CASE REPORT

Large Omphalocoele presenting as ventral hernia in a 12-year-old child: Case Report

Sadaf Noureen[1], Mahwish Noor Ul Haq[2], Zuha Zafar[3], Muhammad Habib Javed[4], Umm-e-Rubab[5], Nimra Fatima[1]

Abstract

A 12-year-old girl presented to the department of paediatric surgery of Mayo Hospital Lahore on March 31, 2021, with a large omphalocoele that healed as ventral hernia. Primary closure of the defect was done. This case highlights the importance of public awareness regarding congenital anomalies, early detection, and timely management to reduce childhood mortality and lifelong disability because delays in treatment may result in one of these disability and poor quality of life.

Keywords: Ventral hernia, Large omphalocoele, Abdominal wall defect.

DOI: https://doi.org/10.47391/JPMA.31284

Introduction

Omphalocoele is a congenital anomaly characterised by midline abdominal wall defect at the base of the umbilical cord. It is covered by a thin membrane and contains gut and other abdominal viscera which includes liver, spleen, and often the gonads.[1]

Prenatal ultrasonography is helpful in the diagnosis of omphalocoele and associated anomalies. While most cases are diagnosed and managed in neonatal period, delayed presentations into childhood and adolescence are rare.

In some cases, giant omphalocoeles that were managed conservatively can later present as large ventral hernias due to persistent abdominal wall defects. Management requires careful pre-operative planning, often involving staged reconstruction techniques to accommodate the loss of domain.

Survival rate of an isolated omphalocoele is over 90%, but those with other defects (such as cardiac) are much less likely to survive.

Here we present a rare case of large omphalocoele presenting as ventral hernia in a 12- years-old girl who had a history of omphalocoele at birth which was managed by epithelialisation of the sac. Her family lost follow-up and definitive management was delayed for 12 years.

Case Report

A 12-year-old girl presented to the outpatient department of the paediatric surgery at Mayo Hospital, Lahore, on March 31, 2021, with 12-year history of irreducible midline abdominal wall swelling. She had a history of omphalocoele at birth which was managed by epithelialisation of the sac. There was no history of previous surgery or any malformation. There were no major symptoms associated with hernia. On abdominal examination, there was 20x15 cm hernial swelling bounded superiorly by xiphoid process and on both sides by costal margins (Figure 1a). The rest of the systemic examination was insignificant.

Her lab reports were normal. Echocardiography showed structurally and functionally normal study. A computed tomography (CT) scan was done which showed, midline anterior abdominal wall defect of 8.8 cm with herniated left hepatic lobe, gall bladder, gut loops, and mesentery (Figure 1b)

Primary repair of the defect was planned. On exploration, there was 8x10 cm defect involving anterior abdominal wall causing herniation of the left lobe of the liver, gall bladder, and omentum. Hernial contents were reduced from the defect, the size of the liver was normal for the child's age and the defect was closed primarily without a mesh or flap due to the presence of good muscle flaps,

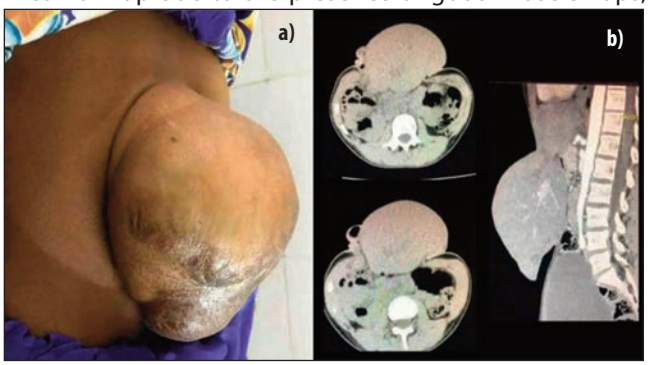

Figure-1: a) pre-operative ventral hernia b) CT scan of same patient showing ventral hernia.

