Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 1s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Strangulated Left Inguinal Hernia with Jejunal Perforation Complication in Five-Day-Old Full-Term Neonate: A Case Report

Muhammad Ilham Herzoni[*1], Ismar Ibrahim[1], Tb Odih Rhomdani Wahid[1]

[1]Department of Pediatric Surgery, Arifin Achmad General Hospital, Faculty of Medicine, Riau University, Pekanbaru, Riau, Indonesia.

[*1]Corresponding Author:

Department of Pediatric Surgery,

Arifin Achmad General Hospital, Faculty of Medicine, Riau University, Pekanbaru, Riau, Indonesia.

Email ID: milhamherzoni@gmail.com

Cite this paper as: Muhammad Ilham Herzoni, Ismar Ibrahim, Tb Odih Rhomdani Wahid, (2025) Strangulated Left Inguinal Hernia with Jejunal Perforation Complication in Five-Day-Old Full-Term Neonate: A Case Report. *Journal of Neonatal Surgery*, 14 (1s), 816-819.

ABSTRACT

BACKGROUND

Inguinal hernia in children is the foremost common surgical pathology and the biggest reason for referral to the pediatric surgeon. Strangulated inguinal hernia is the foremost important and dreaded complication due to strangulation of the sac contents. A rare complication of incarcerated inguinal hernia in neonates and infants is strangulation.

CASE PRESENTATION

A 5-day-old newborn male presented with a strangulated left inguinal hernia and was operated on emergently. At surgery, the hernia contained a loop of jejunal with perforation. The jejunal perforation was resected, and we performed an end-to-end anastomosis. No leakage was observed from the anastomosis. The hernia sac is then highly ligated with a non-absorbable suture.

CONCLUSION

Strangulated hernia in 5-day-old full-term neonates is rare. The longer the onset of the hernia, the greater the risk of complications will happen.

Keywords: *Inguinal Hernia, Jejunal Perforation, Neonate, Strangulated*

1. INTRODUCTION

In pediatric surgery, inguinal hernias are the foremost common surgical pathology.[1] Around 4% of the pediatric population is diagnosed with inguinal hernia.[2] Males are more likely to suffer from hernia with a male-to-female ratio of 10:1.[1,3] Pediatric inguinal hernias are congenital due to a persistent processus vaginalis (PPV).[3,4] The small intestine is the foremost main structure that herniates.[5,6] As newborns have less intra-abdominal fat, hernias often contain intestinal rather than fat.[7] Neonates are risk factors for incarceration leading to strangulation.[8,9]

Postponing surgery for inguinal hernias poses a high risk of incarceration, which can lead to strangulation and intestinal necrosis.[7] Obstruction symptoms in an inguinal hernia such as vomiting, constipation, and progressive abdominal distension may develop.[5,8] A strangulated hernia occurs when the entrapped viscera suffers vascular damage due to constriction by a tight internal ring. Strangulation may lead to gangrene or perforation of the intestine or other organs.[8] However, if strangulation is suspected and proven, emergency surgical intervention is required.[9]

2. CASE REPORT

A five-day-old male neonate was born with normal delivery at full-term gestation, weighing of 3.1 kilograms at birth and 3.2 kilograms at presentation. He was brought in by his parents with an increasingly bulge and reddened left inguinal area over the past three days. He appeared fretful, constantly crying, and also refusing to feed. The abdominal area seem to be

distended, and he experienced three episodes of bilious vomiting. Vital signs showed a heart rate of 135 beats per minute, respiration rate of 48 breaths per minute and oxygen saturation of 98% on room air. Upon physical examination, the abdomen was distended with a soft, mobile, tubular mass with redness appearing in the inguinal region. The mass cannot be reduced (Fig. 1A-C). The hemoglobin level was 17.1 g/dL, and the electrolyte levels were within the normal range. The babygram x-ray revealed intestinal gas in the left pelvic region (Fig. 1D). An ultrasound exam revealed a herniated loop of the intestine with reduced blood supply in the left inguinal area and no detectable peristaltic activity with increased intestinal wall echogenicity, indicating a strangulated intestine.

