CASE REPORT

Intraluminal Intestinal Obstruction due to a Retained Surgical Sponge in a Spayed Bitch

Bharathidasan Murugan[1], Padmaja Srirama[1*], Arunprasad Aron[1], Jeyaraja Kirubakaran[2], Hemalatha Senthilnayagam[3], Mohamed Ali Mohamed Ghouse[1]

Ind J Vet Sci and Biotech (2026): 10.48165/ijvsbt.2026.22.06.38

[1]Department of Veterinary Surgery and Radiology, Madras Veterinary College, TANUVAS, Chennai-600007, Tamil Nadu, India

[2]Department of Veterinary Clinical Medicine, Madras Veterinary College, TANUVAS, Chennai-600007, Tamil Nadu, India

[3]Department of Veterinary Pathology, Madras Veterinary College, TANUVAS, Chennai-600007, Tamil Nadu, India

Corresponding Author: Dr. Padmaja S., MVSc Scholar, Department of Veterinary Surgery and Radiology, Madras Veterinary College, TANUVAS, Chennai-600007, Tamil Nadu, India. e-mail: padmajasriramamanikandan2001@gmail.com

How to cite this article: Bharathidasan, M., Padmaja, S., Arunprasad, A., Jeyaraj, K., Hemalatha, S., & Mohamed Ali, M. G. (2026). Intraluminal Intestinal Obstruction due to a Retained Surgical Sponge in a Spayed Bitch. Ind J Vet Sci and Biotech, 22(6), 198-201.

Source of support: No specific funding was received for this study.

Conflict of interest: None

Submitted 16/06/2026 **Accepted** 20/08/2026 **Published** 10/11/2026

Textiloma, gossipyboma or cottonoid refers to a sterile granulomatous lesion formed around a retained surgical sponge in any part of the body. Often unintentionally, surgical instruments, needles, non-absorbable suture materials, surgical sponges etc. are left behind during surgery. Surgical sponges account for the most common retained surgical foreign body. In human surgery, it is estimated that surgical swabs are retained in one in 3000 to 5000 coeliotomies (Rappaport and Haynes, 1990). They are rarely reported in veterinary medicine possibly due to misdiagnosis or the associated medicolegal implications (Yildirim *et al.,* 2006). Most common clinical signs associated with intra-abdominal retained sponges include palpable mass in the abdomen, pyrexia, anorexia, cachexia, emesis, diarrhoea and in addition specific signs such as haematuria and dysuria in cases involving the kidney or bladder. The pathogenesis follows two main ways; formation of a sterile granuloma due to encapsulation of the sponge in the body cavity usually developing into malignant neoplasia in due course of time or elicit exudative responses leading to abscess formation with a draining sinus or fistula (Putwain and Archer, 2009). The diagnosis of this condition is not always straight-forward and often requires use of advanced imaging techniques. Significant delay in diagnosis is associated with a higher risk of complications like small bowel fistulae, obstruction, and visceral perforation subsequently leading to mortality in many reported cases (Gawande *et al.,* 2003; Rayner *et al.,* 2010). Differential diagnosis for abdominal masses includes granulomatous enteritis, intraabdominal tumour associated with visceral organs, foreign body reaction, steatitis, stump pyometras and mycobacterial infections. This document reports an intraluminal intestinal obstruction due to a retained surgical sponge in a spayed bitch and its successful surgical management.