[1-5]Department of Paediatric Surgery, Mayo Hospital, Lahore, Pakistan; [6]Department of Thoracic Surgery, Mayo Hospital, Lahore, Pakistan.
Correspondence: Mahwish Noor Ul Haq. e-mail: mahwishnoor80@gmail.com
ORCID ID: 0009-0000-9362-9761

Submission completed: 21-05-2025 **1st Revision received:** 07-10-2025
Acceptance: 01-01-2026 **Last Revision received:** 31-12-2025

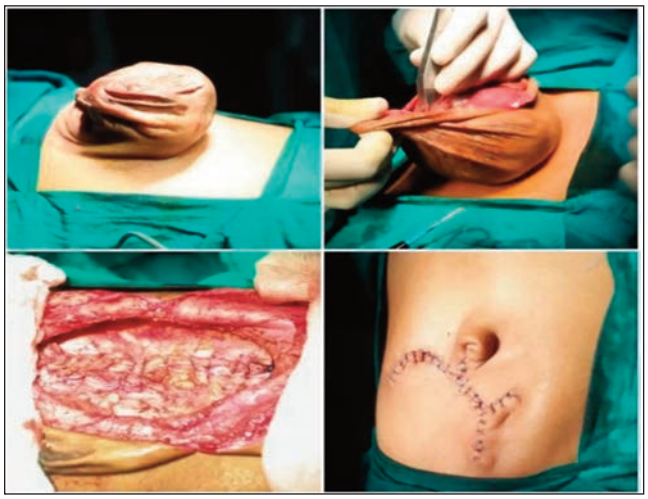

Figure-2: Pre-operative and intra operative pictures of ventral hernia repair and post-operative wound after repair.

which provided sufficient tissue coverage and support. This allowed for tension-free approximation of the edges, enabling a successful primary repair. Umbilicoplasty was performed, reconstructing the umbilicus to achieve a normal appearance. (Figure 2). Post-operative recovery remained uneventful. Careful surgical technique, adequate mobilisation, and good muscle flaps allowed tension-free closure, preventing abdominal compartment syndrome. The patient's stable condition permitted early enteral feeding after six hours, which was well tolerated. She was discharged on the fourth post-operative day. On her three-month follow-up, there was full wound healing with minor abdominal wall flaccidity. There were no signs of wound infection, recurrence of hernia or any other complication.

Discussion

Omphalocoele, also referred to as exomphalos, is a congenital defect of the abdominal wall where internal organs bulge out through a central opening at the root of the umbilical cord. The prevalence is estimated to be between 1 in 4,000 or 1 in 6,000 live births despite occurring in nearly 1 in 1,100 pregnancies due to higher rates of spontaneous miscarriages.1

Defects in the abdominal wall folding in utero is the underlying cause.[2] Typically, the craniocaudal and lateral abdominal folds come together by the fifth week of gestation; however, if this process is halted, the abdominal organs may remain outside the cavity, preventing normal expansion of the abdominal cavity during development.[3] Herniated viscera in an omphalocoele are covered by a three layered membrane which consists of inner layer of peritoneum, intervening Wharton's jelly, and outer layer of amnion. This membrane protects the viscera from extra-abdominal mechanical irritation and amniotic fluid exposure. In clinical terms, omphalocoeles are classified as small, giant, or ruptured. A widely accepted definition for giant omphalocoele is a defect of abdominal wall 5 cm or more in diameter which contains liver.[4,5] Overall mortality associated with this condition is 13% to 25% and it is more pronounced for infants with giant omphalocoele because of greater size defect, increased viscero-abdominal disproportion, higher occurrence of associated anomalies, and pulmonary hypoplasia.[6] Cardiac abnormalities have been reported in up to 45% patients of omphalocoele, chromosomal abnormalities can be seen in up to 20%. Neural tube defects and musculoskeletal abnormalities have also been reported. The severity and number of these associated anomalies determine the outcomes in omphalocoele. Management of giant omphalocoeles is a challenge for the surgeon and the goal is tissue closure. Several factors have to be considered while decision regarding management is taken, which include size of the defect, herniation of liver, identification and prognosis of accompanying disorders and the degree of pulmonary hypoplasia. There are two methods for the management of giant omphalocoele: 1) staged surgical closure and 2) non-operative delayed closure. In the process of staged surgical repair, abdominal tissue closure is done following multiple operations and multiple techniques are being used which include use of intra-abdominal tissue expanders, silastic silos placement, component separation technique, synthetic interposition mesh, and construction of dermal flaps. All the above methods should eventually be concluded with a definitive procedure for closure of the abdominal wall fascia.[7-9] In non-operative delayed closure, various topical agents are applied on the omphalocoele membrane to encourage eschar formation, granulation and sac epithelialisation which is subsequently managed with delayed operative closure of the ventral hernia.[10] Various topical medications are used to encourage epithelialisation of the omphalocoele sac and to reduce the risk of infections. These include Silver Sulfadiazine, Silver Nitrate, alcohol solution, Povidone-Iodine, and Mercuro-chrome solution. The goal of these methods is to reduce the omphalocoele in a regulated manner without causing any potentially fatal cardiopulmonary complications.

