Case Report

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Organoaxial gastric volvulus with diaphragmatic eventration and wandering spleen: an unusual association

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ABSTRACT

Organoaxial gastric volvulus occurs when the stomach rotates around a transverse line between the pylorus and gastroesophegeal junction. It is potentially life threatening because delayed diagnosis and treatment may result in perforation, infarction and gangrene of stomach. As it is a rare entity high index of suspicion is required to prevent high morbidity and mortality. Primary Gastric volvulus has been seen in association with congenital asplenia or "wandering spleen" or with diaphragmatic hernia or diaphragmatic eventration. We report a case of 17 year female (perhaps the first in literature) who had wandering spleen, diaphragmatic eventration and gastric volvulus a congenital anomaly rare to find and a brief review of literature.

Keywords: Gastric volvulus, Organo-axial, Wandering spleen, Diaphragmatic eventration

INTRODUCTION

In 1940, Singleton defined organoaxial rotation as most common type of gastric volvulus, two thirds of cases. Primary Gastric volvulus has been seen in association with congenital asplenia and with "wandering spleen" while secondary volvulus is most commonly associated with diaphragmatic hernia or eventration. The sudden onset of constant and severe upper abdominal pain, recurrent retching with production of little vomitus, and the inability to pass a nasogastric tube constitute Borchardt's triad but in our case Ryle's tube could be passed easily. High mortality rates (30% to 50%) have been reported in literature hence emergency laparotomy is necessary. 3.4

CASE REPORT

Here we present a case of organoaxial gastric volvulus associated with diaphragmatic eventration and "wandering spleen". A 17 year's old, female patient was

admitted with complaint of pain upper abdomen, nausea and epigastric lump for 5 days. There was a past history of laparotomy via upper midline incision eight months back, for pre-pyloric perforation. On examination vitals were stable, haemogram, serum electrolytes were within normal limits. On physical examination there was vague epigastric mass. On Ryle's tube aspiration, 2.5 litters of gastric juice were aspirated, though the epigastric lump decreased in size, but it could be still felt. Provisional diagnosis of gastric outlet obstruction was made. While the patient was being prepared for surgery, barium meal was done which showed suspected gastric volvulus. Patient was taken up for emergency laparotomy and explored through previous upper midline incision, organoaxial gastric volvulus was found, but stomach was not gangrenous, ligamentous attachments of spleen were lax, it was enlarged in size and could be easily brought out through laparotomy wound. Transverse colon and splenic flexure were high up, with a large 20 x 20 cm left diaphragmatic eventration. Plication of diaphragm was done with anterior wall fixation of stomach and

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splenopexy. Post-operative period was uneventful and patient was discharged on post-operative day four.



Figure 1: The wandering spleen.

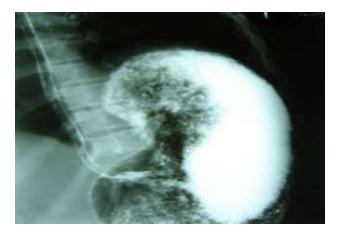


Figure 2: Barium meal follow through showing organoaxial gastric volvulus.

DISCUSSION

Pare' described the first case of gastric volvulus in 1579 in a patient who had a diaphragmatic injury from a sword wound. Most cases of secondary gastric volvulus are organoaxial, with greater curvature rotating up into the chest either anteriorly (more common) or posteriorly with respect to fixed duodenum and esophagus.² The signs and symptoms of acute gastric volvulus include abdominal pain and distention, especially in the upper abdomen, and vomiting with progression to non-productive retching. It can be diagnosed by barium contrast study, as in our case, or upper gastrointestinal endoscopy. Currently, CT can lead to an immediate diagnosis with all the anatomical details.⁵ Acute gastric volvulus is regarded as a surgical emergency, requiring either open or laparoscopic Gastropexy.^{6,7}

Diaphragmatic eventration is rare (incidence <0.05%) congenital developmental defect in the muscular portion of the diaphragm, more often affects the left hemi diaphragm, with preserved attachments to the sternum, ribs, and dorsolumbar spine.⁸ Most adult patients who

have diaphragmatic eventration are asymptomatic and generally present with an elevated hemi diaphragm discovered incidentally on a chest X ray. Multiple studies have demonstrated significant improvement in symptoms and respiratory function after open transthoracic or trans abdominal plication. 9-11

