Congenital Strangulated and Gangrenous Epigastric Hernia in A Male Neonate

Minhajuddin Ahmed[1*], Ashwin A Apte[2], Nitesh Upadhyay[3]

[1]Professor instead of associate, Department of Pediatrics, Chirayu Medical College and Hospital, Bhopal. MP

[2]Professor, Department of Surgery, LN Medical College & JK Hospital, Bhopal, MP

[3]Associate Prof, Department of Pediatrics, Chirayu Medical College and Hospital, Bhopal. MP

***Address for Corresponder:** Dr Minhajuddin Ahmed, Professor instead of associate, Department of Pediatrics, Chirayu Medical College and Hospital, Bhopal. MP (email: minzahmad@yahoo.co.in)

How to cite this article:
Ahmed M, Apte A, Upadhyay N. Congenital Strangulated and Gangrenous Epigastric Hernia in A Male Neonate. Iranian Journal of Pediatric Surgery 2023; 10 (1): 126 - 132.

DOI: https://doi.org/10.22037/irjps.v10i1.37451

Abstract

Epigastric hernia (EH) is hernia of linea alba above umbilicus. An uncommon surgical condition & account for 3-5% of the population with male predominance. EH have high risk of incarceration & strangulation because of tight fascial defect of linea alba. Congenital epigastric hernia refers to herniation of intra- abdominal organs from the xiphoid process to the umbilicus due to failure of proper attachment of the rectus muscle during development and a hernia is called strangulated when its blood supply of its contents is compromised. A congenital strangulated and gangrenous epigastric hernia is very rare & is associated with significant morbidity and mortality.

Keywords

- Epigastric Hernia
- Neonate
- Strangulation

received: 22 January 2022
accepted: 2 March 2022
Published online: 29 April 2024

Introduction

Hernia is the abnormal protrusion of a vicsus or part of viscus through an opening into a situation with its covering and it was Bartolin in 1961 who first described interparietal hernia.[1] Herniation through defects in the Linea alba abdomen is termed as epigastric hernia (EH). These are amongst the lesser common forms of abdominal hernias. Majority of EH are due to mechanical forces causing a deficiency in the integrity of the Linea alba between the xiphoid process and umbilicus. It accounts for 1.6–3.6% of all abdominal wall hernias and 0.5-5% 0f all operated abdominal hernias.[2-3] Usually seen in 2-5 decade of life[4] with male predominance[2] and these become symptomatic in cases of strangulation, or by the sheer volume of the hernia. Congenital epigastric hernia refers to herniation of intra- abdominal organs from the xiphoid process to the umbilicus due to failure of proper attachment of the rectus muscle during development[3] and this hernia is called strangulated when its blood supply of its contents is compromised. EH results in variable clinical conditions, including cholecystitis, pancreatitis, gastric wall abscess, perforated peptic ulcers, gastric outlet obstructions and liver strangulation.[5] Certain theories have been proposed pertaining the origin and pathogenesis of EH but still exact aetiology is unclear. A congenital strangulated and gangrenous epigastric hernia is very rare & is associated with significant morbidity and mortality.

Case Report:

A day 7 old male neonate presented to our outpatient department with history of abdominal mass since birth which was gradually increasing in size. Baby was delivered at 37 weeks of gestational age by caesarean section with a birth weight of 2.80 kg with an APGAR score of 8 and 9 at 1 and 5 minutes respectively. Routine antenatal workup and history was unremarkable. On physical examination a large soft supraumblical mass of size 5x3 cm was noted with normal overlying skin (Fig 1). There were no cafe´-au-lait spots, neurologic abnormalities, or any systemic disease. Routine blood investigations were within normal limits. Ultrasonogram showed evidence of anterior abdominal wall defect in central abdomen with bowel loops protruding in sac suggestive of

congenital anterior abdominal wall cleft with hernia. CECT abdomen (Fig 2) revealed a defect of approximately 6 cms is in anterior abdominal wall in epigastric region with herniation of bowel loops and mesentery through this defect. Mural thickening of bowel loops was seen in hernial sac which was dilated and adherent to the inflamed mesentery. This suggested an epigastric hernia with possibility of strangulation and closed loop obstruction. Exploratory laparotomy was performed with reduction of the strangulated hernia, resection of gangrenous segments, derotation of ileum and ileo-ileal resection anastomosis done. Due to the large epigastric defect primary closure was not possible, and thus mesh repair was performed. Post-operative recovery was uneventful and was discharged on 8th day with full feeds.

