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CASE REPORT

Strangulated Diaphragmatic Hernia in an Elderly Man

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ABSTRAK

Angin pasang otot diafragma kongenital sangat jarang berlaku terutamanya di kalangan orang dewasa. Ia selalunya terjadi selepas kemalangan dan kebiasaannya melibatkan otot diafragma di sebelah kiri. Kami ingin membincangkan satu kes seorang lelaki berumur 68 tahun yang datang dengan masalah usus tersumbat akut disebabkan oleh angin pasang otot diafragma di sebelah kanan. Pemeriksaan klinikal menunjukkan abdomen yang kembung dengan bunyi usus bernada tinggi dan tiada ketulan di dalamnya. Pemeriksaan juga menunjukkan bahawa tiada bunyi pernafasan di dada sebelah kanan. Imbasan tomografi adalah konsisten dengan angin pasang otot diafragma dan usus tersumbat akut. Kami mengetengahkan kes angin pasang otot diafragma kongenital dan menekankan pentingnya untuk pengurusan perioperatif bagi memastikan hasil pembedahan yang berjaya.

Kata kunci: angin pasang otot diaphragma, imbasan tomografi multi-hirisan, usus tersumbat

ABSTRACT

A congenital diaphragmatic hernia is very uncommon among adults. A diaphragmatic hernia is primarily acute in onset and it is usually identified after trauma. It occurs mostly on the left side. We would like to report a 68-year-old male who presented with a 4-day history of acute intestinal obstruction with a background history of change in bowel habit for a month secondary to a right

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diaphragmatic hernia. He did not have any history of trauma. Clinical examination revealed a distended abdomen with high pitched bowel sound and no palpable mass. The right lung was inaudible on auscultation. Computed tomography scan was consistent with a right diaphragmatic hernia and acute intestinal obstruction. We highlight the late onset of a congenital diaphragmatic hernia and emphasize the vital need for perioperative management to ensure a promising surgical outcome.

Keyword: diaphragmatic hernia, intestinal obstruction, multislice computed tomography

INTRODUCTION

Diaphragmatic hernia commonly occurs in the neonates due to a congenital defect of diaphragmatic muscles (Al Ghafri et al. 2014). It will lead to herniation of abdominal content into the thoracic cavity. The herniated content can be in the form of hollow or visceral organs. Hence, it will manifest as cardio-pulmonary symptoms and failure to thrive among children (Sathyanarayana et al. 2012). It is very uncommon with a rate of 1 : 2500-3000 live births (Malekzadegan & Sargazi 2016). In 20% of cases, the diaphragmatic hernia can occur on the right side and 80% of subjects is on the left side (Malekzadegan & Sargazi 2016). The diaphragm is rarely engaged on both sides. However, it is vice versa among chronic idiopathic diaphragmatic hernia as it is more common to happen on the right side (Ayane et al. 2017).

It is known as Bochdalek hernia if the diaphragmatic defect occurs at the postero-lateral part and Morgagni hernia if at the anterior or central part, in which the former is found more common as compared to the latter (Malekzadegan & Sargazi 2016). In adults, a diaphragmatic hernia is easily identified among post-trauma patients, usually on the left side. However, it is deemed rare to present without any precipitating factors, especially in the elderly (Murchite et al. 2020). A late presentation of diaphragmatic hernia is perplexing especially without aetiology. We report a 68-year-old male who presented to us with an acute intestinal obstruction secondary to a right diaphragmatic hernia and we discuss our immediate successful management for this man.

CASE REPORT

A 68-year-old male presented to the Emergency Department with a 4-day history of acute intestinal obstruction. He had a change of bowel habit accompanied by constitutional symptoms for the past one month but no other alarming signs of malignancy. He denied any history of trauma, fall or motor vehicle accident. Upon assessment, he was dehydrated but haemodynamically stable. He was neither pale nor jaundiced. Clinically, the abdomen was distended with

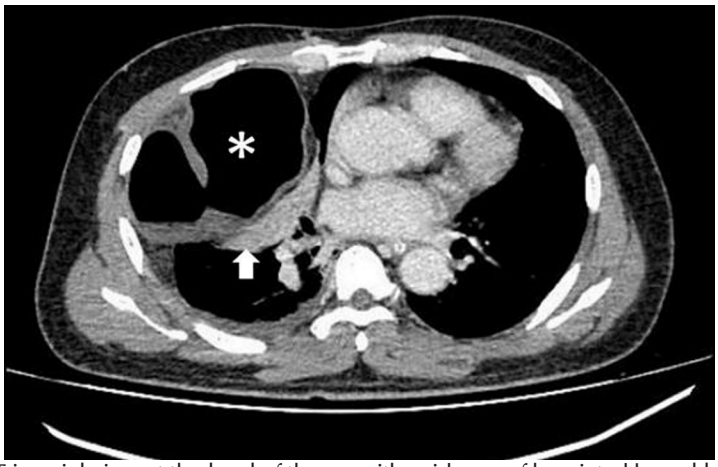

Figure 1: CT in axial view at the level of thorax with evidence of herniated bowel loop into the right thoracic cavity (*) complicated with collapse consolidation of the adjacent lung (arrow)

generalised tenderness and no palpable abdominal mass. The bowel sound was hyperactive. The breath sound was absent on the right side as compared to the left. Digital rectal examination showed an empty rectum with no palpable mass.