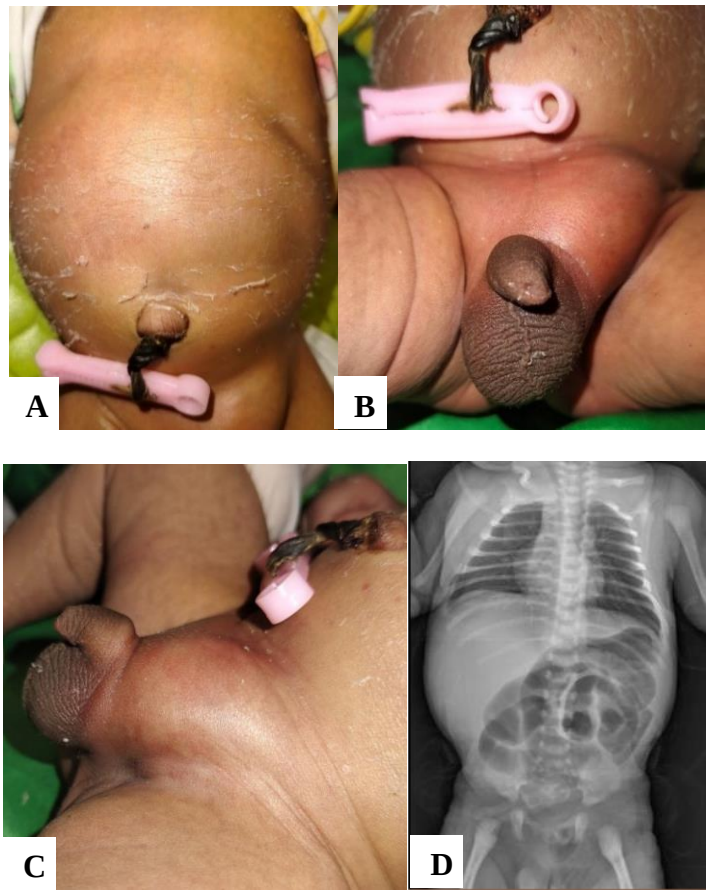

Figure 1. A) An Abdominal Distension. B&C) Swelling and Redness in The Inguinal Region. D) Intestinal Gas in The Left Pelvic Region.

The patient was diagnosed with a strangulated left inguinal hernia and underwent emergency surgery. Ringer lactate intravenous fluid was administered for preoperative resuscitation. During the surgery, a transverse incision was made in the left lower quadrant of the abdomen, exposing both fecal contents and strangulation of a significant portion of the jejunum within the inguinal canal (Fig. 2A). An exploration of the intestine loop uncovered a perforation in the jejunum. Warm saline was applied to assess the viability of the intestine, but as circulation did not return, the perforated segment of the jejunum was resected. A primary end-to-end anastomosis was performed through the herniotomy incision (Fig. 2B), with no observed leakage. The intestine loop was returned to the abdominal cavity and the hernia sac was highly ligated with a non-absorbable suture (Fig. 2C). Following the surgery, the patient recovered in the Neonatal Intensive Care Unit with no signs or symptoms of infection. The patient received antibiotics (ampicillin-sulbactam and gentamicin) and parenteral nutrition (aminosteril and PG 2 contain protein, glucose and electrolyte). After a successful recovery, the patient was discharged on the 7th postoperative day, with good tolerable feeding and normal vital signs: a heart rate of 128 beats per minute, respiration rate of 44 breaths per minute and oxygen saturation of 99% room air.