Wandering spleen a rare clinical entity, was first described by Van Horne in 1667 at necropsy, it accounts for less than 0.25% of all indications for a splenectomy. 12 This abnormality is found most commonly in women (80%), of the reproductive age group. 13,14 This condition is characterized by a congenital deficiency or acquired laxity of the suspensory ligaments of the spleen. The clinical presentation of a wandering spleen is variable, that is, it could present as an asymptomatic abdominal or pelvic mass with or without gastrointestinal. The patient may present with an acute abdomen due to splenic infarction caused by sudden torsion of the splenic pedicle. 15 Splenectomy is advocated if there is functional asplenia due to torsion, splenic infarction, splenic vessel thrombosis. Splenopexy to the diaphragm, or abdominal wall, or omentum is preferred when a viable wandering spleen is found at laparotomy. 12,16

CONCLUSION

Organoaxial gastric volvulus is potentially lifethreatening condition with high morbidity and mortality. Emergency laparotomy is required to prevent gangrene of stomach that is due to delayed diagnosis. Barium meal is a reliable investigation for early diagnosis. It is often associated with diaphragmatic eventration and wandering spleen, which requires plication and splenopexy respectively.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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REFERENCES

- 1. Singleton AC. Chronic gastric volvulous. Radiology. 1940;34:53-61.
- Uc A, Kao SC, Sanders KD. Gastric volvulous and wandering spleen. Am J Gastroenterol. 1998:93:1146-8.

- 3. Carter R, Brewer LA 3rd, Hinshaw DB. Acute gastric volvulous. A study of 25 cases. Am J Surg. 1980;140:99-106.
- 4. Wasselle JA, Norman J. Acute gastric volvulous: Pathogenesis, diagnosis and treatment. Am J Gasteroenterol. 1993;88:1780-4.
- 5. Cherukupalli C, Khaneja S, Bankulla P. CT diagnosis of acute gastric volvulus. Dig Surg. 2003;20:497-9.
- 6. Gourgiotis S, Vougas V, Germanos S. Acute volvulus: diagnosis and management over 10 years. Dig Surg. 2006;23:169-72.
- 7. Teague WJ, Ackroyd R, Watson DI. Changing pattern in the management of gastric volvulus over 14 years. Br J Surg. 2000;87:358-61.
- 8. Deslauriers J. Eventration of the diaphragm. Chest Surg Clin N Am. 1998;8(2):315-30.
- 9. Kizilcan F, Tanyel FC, Hic so inmez A. The long term results of diaphragmatic plication. J Pediatr Surg. 1993;28(1):42-4.
- Kuniyoshi Y, Yamashiro S, Miyagi K, et al. Diaphragmatic plication in adult patients with diaphragm paralysis after cardiac surgery. Ann Thorac Cardiovasc Surg. 2004;10(3):160-6.
- 11. Versteegh MI, Braun J, Voigt PG. Diaphragm plication in adult patients with diaphragm paralysis

- leads to long-term improvement of pulmonary function and level of dyspnea. Eur J Cardiothorac Surg. 2007;32(3):449-56.
- 12. Tan HH, Ooi LLPJ, Tan D, Tan CK. Recurrent abdominal pain in a woman with a wandering spleen. Singapore Med J. 2007;48(4):e122-4.
- 13. Desai DC, Hebra A, Davidoff AM, Schnaufer L. Wandering spleen: a challenging diagnosis. South Med J. 1997;90(4):439-43.
- 14. Cohen MS, Soper NJ, Underwood RA, Quasebarth M, Brunt LM. Laparoscopic splenopexy for wandering (pelvic) spleen. Surg Laparosc Endosc. 1998;8(4):286-90.
- 15. Herman TE, Siegel MJ. CT of acute splenic torsion in children with wandering spleen. AJR Am J Roentgenol. 1991;156(1):151-3.
- 16. Peitgen K, Majetschak M, Walz MK. Laparoscopic splenopexy by peritoneal and omental pouch construction for intermittent splenic tortion ("Wandering spleen"). Surg Endosc. 2001;15(4):413.

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