Conclusion

The presentation of a giant omphalocoele as a large ventral hernia in an older child underscores the need for vigilant long-term follow-up and timely surgical intervention. In developing countries, barriers such as limited healthcare access, low public awareness and sociocultural factors contribute to delayed management. This case emphasises that even in delayed presentations, definitive repair can be achieved with a good outcome when a tailored approach is used.

Consent to publish: Written consent was provided by the patient's parents.

Disclaimer: None.

Conflict of interest: None.

Funding disclosure: None.

References

1. Bilal R, Rustemov D, Sakuov Z, Ibraimov B, Kozhakhmetov A. Case report: a rare case of a combination of omphalocoele with umbilical teratoma. Front Paediatr. 2021;9:726593. DOI: 10.3389/fped.2021.726593
2. Bagheri N, Marivani F, Faraji N, Goli R, Choopani R, Mirzaei N. Surgical management of a massive omphalocoele in a newborn: a case report study. Int J Surg Case Rep. 2025;126:110680. DOI: 10.1016/j.ijscr.2024.110680
3. Wilczynski S. Use of a vacuum-assisted device in a neonate with a giant omphalocoele. Adv Neonatal Care. 2010;10:119–26. DOI: 10.1097/ANC.0b013e3181dbf9f0
4. Lee SL, Beyer TD, Kim SS, Waldhausen JH, Healey PJ, Sawin RS, et al. Initial non-operative management and delayed closure for treatment of giant omphalocoeles. J Pediatr Surg. 2006;41:1846–9. DOI: 10.1016/j.jpedsurg.2006.07.020
5. Nishad SR, Jha A, Mishra S, Shrestha S, Shrestha BB, Ghimire P. Management of an omphalocoele with ileal perforation: a case report. Int J Surg Case Rep. 2025;130:111267. DOI: 10.1016/j.ijscr.2025. 111267
6. Al Namat D, Roșca RA, Al Namat R, Hanganu E, Ivan A, Hînganu D, et al. Omphalocoele and associated anomalies: exploring pulmonary development and genetic correlations—a literature review. Diagnostics (Basel). 2025;15:675. DOI: 10.3390/diagnostics15060675
7. Bauman B, Stephens D, Gershone H, Bongiorno C, Osterholm E, Acton R, et al. Management of giant omphalocoeles: a systematic review of methods of staged surgical vs non-operative delayed closure. J Pediatr Surg. 2016;51:1725–30.DOI: 10.1016/j.jpedsurg.2016.07.006
8. Koçut KA, Fiore NF. Non-operative management of giant omphalocoele leading to early fascial closure. J Pediatr Surg. 2018;53:2404–8. DOI: 10.1016/j.jpedsurg.2018.08.018
9. Adetayo OA, Aka AA, Ray AO. The use of intra-abdominal tissue expansion for the management of giant omphalocoeles: review of literature and a case report. Ann Plast Surg. 2012;69:104–8. DOI: 10.1097/SAP.0b013e31823b6d02
10. Morshed GM, Islam S, Das BB, Rashid MS. Assessment of silver sulfadiazine dressing in the non-operative management of omphalocoele. SAS J Med. 2023;9:1023–8.

Author Contribution:

SN: Writing, editing, literature review, revision and gathered relevant information.
MNUH: Concept, design, writing and editing.
ZZ & MHJ: Writing and editing.
UR & NF: Data collection and interpretation.