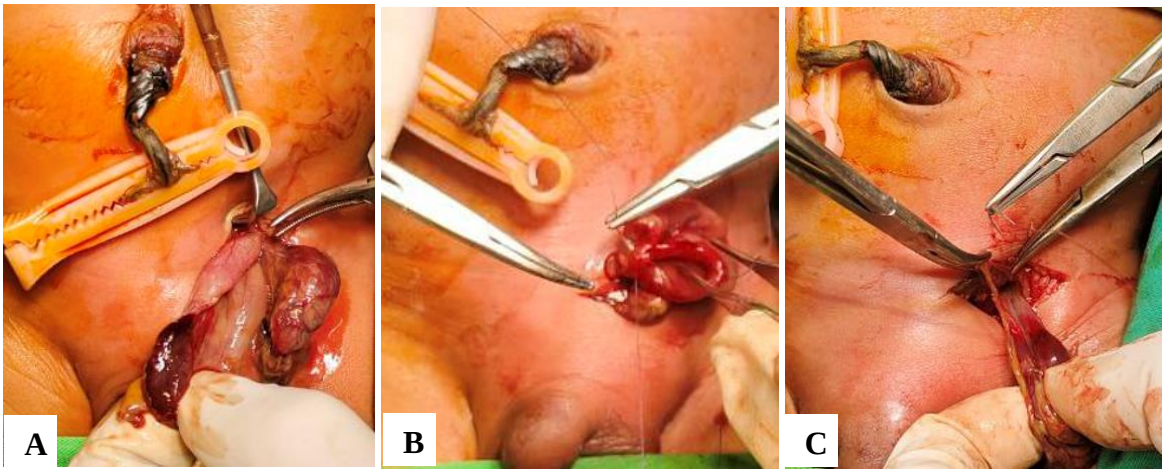

Figure 2. A) Strangulated of Jejunal Loop. B) Anastomosis End-To-End Through Inguinal Incision. C) High Ligated Hernia Sac

3. DISCUSSION

Inguinal hernias are the foremost common surgical case attended to a pediatric surgeons, typically occurring in the first year of life.[3,9] The rate of inguinal hernia is 1–5 % in full-term neonates.[6] Approximately 30 % of inguinal hernias are left-sided.[3] The internal ring and inguinal canal are narrow in neonates, easily trapping herniated intestinal loops.[4] The risk of strangulation in the neonate is higher, with 30% of strangulation occurring by two months of age.[1] Complications of inguinal hernias can be incarceration and strangulation, consequent significant morbidity. It is easily preventable by early diagnosis and treatment.[9] Our case involves a strangulated left inguinal hernia with a very rare presentation in a five-day-old full-term neonate, leading to complications of intestine perforation.

Depending on the visceral structures affected by the hernial sac, significant complications may occur. These complications may include life-threatening issues such as intestinal obstruction, necrosis, and perforation, as well as gonadal dysfunction, testicular and ovarian atrophy, and tubal stricture.[5] A strangulated hernia occurs when the blood supply to the intestine is compromised, leading to gangrene and perforation.[8] Complications such as intestinal damage are rare, occurring in only 0.1% of cases.[10] In our case, there was a perforation in the jejunal. Recent studies showed that jejunal perforation is a rare complication that primarily occurs in emergent nations and is often due to a delayed onset.[9]

The hernia typically appears as a bulge in the groin, but it may manifest as a swelling in the scrotum in boys, which often becomes visible when they straining or crying.[5,6,11,12] To determine if strangulation has occurred, indicating a possible intestinal obstruction, it is necessary to assess whether the abdomen is more distended than usual or if there are any accompanying symptoms like vomiting, irritability, or pain. Symptoms of edema, erythema, and tenderness may indicate incarceration.[5,8] In our case, the patient presents with abdominal distension accompanied by an erythema and tenderness bulge in the left inguinal region with episodes of bilious vomiting. These symptoms suggest strangulation of the hernia, with the highest risk occurring during the first months of life.[6,12]

The primary purpose of indirect inguinal hernia surgery in infants and children is to close the PPV.[10] If strangulation is suspected or confirmed, emergency surgical intervention is required.[9] Several studies have shown that waiting more than two weeks after diagnosis significantly increases the risk of incarceration,[11] so surgery ought to be performed immediately after confirming the diagnosis.[1,3,13] There is an agreement for acute repair within 12 hours for all age groups in the case of strangulated hernias.[7] However, septic complications and mortality associated with neonatal intestinal obstruction may lead to an increase if the strangulation is not relieved. Therefore, emergency surgical exploration with intestine resection and primary end-to-end anastomosis is needed to prevent this.[9]

To assess the viability of the intestine after reduction, it is advisable to cover it with moistened warm gauze and reassess it after a few minutes. If this seems unfeasible, resection with primary anastomosis can be performed. When resecting the intestine through the inguinal incision, the proximal and distal intestine to the necrotic area should be pulled out through the inguinal ring for inspection. They should then be further drawn out to allow for a tension-free anastomosis. It may be necessary to divide the internal ring for easier removal and subsequent reduction of the intestine with a new anastomosis back into the abdominal cavity.[14] In our case, there was a perforation in the jejunal. We performed a primary end-to-end anastomosis, and there was no leakage from the anastomosis. The intestine loop was then returned to the abdominal cavity.

