

Surgical treatment of congenital umbilical hernia in a Siamese cat

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ABSTRACT: A hernia involves the protrusion of abdominal visceral organs through an opening into a sac composed of the peritoneum, tunica flava, and skin. An umbilical hernia refers explicitly to protrusion of the abdominal viscera at the umbilicus. This case study aims to enhance skills in diagnosing and treating congenital umbilical hernias in a Siamese cat patient. Based on historical and clinical findings, the Siamese cat was diagnosed with an umbilical hernia. Treatment involved an abdominal laparotomy to reposition the hernia contents back into the abdominal cavity. Post-surgery, the cat was treated with the antibiotic amoxicillin and the anti-inflammatory drug dexamethasone (Glucortin®). The surgical wound healed by the eighth day after surgery.

Keywords:

cat, congenital, laparotomy, siamese, umbilical hernia

■ INTRODUCTION

A hernia is an abnormal protrusion of an organ from its normal location through a hole into a sac lined by three layers: peritoneum, tunica flava, and skin. There are several types of hernias, including umbilical hernias. An umbilical hernia is an anatomical defect in the central area or umbilicus that causes a part of the intestine to protrude from the abdominal cavity (Septhayuda *et al.* 2021). Umbilical hernias can be diagnosed through physical examinations, such as palpation, radiography, and ultrasound (Kurt & Chan 2013). While an umbilical hernia is generally harmless, complications can arise if tissues such as the intestine become trapped, leading to obstruction, blood vessel damage, and tissue death (Sukma *et al.* 2019). Although rare, few publications have been published on abdominal hernias in cats in Indonesia, such as a mixed-breed cat (Apritya *et al.* 2021) and a domestic cat (Aulia *et al.* 2022) caused by physical traumatic accidents. This case study aimed to describe the diagnosis and treatment techniques for congenital abdominal hernias in a cat at the Undikma Mataram Teaching Veterinary Hospital, West Nusa Tenggara.

■ CASES

Signalement and Anamnesis: A 1-year-old female Siamese cat named Cindy was brought in by her owner for examination due to a protrusion on the abdomen that appeared a week ago. Initially small, the bulge increased in size over time. Upon palpation, the cat showed discomfort and a pain response. Cindy had normal defecation, urination, and a good appetite. She weighed 1.8 kg and had a body temperature of 38.4°C. **Current**

Status: Cindy's weight is 1.8 kg, and her body temperature is 38.4°C. **Physical Examination:** A lump was detected in the abdominal area, and the cat exhibited pain upon palpation (Figure 1). Despite this, Cindy maintained a good appetite, with normal drinking, defecation, and urination. **Prognosis:** Dubious.

Diagnosis: Umbilical hernia. **Treatment:** A laparotomy was performed with the cat positioned in dorsal recumbency. Preoperative anesthesia was administered using ketamine (0.1 ml/kgBW) and xylazine (0.15 ml/kgBW). The hair around the lump was shaved and cleaned with alcohol and povidone-iodine.

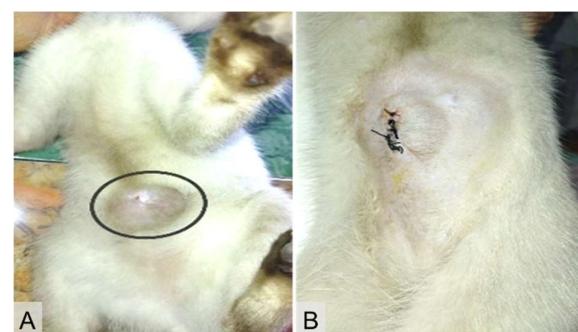


Figure 1. The cat's condition before (A) and after surgery (B)

A midline abdominal incision was made, and the cavity was cleaned with NaCl. An additional incision was made to remove the hernia ring or torn muscle, and the intestines were repositioned into the abdominal cavity.

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The hernia ring was sutured with absorbable chromic catgut 2/0 in a simple interrupted pattern, the fat layer with 3/0 catgut in a simple continuous pattern, and the skin with 3/0 catgut in a simple interrupted pattern. The suture area was cleaned with NaCl and povidone-iodine, and gentamicin sulfate ointment was applied. Postoperative care included administering amoxicillin (20 mg/kgBW) and dexamethasone (Glucortin®) (0.1 ml/kgBW).

