Emergency laparoscopic repair of an obstructed Bochdalek hernia in an adult

Introduction

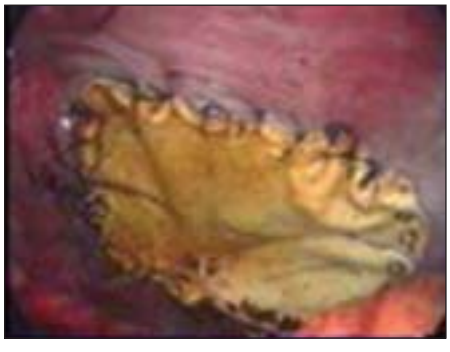
Bochdalek hernia can occur in adults and is a complex diagnostic problem. This article presents the case of a 27-year-old man who successfully underwent emergency laparoscopic repair of an obstructed Bochdalek hernia with the involvement of a herniated spleen.

Discussion

The vast majority of diaphragmatic hernias occurring in adults are either hiatal or traumatic hernias. Congenital diaphragmatic hernias typically appear in neonates and only 5% present after the neonatal period (Newman et al, 1986).

Figure 1. Chest radiograph on admission.

Figure 2. Intraoperative photograph of tension-free mesh repair.



Mr Kashif Akhtar *is Specialist Registrar in Trauma and Orthopaedic Surgery on the North West Thames Rotation,* **Mr Kamran Qurashi** *is Associate Specialist,* **Mr Arshad Rizvi** *is Medical Student and* **Mr Alberto Isla** *is Consultant in Upper Gastrointestinal Surgery in the Department of Upper Gastrointestinal and Laparoscopic Surgery, Ealing Hospital, Southall UB1 3HW*

Correspondence to: Mr A Isla

Figure 3. Postoperative gastrografin follow through.

The posterolateral Bochdalek hernia is the most common form of congenital diaphragmatic hernia, accounting for about 90% of cases, with an incidence of 1 in 2200 births (Taskin et al, 2002). Triggers for herniation of abdominal contents through a congenital defect in adulthood include causes of increased intra-abdominal pressure such as pregnancy, constipation or vomiting (Brusciano et al, 2003).

If not detected and treated in time then possible complications include volvulus, bowel obstruction, incarceration, strangulation, haemorrhage and perforation.

The authors believe this to be the first report of laparoscopic repair of a Bochdalek hernia with the involvement of a herniated spleen.

Conclusions

Bochdalek hernia is a complex diagnostic problem. Bochdalek hernia does exist in adults and should be considered in the differential diagnosis for gastrointestinal obstruction in adults with concomitant

Case Report

A previously fit 27-year-old man presented to the authors' casualty department with a 24-hour history of severe vomiting, dizziness and lethargy. Examination was unremarkable except for marked dehydration. The patient was found to be hypokalaemic (K+ 2.8 mmol/litre) and in acute renal failure (urea 16.8 mmol/litre, creatinine 259 µmol/litre).

After admission the patient became pyrexial and began to vomit uncontrollably. Chest auscultation revealed decreased air entry at the left lung base and the chest radiograph was reported as showing cystic bronchiectasis for which antibiotic therapy was commenced (*Figure 1*).

The abdominal radiograph showed a paucity of intestinal gas. Upper gastrointestinal endoscopy to investigate the hyperemesis demonstrated an extremely dilated stomach containing 3 litres of fluid, with reflux oesophagitis. Computed tomography scans displayed a small left lung, a dilated stomach and herniation of abdominal viscera into the left side of the chest, with an empty abdominal cavity.

Laparoscopy confirmed the striking absence of small bowel, ascending and transverse colon, and spleen in the abdominal cavity, all of which had herniated into the left chest through a patent congenital Bochdalek foramen (8 x 10 cm), with no hernial sac. The defect was closed in a tension-free manner with a Goretex dual mesh patch, attached posteriorly with an anchoring device (Pro Tak) and secured with interrupted Ethibond sutures (*Figure 2*). At the end of the procedure the entire bowel was inspected from the duodeno-jejunal flexure and found to be correctly positioned.

Postoperative recovery was quick and uneventful and the patient was discharged home well on day 3 following a normal gastrografin study (*Figure 3*).