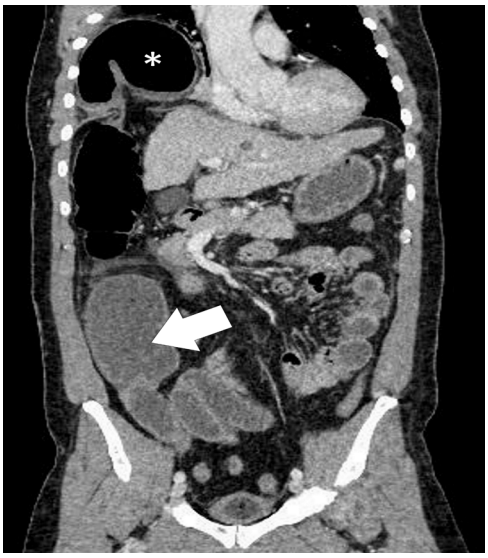

Figure 2: CT in coronal view showing diaphragmatic defect with herniated bowel into the right thoracic cavity (*), complicated with dilated proximal bowel (arrow) secondary to strangulation.

Blood investigations were within normal range except for a slight acute kidney injury picture. The chest and abdominal radiography revealed a bowel loop in the right chest cavity with a dilated small bowel in the abdomen. The computed tomography (CT) scan was consistent with a diaphragmatic hernia and acute intestinal obstruction (Figure 1 & 2). The patient was posted to the operating theatre for an emergency laparotomy. The anaesthetic management was a rapid sequence induction followed by the insertion of a right-sided double-lumen tube (DLT) size 27 Fr to decompress the right lung. Intraoperatively, a small right sided defect was identified measuring 5 cm x 4 cm in size with small bowel herniated through it. The herniated bowel was reduced back into the abdominal cavity. It was repaired via an interrupted technique of non-absorbable suture. A chest tube was inserted into the right pleural space prior to the abdominal closure. He

recovered well postoperatively. One month later, he had no more bowel or respiratory symptoms.

DISCUSSION

Delayed presentation of congenital diaphragmatic hernia is postulated to occur after initial resistance by the liver from the displacement of abdominal contents into the thoracic cavity (Ayane et al. 2017). Apart from the classical symptoms of intrathoracic compression such as shortness of breath and reduced effort tolerance, patients can present with the classical triad of intestinal obstruction namely colicky abdominal pain and distension, vomiting and no bowel opening. Our patient had shown more of intestinal manifestations rather than cardio-respiratory symptoms.

The nonspecific symptoms can be intriguing, hence leading to a wrong diagnosis and inappropriate intervention. Occasionally, the acute presentation of cardio-pulmonary symptoms after trauma can be confused with tension pneumothorax. The unnecessary or improper insertion of a chest drain may result in serious complications of intrathoracic abdominal visceral injury (Mathai & Singh 2011).

Late-onset of congenital diaphragmatic hernia can be diagnosed by various radiological methods. Imaging modalities such as chest radiography, ultrasonography, contrast study, CT scan and magnetic resonance imaging (MRI) are beneficial to diagnose such conditions (Al Ghafri et al. 2014). A coiled nasogastric tube in the thoracic cavity can be visualised following chest radiograph. Presence of bowel gas shadow loops in the thoracic cavity in the absence of diaphragmatic outlines is radiologically diagnostic for diaphragmatic hernia.

Various imaging modalities such as chest radiography, ultrasonography, contrast study, CT scan and MRI, have been reported helpful in cases of diaphragmatic defect (Al Ghafri et al. 2014). Chest radiograph remains the best initial imaging with specific diagnostic findings of intrathoracic bowel herniation or a coiled nasogastric tube above the hemidiaphragm (Iochum et. al. 2002). However, in terms of visualising diaphragmatic defect, multidetector CT with multiplanar reconstruction in sagittal and coronal planes is highly accurate in diagnosing traumatic diaphragmatic rupture with sensitivity of 100% and specificity of 93% (Magu et al. 2012). MRI is also reported to be helpful in special cases of uncertain diaphragmatic defects (Sandrine et. al. 2002).

Intraoperatively, the anaesthetic team plays a vital role in ensuring the patient safety and smoothness of surgery. The patient needs to be ventilated using the DLT, hence the affected lung can be collapsed while maintaining oxygenation via the contralateral side (Tan et al. 2020). The principles of surgical treatment for strangulated diaphragmatic hernia encompass; (i) reduction of abdominal contents, (ii) resection of ischemic bowel, (ii) closure of the diaphragmatic defect and (iv) restoration of intrathoracic pressure with a chest drain. However,

in managing late presentations of congenital diaphragmatic hernia, failure to detect, investigate and treat early can result in mortality rates as high as 30% (Ayane et al. 2017).

CONCLUSION

This case highlights the variety of manifestations of the late onset of congenital diaphragmatic hernia. It emphasises the vital functions of perioperative management which consist of precise clinical assessments, good imaging modality, perioperative management as well as urgent surgical correction.

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