Case History and Observations

A 4-year-old female West Highland white terrier was referred to Madras Veterinary College, Chennai with a one-week history of depression, anorexia, persistent vomiting and abdominal pain. The owner reported that the dog had undergone routine ovariohysterectomy one year before. During physical examination, the dog had a tucked-up abdomen, a palpable, firm mass in the cranial abdomen and exhibited pain upon palpation. All vital parameters were within normal limits. Haematologic findings revealed mild lymphocytosis, while the biochemical values such as BUN, creatinine, alanine transaminase, alkaline phosphatase, total protein, albumin, total and direct bilirubin remained within the reference range. Plain radiography provided minimal information, but barium contrast radiography showed brief accumulation of the barium (6 mL/kg) outlining an oval structure, measuring 2.24 x 1.45 inches, continuous with the cranial intestines (Fig. 1, 2). The transit time of barium was within reference limits (Day *et al.,* 2012). The owner was unaware of any incident involving foreign body ingestion. Ultrasonographic examination revealed a hypoechoic mass with a hyperechoic structure with strong acoustic shadowing at its centre in the cranial intestinal lumen, as well as enlargement of adjacent lymph nodes, which suggested the presence of a foreign body (Fig. 3).

© The Author(s). 2026 Open Access This work is licensed under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License.

Given the animal's progressively deteriorating condition, a decision was made to perform an exploratory laparotomy.

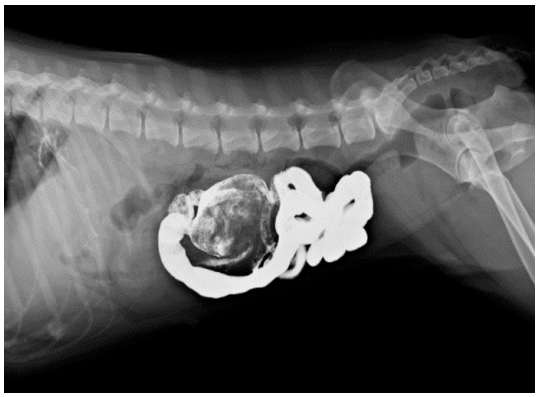


Fig. 1: Barium contrast radiography taken after 6 h outlining the oval mass in the cranial intestinal loops

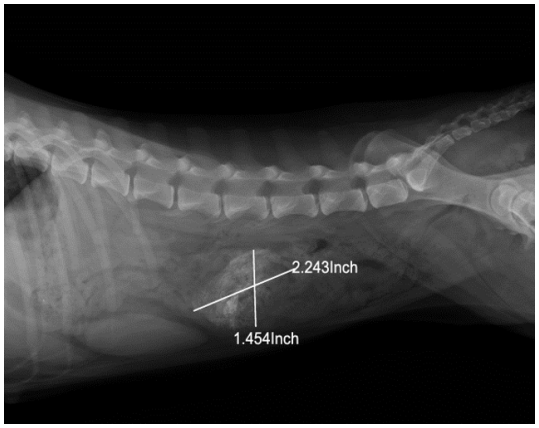


Fig. 2: Barium contrast radiography taken after 48 h showing mild uptake in the cranial intestines.

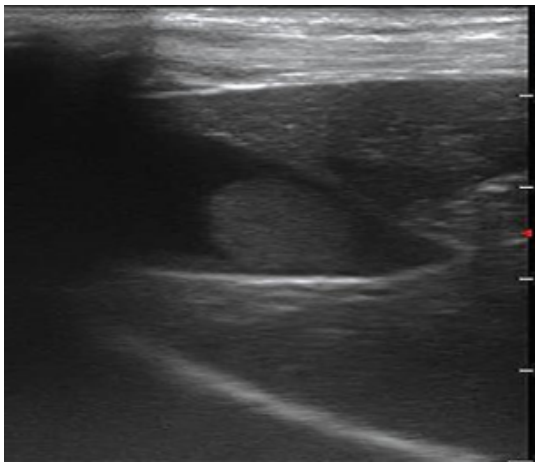


Fig. 3: Abdominal ultrasonograph showing a homogenous hypoechoic mass with a hyperechoic centre in the cranial intestines