Outpatient follow up at 18 months, examination and imaging confirmed no recurrence or complications.

chest signs. The complications of delayed or missed diagnosis may be catastrophic.

Laparoscopic repair is not only feasible but should be the surgical technique of choice in the repair of this rare anomaly. An extreme 'head up' position is advisable for optimal visualization of the defect and the use of an automatic anchoring device is recommended to fix the mesh to the posterior edge of the defect in a tension-free manner. BJHM

Brusciano L, Izzo G, Maffettone V et al (2003) Laparoscopic treatment of Bochdalek hernia without the use of a mesh. *Surg Endosc* **17**(9): 1497–8

Newman BM, Afshani E, Karp MP, Jewett Jr TC, Cooney DR (1986) Presentation of congenital diaphragmatic hernia past the neonatal period. *Arch Surg* **121**(7): 813–16

Taskin M, Zengin K, Unal E, Eren D, Korman U (2002) Laparoscopic repair of congenital diaphragmatic hernias. *Surg Endosc* **16**(5): 869

Unusual presentation of renal calculous disease

A 79-year-old woman was transferred to the authors' institution with resolving urosepsis and acute-on-chronic renal failure after two related intensive care unit admissions during the previous 3-month in-hospital stay elsewhere. She had a medical history of hypertension, chronic obstructive pulmonary disease and limited mobility as a result of osteoarthritis.

Contrast-enhanced computed tomography imaging showed a scarred, atrophic left kidney with a thick-walled collection (7 x 4.5 cm) intimately related to the upper pole of this kidney (*Figures 1* and *2*) and tracking inferiorly along the left psoas muscle into the pelvis. Several calcified foci were noted within this collection and foci of fat were identified within the left kidney. Also present was a large left ureteric stone, extending for 4 cm distal to the pelvic brim, causing hydroureter and hydronephrosis. The appearances were suggestive of xanthogranulomatous pyelonephritis with psoas abscess formation. There was no clinical or radiological suspicion of a neoplasm.

Owing to her comorbidities and recent intensive care unit admissions, it was decided to continue the patient on oral ciproxin, to refrain from intervention and to reassess her on an outpatient basis. Three months later, she was clinically stable on continued oral ciproxin.

Xanthogranulomatous pyelonephritis is an unusual manifestation of chronic pyelonephritis, typically predisposed to by urinary calculi, collecting system obstruction and suppuration (Korkes et al, 2008). Middle-aged women appear to be most frequently affected. Definitive diagnosis is histological, but computed tomography is the best imaging tool for preoperative presumptive diagnosis.

Treatment has traditionally been open nephrectomy but variations ranging from laparoscopic nephrectomy (Kapoor et al, 2006) to partial, kidney-sparing nephrectomy for focal disease have been described. Increasingly recognized is the success of conservative treatment with antibiotics, particularly for focal disease. BJHM

Figure 1. Sagittal reconstruction of contrast-enhanced computed tomography scan of the abdomen, showing abscess collection related to upper pole of hyronephrotic left kidney (long arrow), psoas abscess (short arrow) and obstructing stones in a dilated left ureter (arrowhead).

Kapoor R, Vijian V, Singh K et al (2006) Is laparoscopic nephrectomy the preferred approach in xanthogranulomatous pyelonephritis? *Urology* **68**(5): 952–5

Korkes F, Favoretto RL, Bróglio M, Silva CA, Castro MG, Perez MD (2008) Xanthogranulomatous pyelonephritis: clinical experience with 41 cases. *Urology* **71**(2): 178–80

Figure 2. Coronal reconstruction of contrast-enhanced computed tomography scan of abdomen, showing hydronephrotic left kidney with focus of fat in it (long arrow). Also demonstrated is extensive psoas inflammation extending into pelvis (short arrow).

Dr Naomi Campbell *is Specialist Registrar in Radiology,* **Dr Sarah Barrett** *is Specialist Registrar in Radiology,* **Dr Helen Stunell** *is Specialist Registrar in Radiology and* **Dr William C Torreggiani** *is Consultant Radiologist in the Department of Radiology, Adelaide and Meath Hospitals incorporating the National Children's Hospital, Tallaght, Dublin 24, Ireland*

Correspondence to: Dr N Campbell