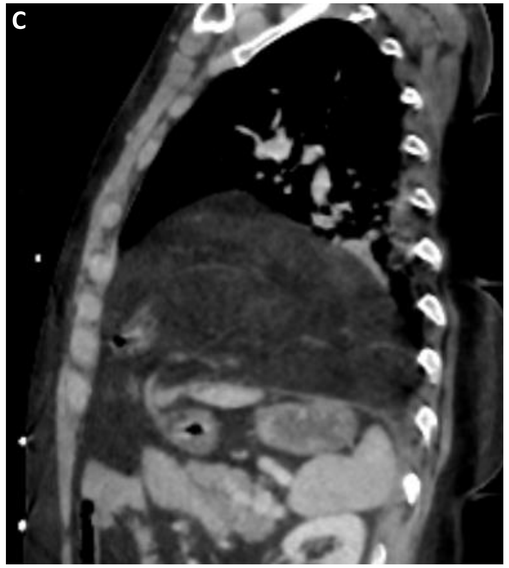
- 29-year-old male restrained driver involved in a 55mph motor vehicle collision presenting with chest pain
- Primary survey: airway and breathing intact; pulses present, HR 90bpm, systolic BP 138mmHg, GCS 15; no focal neurological deficits
- Secondary survey: right periorbital ecchymosis, seat belt sign across anterior chest, anterior sternal tenderness to palpation
- No prior thoracoabdominal surgical history
- CT demonstrated a sternal fracture and a 4cm left anterior diaphragmatic defect with peritoneal fat and colon herniation. No pneumothorax. Findings were not fully consistent with acute traumatic process given absent effusion, stranding and inflammation.
- Given trauma presentation and no known history of CDH, patient was offered diagnostic laparoscopy to evaluate for acute traumatic rupture versus CDH

Procedure

- Diagnostic laparoscopy was performed. Anterior diaphragm hernia was identified with a thoracic sac and smooth round defect edges consistent with a congenital Morgagni hernia
- Greater omentum and transverse colon was found within the hernia sac without compromise, obstruction or strangulation
- No evidence of acute trauma elsewhere in the peritoneal cavity
- Patient discharged POD1 and referred for elective repair







(A) Intraoperative laparoscopic view of the Morgagni hernia
(B) CT coronal view of left diaphragmatic hernia
(C) CT sagittal view of left diaphragmatic hernia. Omentum and colon visible herniating through into the thoracic cavity

Discussion

- Incidence of CDH is rare at 0.8-5/10,000 births[1]
- Bochdalek hernias (posterolateral) are the most common CDH at 70-95%; followed by Morgagni hernias (anteromedial) at 20-25%; and central diaphragmatic hernias being the rarest at 2-5%[2,3]
- Multiple chromosomal aberrations and single gene mutations have been associated (trisomy 18, 13, 21; STRA6, GPC3, FOG2, GATA4, LRP2); however, overall the etiology is believed to be multifactorial inclusive of environmental and nutritional factors[2,3]
- Acute traumatic diaphragmatic hernias warrant immediate surgical repair. While a diaphragmatic hernia in a trauma patient with a high force mechanism is generally consistent with an acute rupture, care should be taken in the case of a hemodynamically stable patient where detailed review of the imaging could suggest a chronic process
- In such cases, confirmation with a minimally invasive approach may be warranted, and the patient then optimized for definitive elective repair at a later date
- A laparoscopic approach has the additional benefit of less adhesive burden which may decrease the complexity and morbidity at time of definitive repair
- Multiple different modalities have been safely performed for hernia reduction and repair including via thoracotomy, laparotomy, laparoscopy, and thoracoscopy; with and without robotic assistance. Many times mesh is required to support the repair[4,5,6]

References

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