Treatment and Discussion

The dog was pre-medicated with intravenous inj. Butorphanol (0.2 mg/kg b.wt.) and inj. Diazepam (0.25 mg/kg b.wt.), and induced with intravenous inj. Propofol (3 mg/kg b.wt.). Maintenance anaesthesia was provided with isoflurane (2-3%) after endotracheal intubation. The animal was positioned in dorsal recumbency and a cranial celiotomy incision was made, and upon exploration, the mass was found in the terminal portion of the jejunum, with adhesions to the omentum and adjacent healthy intestinal loops. The mass resembled a tumour on palpation, necessitating resection and anastomosis of the jejunal loops after careful dissection of the surrounding adhesions (Fig. 4). The affected portion was resected, and anastomosis was performed using a simple interrupted pattern with 2-0 polydiaxanone suture (Fig. 5). A leak test and omentalization of the suture site ensured the procedure's success. The linea alba, subcutaneous tissue and skin were closed according to standard procedure. Post-operatively, the dog was maintained on fluids, antibiotics, opioid analgesics, and proton pump inhibitors for 5 days.

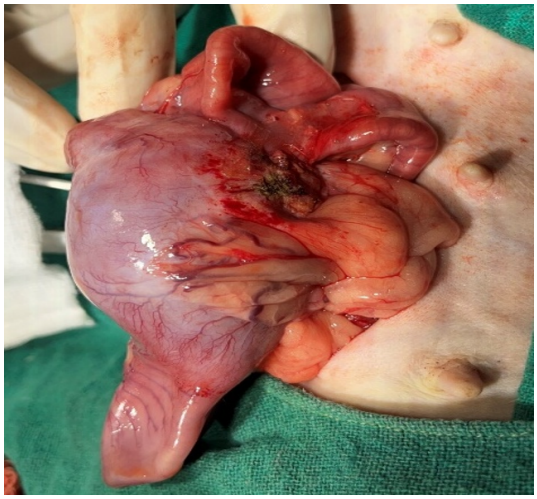


Fig. 4: Firm circumscribed mass in the terminal jejunum with adhesions to the omentum and adjacent healthy intestinal loops

Gross examination of the resected mass revealed a tumour-like appearance. Upon cross-section, it presented as a thick walled lesion enclosing an intramural foreign body with a texture similar to that of a surgical gauze sponge (Fig. 6). Histopathological examination confirmed the presence of numerous elongated structures resembling synthetic fibers surrounded by epithelioid macrophages in the terminal jejunum, a characteristic finding of a foreign body granuloma (Fig. 7, 8). Therefore, a definitive diagnosis of an intestinal foreign body granuloma, resulting from a retained intra-abdominal surgical sponge, was established. The owner was advised to completely restrict oral feeding for

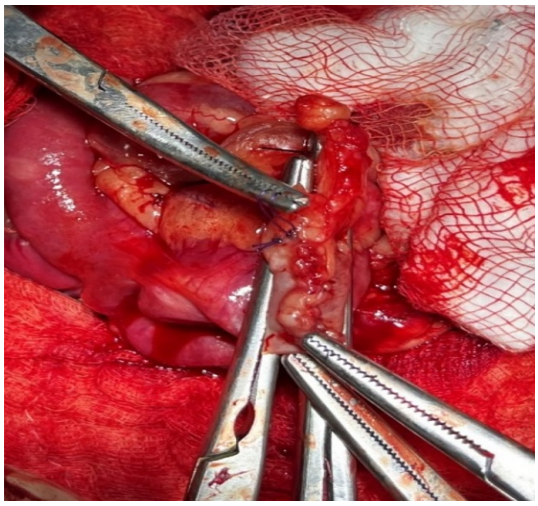


Fig. 5: Resection of the mass and anastomosis of the healthy jejunal loops

the first three days. A semi-solid diet was prescribed for the subsequent three days, followed by a gradual introduction of solid food. On the 10th postoperative day, the sutures were removed, and the animal showed an uneventful recovery. Plain abdominal radiographs taken two weeks later revealed no significant findings.