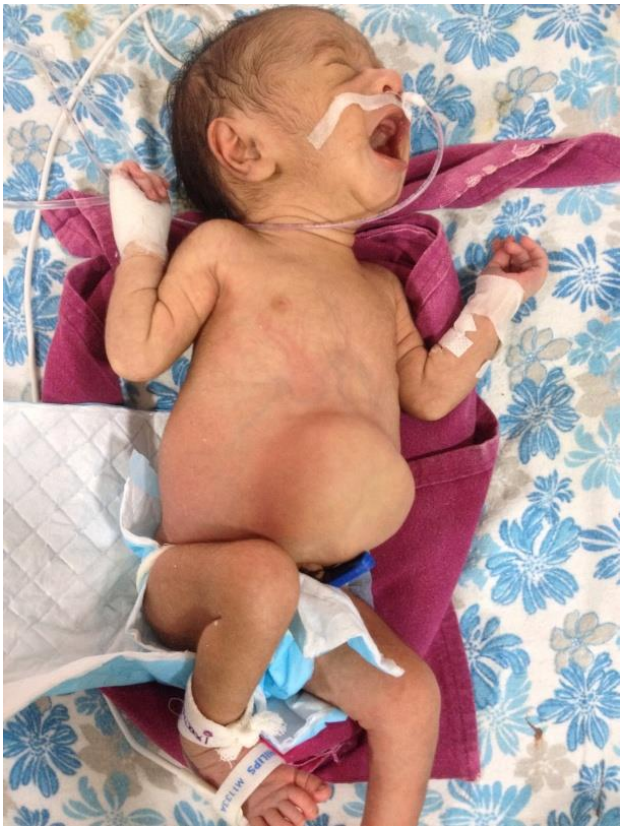

Figure 1: A large soft supraumbilical mass of size 5x3 cm seen with normal overlying skin.

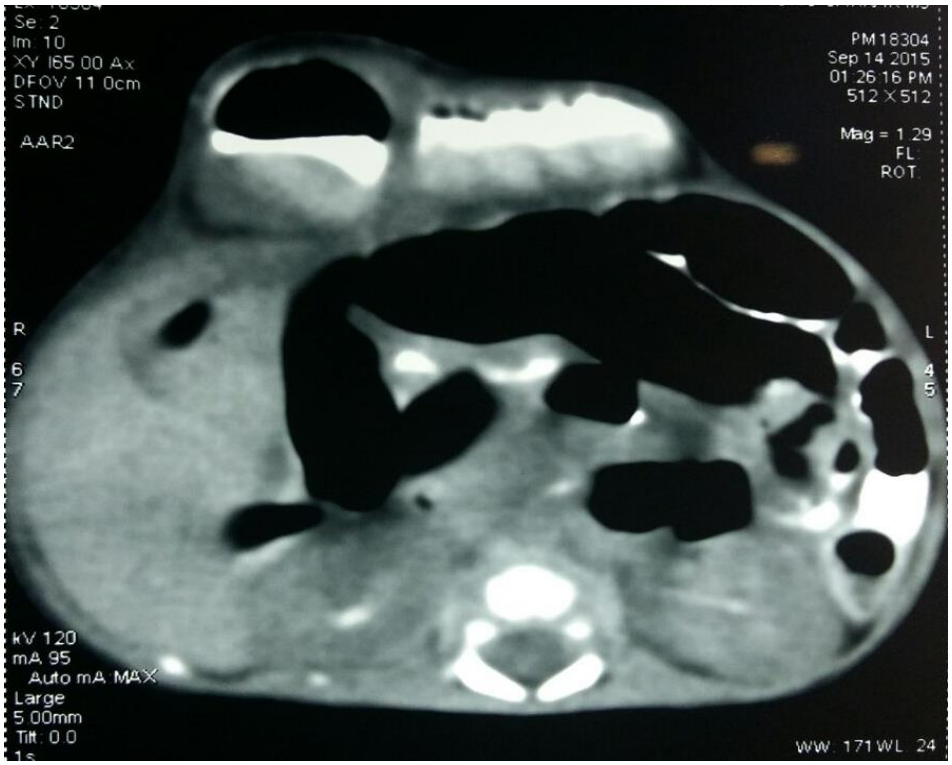

Figure 2: CECT abdomen reveals a defect of approximately 6 cms is in anterior abdominal wall in epigastric region with herniation of bowel loops and mesentery through this defect. Mural thickening of bowel loops was seen in hernial sac which was dilated and adherent to the inflamed mesentery with possibility of strangulation and closed loop obstruction.