■ RESULT AND DISCUSSION

Abdominal hernias generally occur as a result of trauma such as vehicle accidents or bite wounds, although they can also result from congenital lesions (Figure 1). When associated with blunt trauma, abdominal hernias arise because of rupture of the abdominal wall caused by increased intra-abdominal pressure during muscle contraction (de Faria *et al.* 2016). Abdominal hernias can be categorized into external and internal types. An external abdominal hernia involves an abnormality in the external abdominal wall, causing the abdominal contents to protrude. In contrast, an internal abdominal hernia occurs when the abdominal contents pass through a ring of tissue at the border of the stomach or chest, such as in diaphragmatic and hiatal hernias. External abdominal hernias can protrude through various locations in the abdominal wall, excluding the umbilicus, inguinal ring, femoral canal, and scrotum. These hernias can be further classified based on their specific locations, such as ventral, prepubic, subcostal, hypochondral, paracostal, or lateral (Fossum 2018).

Upon physical examination, a hernia lump typically feels soft and can be manually repositioned; however, it may reappear shortly after the cat becomes active. This indicates a reversible hernia, in which the organ can still be moved, is soft, and the animal does not experience pain upon palpation (Fossum 2018). Ketamine is classified as a dissociative anesthetic because it induces unconsciousness quickly while the eyes remain open, but unresponsive to external stimuli. Ketamine has strong analgesic properties, but provides poor muscle relaxation (Kul *et al.* 2000). On the other hand, xylazine suppresses the central nervous system, starting with sedation and, at higher doses, inducing hypnosis, ultimately leading to anesthesia. Xylazine is often combined with ketamine in animal anesthesia because of its adrenergic agonist effects on presynaptic and postsynaptic receptors in the central and peripheral nervous systems (Ramadani *et al.* 2013).

The combination of xylazine and ketamine enhances analgesic effects, as ketamine alone provides good analgesia, but poor sedation and muscle relaxation. Ketamine is a non-barbiturate anesthetic with short-acting

analgesic, anesthetic, and cataleptic properties. Surgery for umbilical hernia eliminates the hernia, improves the animal's appearance and comfort, and prevents complications, such as hernia enlargement or entrapment, which can cause pain. Antibiotics were administered postoperatively to prevent infection. Dexamethasone, a corticosteroid, acts as an anti-inflammatory agent (Papich 2015). The benefits of umbilical hernia surgery include eliminating the hernia, improving appearance, allowing the animal to engage in activities without discomfort, and reducing the risk of further complications (Septhayuda *et al.* 2021).

■ CONCLUSION

The objective of the operation was to reposition the herniated organ and close the hernia ring in a Siamese cat diagnosed with umbilical hernia. This case study highlights the effective surgical and postoperative treatments, demonstrating successful recovery and prevention of further complications.

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■ REFERENCES

- Aprity D, Rahman MN, Latif AC, Yuyun ME, Nahak IM, Mahpuz FA, Hanapi MI, Murtado M. 2021. Hernia traumatis dinding abdomen pada kucing ras mix. VITEK: Bidang Kedokteran Hewan. 11(2):58-63.
- Aulia MF, Lestari NA, Hartady T. 2022. Diagnosa dan penanganan hernia abdominalis pada kucing. ARSHI Veterinary Letters. 6(3):49-50.
- de Faria BG, Martins Filho EF, Conceição DG, Dórea Neto FD, Quesada AM, Carneiro RD, da Costa Neto JM. 2016. Pathophysiology and treatment of iatrogenic abdominal hernia in feline-a case report. Revista Brasileira de Medicina Veterinária. 38(Suppl. 1):26-32.
- Fossum, TW. 2018. Small Animal Surgery 5th Edition. Elsevier: St. Louis, Missouri.
- Kul M, Koe Y, Alkan F, Ogurcan Z. 2000. The effects of xylazine-ketamine and diazepam-ketamine on arterial blood pressure and blood gases in dog. Online Journal of Veterinary Research. 4:124-132
- Kurt B, Cihan M. 2013. Evaluation clinical and ultrasonographic finding in abdominal disorders in cattle. Veterinarski Arhiv. 83(1):11-21.
- Papich MG. 2015. Veterinary Drugs. 5th Edition. Elsevier. 291-689.
- Ramadani AHM, Gunanti, Siswandi R. 2013. Anesthetic effectiveness of zoletil-ketamine-xylazine combination in indonesian local pig (*Sus domestica*) [Thesis]. Bogor: Institut Pertanian Bogor.
- Septhayuda IE, Dada IKA, Pemayun IGAGP. 2021. Case report of umbilical hernia management in a female Persian cross cat. Indonesia Medicus Veterinus. 10(1):146-157.
- Sukma NKAM, Sudisma IGN, Putra IGAG. 2019. Case report: management of umbilical hernia in a one-year-old male Shih-tzu dog. Indonesia Medicus Veterinus. 8(5):695-705.