Fig. 6: Gross examination of foreign body visually and texturally resembling a retained surgical sponge

Retained surgical sponges are reported to be uncommon and are an unnecessary complication arising due to improper surgery. Confirmation can only be achieved through electron microscopy, which would reveal collagen fibrils with cross-banding or fibre analysis confirming its composition (Rayner *et al.,* 2010). However, based on the history of ovariohysterectomy and histopathological examination, a hypothesis was formulated: the retained surgical sponge adhered to the intestinal serosa, forming a

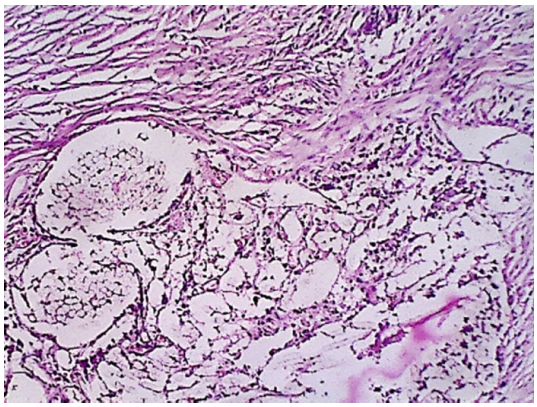


Fig. 7: Histopathologic section of the foreign body granuloma (under 10x magnification) with multifocal areas of granulomatous inflammation depicted by clusters of macrophages in epitheliod arrangements with intralesional fibres surrounded by fibromatous encapsulation.

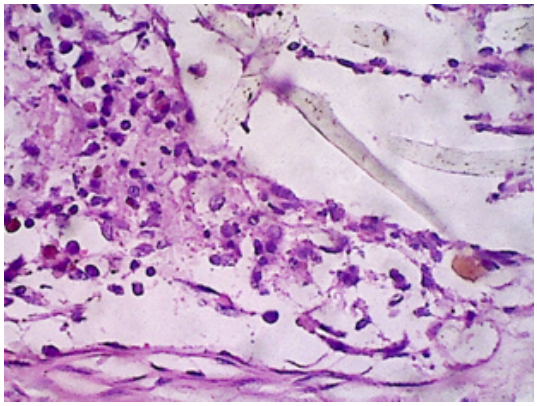


Fig. 8: Histopathologic section (under 40x magnification) showing elongated synthetic fibers (red arrow) located extracellularly surrounded by clusters of epithelioid macrophages enclosed with layers of fibrocytes.

granuloma that, over time, caused erosion of the intestinal wall. This led to partial intraluminal obstruction, with the surgical sponge remaining intramurally within the granuloma. This explanation accounts for the chronic nature of the granuloma and the acute onset of the clinical signs.

Radiography in such cases usually reveals a localized gas lucency with a speckled appearance due to the trapped gas bubbles between the sponge fibres (Merlo and Lamb, 2000). In our case this pattern was further enhanced by brief uptake of the positive contrast agent showing a well circumscribed mass (Day *et al.,* 2012). In ultrasonography, the foreign body typically appears as a homogeneous hypoechoic mass with a hyperechoic center, along with additional foci of high echoes, casting prominent acoustic shadows, suggestive of gas bubble formation or calcification (Merlo and Lamb, 2000). Here additionally enlargement of adjacent lymph nodes suggested an inflammatory response.

Histopathological examination of similar cases show a picture of multifocal areas of granulomatous inflammation with extracellular fibres of foreign material, which are refractile with a hollow core surrounded by aggregates of epithelioid macrophages which is consistent with this case (Putwain and Archer, 2009; Rayner *et al.,* 2010). One closely related case involved the transmural migration of a swab into the jejunum (Day *et al.,* 2012), which bears a strong resemblance to our case in terms of both diagnosis, surgical intervention and the preceding surgery which was an ovariohysterectomy performed a year ago. Although both cases involve prior surgical intervention, the timeline of symptoms differs: the dog in our case presented with acute emetic signs, whereas the dog in the other case developed chronic symptoms, including diarrhoea and lethargy, beginning two months post-surgery (Day *et al.,* 2012). In another report, a surgical sponge had developed into an extra-skeletal osteosarcoma, leading to intestinal obstruction and necessitating an end-to-end anastomosis of the jejunum (Pardo *et al.,* 1990).