Discussion

EH is usually uncommon and they protrude through Linea alba and occur above umbilicus. Commonly seen in men than women in above 20-50 age groups. EH are either congenital or acquired but majority are acquired due to structural deficiency in Linea alba by physical straining (mechanical forces). Askar suggested that EH is seen in people with single anterior and single posterior crossing pattern leading to congenital EH.[6] Moschowitz[7] and Lang et al[8] also suggested that EH is due to the role of vascular lacunae at the Linea alba of the anterior abdominal wall. However true reason of EH is still unclear.

Infantile EH being so rare so author don't report such condition[9] though Coats et al reported 4% of infantile EH in a retrospective cohort study of 40 patients in less than 18 years of age. In 30% of the cases Coats et al. found EH were present at birth, having congenital origin.[10]

Preperitoneal fat is the most common hernia sac content; larger defect may contain omentum, stomach, small bowel, colon, liver, or intra-abdominal structure. Palade et al[11] reported strangulated EH with transverse colon necrosis while Arowolo et al[4] reported EH with acute gastric outlet obstruction. Preoperative diagnosis of EH is difficult due to infrequent occurrence. Differential diagnosis of EH can be diastasis recti when there is a bulge of weakened Linea alba during increase intra-abdominal pressure.[12] It is also called epigastric cleft.[13] Computerized tomogram helps in the diagnosis and is the investigation of choice to exclude other differentials. EH requires surgical repair. In Mayo operation vertical overlapping technique is used for the repair but it resulted in higher recurrence rate.[14] "Tension free repair" is used commonly for EH repair and use of mesh in EH repair has resulted in lower recurrence and lesser complications.[7] In our case defect was so large, gangrenous and strangulated bowel was seen so mesh repair was done.[15] Some recommend laparoscopy for evaluation and repair of EH. Laparoscopic surgery over open surgery has a greater visualization of hernia content and fewer traumas. As such there is no protocol for EH repair so it's totally upon the surgeons how to repair the defect

Conclusion

In conclusion, due to rare presentation of EH in newborn it is diagnostic challenge for the physician to identify the index case. Detailed clinical and physical history along with CT assists the diagnosis of EH. Early diagnosis and surgical correction is recommended to avoid complications.

Ethical Consideration

Written consent for participation was obtained from the parent or guardian of the participant in the study**.** This study was approved by Chirayu Medical College and Hospital.

Acknowledgment

Not applicable

Funding/Support

Not applicable

Conflict of interests

There is no conflict of interest

References

1. Bennet DH, Kingsworth AN: Hernias, umbilical and abdominal wall. In: Russel RCG, Williams NS, Bultrode CJK, editors. Bailey and loves short practice of surgery. 24th ed. London: Arnold; 2004. p. 1272–93.
2. Ponten JH, Somers KA, Nienhuijs SW: Pathogenesis of the epigastric heria. Hernia2012,16:627-633.
3. Kelly KB, Ponsky TA: Pediatric abdominal wall defects. Surg Clin North Am 2013;931255-67.
4. Arowolo OA, Ogundiran TO, Adebamowo CA: Spontaneous epigastric hernia causing gastric outlet obstruction: a case report. Afr J Med Sci 2006;35(3): 385–6.
5. Cheung HY, Siu WT, Yau KK, et al: Incarcerated epigastric hernia, a rare cause of gastric outlet obstruction. J Gastrointest Surg. 2004; 8:1111-3.

6. Askar OM (1984) Aponeurotic hernias. Recent observations upon paraumbilical and epigastric hernias. Surg Clin N Am 64(2): 315–333.
7. Moschcowitz AV (1917) Epigastric hernia without palpable swelling. Ann Surg 66(3):300–307.
8. Lang B, Lau H, Lee F: Epigastric hernia and its etiology. Hernia. 2002; 6:148-50.
9. Muschaweck U (2003) Umbilical and epigastric hernia repair. Surg Clin N Am 83(5):1207–1221.
10. Coats RD, Helikson MA, Burd RS (2000) Presentation and management of epigastric hernias in children. J Pediatr Surg 35(12):1754–1756.
11. Palade R, Voiculescu D, Suliman E, et al: Voluminous complicated epigastric hernia. Chirurgia (Bucur) 2009;104(3):337–40.
12. Nahabedian MY: Management strategies for diastasis recti. Semin Plast Surg 2018; 32:147-54.
13. Ciftci AO, Tanyel FC, Hisconmez A: Epigastric cleft: a previously unreported entity. J Pediatr Surg 1997;321247-9.
14. Mayo WJ: Further experience with the vertical overlapping operation for the radical cure of umbilical hernia. J Am Med Ass. 1903; 41:225-8.
15. Lin MP, Chen YL, Ginger HF: Diagnosis of a gangrenous, strangulated and incarcerated inguinal hernia by identifying c-shaped small bowel loops and serrated beak appearance. SAJ Case vRep 2018,5:407