In conclusion, intestinal necrosis is more likely to occur when the onset is prolonged and at a younger age. Inguinal hernias are at high risk of becoming incarcerated which leads to strangulation in neonates, so surgery is advisable as soon as possible. Performing surgical treatment early can help reduce the associated risk of morbidity and mortality.

Acknowledgment: Nil

Declaration of conflicting interests: The author(s) retain no conflicts of interest.

Source of Support: Nil

4. CONSENT TO PUBLICATION

The author(s) have obtained written informed consent from the legal guardian of the patient for the publication of clinical photographs/material (if any used), with the firm commitment to making every effort to conceal the patient's identity.

5. AUTHOR CONTRIBUTIONS

Author(s) declared to accomplish authorship criteria as conceived by ICMJE and approved the final script.

REFERENCES

[1] Raherison AR, Andriamanarivo LRC, Andriantsoa AAA, Hunald FA, Andriamanrivo ML. Management of Incarcerated Inguinal Hernia in Children at the University Hospital of Antananarivo - Joseph Ravoahangy Andrianavalona. *European Journal of Clinical Medicine.* 2022;4(3):72-74.

[2] Naiditch JA, Schindel DT. Inguinal Hernia in a Preterm Neonate Complicated by Strangulation and Subcutaneous Hernia Sac Rupture. *Pediatr Neonatol*. 2017;58(4):376-377.

[3] Kurtulus S. Strangulation in a premature infant with an inguinal hernia in the neonatal intensive care unit. *Journal of Medical Case Reports and Case Series*. 2022;3(7):1-3.

[4] Talabi A, Sowande O, Tanimola A, Adumah C, Adejuyigbe O. Incarcerated and strangulated inguinal hernias in children: A 10-year retrospective analysis. *Libyan International Medical University Journal*. 2020;05(01):3-7.

[5] Rashedul Alam M, Mohammad Atiquzzaman T, Abdus Sattar M, Hasanuzzaman M, Haque S. Incarcerated inguinal hernia in children: A retrospective study of clinical outcome. *MedPulse International Journal of Surgery*. 2022;22(3).

[6] Yeap E, Nataraja RM, Pacili M. Inguinal hernias in children. *AJGP*. 2020;49(1-2):38-43.

[7] Christoffer S, Olesen K, Andresen S, Öberg S, Lykke D, Rosenberg J. Timing of inguinal hernia repair in children Timing of inguinal hernia repair in children varies greatly among hernia surgeons varies greatly among hernia surgeons. *Original Article Dan Med J*. 2021;68(1):1-8.

[8] Ameen IT, Abdul-Ghafoor RH, Abdul-Ghafoor BH. Evaluation of risk factors and outcome of incarcerated inguinal hernia in pediatric age group. *Indian Journal of Forensic Medicine and Toxicology*. 2020;14(1):259-264.

[9] Singh AP, Ramesh T, Vinay M, Arun G. Strangulation - a rare complication of inguinal hernia in a neonate. *Bhutan Health Journal*. 2016;2(2):32-33.

[10] Hirabayashi T, Kobayashi T, Saitoh T, Kimura T, Hakamada K. Surgical treatment of inguinal hernia in neonates and infants: Early surgery or elective surgery? *International Journal of Abdominal Wall and Hernia Surgery*. 2020;3(3):94-99.

[11] Yusuf Ali A, Sarac A, Mohamed Abdi AS. A Retrospective Study of Pediatric Patients with Inguinal Hernia in a Tertiary Hospital in Somalia. *Open Access Surgery*. 2022; Volume 15:97-100.

[12] Bowling K, Hart N, Cox P, Srinivas G. Management of paediatric hernia. *BMJ (Online)*. 2017; 359:1-6.

[13] Botes SN, Edge J, Apffelstaedt JP, Sidler D. Assessment of the delayed repair of uncomplicated inguinal hernias in infants. *South African Journal of Surgery*. 2020;58(1):18-21.

[14] Abdulhai SA, Glenn IC, Ponsky TA. Incarcerated Pediatric Hernias. *Surgical Clinics of North America*. 2017;97(1):129-145.