The uncommon incidence of this suggests that retained sponges do not elicit apparent clinical signs in animals or that they are undetected due to shorter lifespan, inadequate necropsies and due to under reporting fearing medicolegal implications (Pardo *et al.,* 1990). Dogs are also known to have a very active fibrinolytic system which may hasten the remodelling process around the retained sponges (Yildirim *et al.,* 2006). Ovariohysterectomy is the most commonly reported frequently performed surgical procedure in small animal practice. Experimental studies have shown that the materials used to manufacture surgical sponges are non-degradable in the body typically associated with extensive abdominal adhesions, which may require complex surgical procedures such as splenectomy, enterectomy, or nephrectomy, depending on the organs involved (Sari *et al.,* 2006). These sponges and their surrounding structures can potentially turn malignant, with cases of osteosarcoma being reported (Rayner *et al.,* 2010). The macrophages contribute by releasing reactive oxygen and nitrogen species and through cytokine and growth factor secretion which act as tumour promoters (Pardo *et al.,* 1990; Rayner *et al.,* 2010). In this case, however, the surgical gauze was localized within a sterile granuloma which in due course led to intestinal perforation, resulting in partial obstruction.

In brief, retained surgical sponges should always be considered a significant diagnostic possibility in patients with a history of surgery. Additional preventive measures include using gauze sponges with radiopaque markers, adhering to meticulous sponge counts, opting for larger laparotomy sponges, and double-checking before abdominal closure. Thus, the adoption of better standardization and the implementation of strict protocols in veterinary clinical practice are vital to significantly reducing the occurrence of such iatrogenic incidents, underscoring the importance of prevention over treatment.

Acknowledgement

The authors thank the Directorate of Clinics, TANUVAS and the Dean, Madras Veterinary College, Chennai for providing necessary facilities to conduct this study.

References

Day, J. L., Pechman, R. D., & Bahr, R. J. (2012). Migration of a retained surgical swab into the jejunum in a dog. *Journal of Small Animal Practice, 53*(12), 705–708.

Gawande, A. A., Studdert, D. M., Orav, E. J., Brennan, T. A., & Zinner, M. J. (2003). Risk factors for retained instruments and sponges after surgery. *New England Journal of Medicine, 348*(3), 229–235.

Merlo, M., & Lamb, C. R. (2000). Radiographic and ultrasonographic features of retained surgical sponge in eight dogs. *Veterinary Radiology and Ultrasound, 41*(3), 279–283.

Pardo, A. D., Adams, W. H., McCracken, M. D., & Legendre, A. M. (1990). Primary jejunal osteosarcoma associated with a surgical sponge in a dog. *Journal of the American Veterinary Medical Association, 196*(6), 935–938.

Putwain, S., & Archer, J. (2009). What is your diagnosis? Intra-abdominal mass aspirate from a spayed dog with abdominal pain. *Veterinary Clinical Pathology, 38*(2), 253–256.

Rappaport, W., & Haynes, K. (1990). The retained surgical sponge following intra-abdominal surgery: A continuing problem. *Archives of Surgery, 125*(3), 405–407.

Rayner, E. L., Scudamore, C. L., Francis, I., & Schöniger, S. (2010). Abdominal fibrosarcoma associated with a retained surgical swab in a dog. *Journal of Comparative Pathology, 143*(1), 81–85.

Sari, A., Basterzi, Y., Karabacak, T., Tasdelen, B., & Demirkan, F. (2006). The potential of microscopic sterile sponge particles to induce foreign body reaction. *International Wound Journal, 3*(4), 363–368.

Yildirim, S., Tarim, A., Nursal, T. Z., Yildirim, T., Caliskan, K., Torer, N., & Haberal, M. (2006). Retained surgical sponge (gossypiboma) after intraabdominal or retroperitoneal surgery: 14 cases treated at a single center. *Langenbeck's Archives of Surgery, 391*, 390–395.