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# Case Report: Surgical Sterilization of a Tom Cat Through Open Covered Method

**Abdullah Al Sad, Md. Mahfuzul Haque and Nasrin Sultana Lucky***

Department of Surgery and Theriogenology, Sylhet Agricultural University, Sylhet, Bangladesh

***Corresponding author:** Nasrin Sultana Lucky; E-mail: nslucky.dst@sau.ac.bd

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**ABSTRACT**

Male cat (tomcat) neutering is a common surgical procedure performed to control overpopulation and reduce undesirable behaviors such as aggression, roaming, vocalization, and urine spraying. This case study documents the surgical sterilization of a 2.3-kg tomcat presented to the PMAC Veterinary Teaching Hospital, Sylhet, Bangladesh. Although both surgical and non-surgical sterilization techniques are available, permanent surgical removal of the testicles remains the most widely practiced and reliable method. In this case, bilateral orchiectomy was performed under general anesthesia following proper aseptic preparation and shaving of the operative site. General anesthesia was achieved using a combination of xylazine hydrochloride (1.1 mg/kg), atropine sulfate (0.04 mg/kg), and ketamine hydrochloride (15 mg/kg). Both testicles were removed, and the spermatic cords were ligated using absorbable sutures. Post-operative management included a five-day course of antibiotics and anti-inflammatory drugs. No post-surgical complications were observed, and the surgical wound healed uneventfully without the use of skin sutures. This case demonstrates that routine surgical neutering of tomcats, when performed using proper aseptic techniques and appropriate anesthetic protocols, is a safe, feasible, and effective procedure. Furthermore, it highlights the importance of surgical sterilization in population control and behavioral management while emphasizing the advantages of surgical neutering as a permanent sterilization method.

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## Introduction

People love to adore their pet for companionship (Sonntag and Overall, 2014), some of religious view, unconditional love (Ullah, 2024) as well as caregiving behaviors of cat also influences cat rearing (Dutton and Rand, 2024). So that nowadays rearing of pet animals like cat rearing is increasing day by day in Bangladesh (Kamal, 2022). Owner of cat like to rear such kind of cats who have no constrains on their movement, behavior and breeding (Sonntag and Overall, 2014). The cat owners wouldn't like to neuter their male cat (tom cat) unless any disease or contraceptive means (Momin et al., 2019). Additionally, owner prefer to neuter their cats to reduce euthanasia (Looney et al., 2008) as well as to control of breeding and reduce secondary sexual behaviors like roaming, aggression, calling (McKenzie, 2010; Murray et al., 2015) and rolling on the ground (Goericke-Pesch, 2010).

Tomcat sterilization, known as castration or neuter is a common surgical procedure in veterinary practices (Lisa 2015). Actually, a neutered tom cat has had removal of his testicles not only ceased reproduction but also reduce objectionable behaviors like spraying urine, fighting, roaming, aggressiveness which is common in feline species (Looney et al., 2008). Pre pubertal castration or juvenile neutering in tom cat before five months of age is being promoted for control overpopulation (Porters et al., 2014). Literature suggest that it is safe to neuter any time after 6-8 weeks of age in different breeds of cat (Lisa, 2015). Both surgical and non-surgical techniques have used for make non-sterile a cat (Bloomberg, 1996). Several chemical sterilant, cytotoxins and vaccines generally used for non-surgical sterilization but it has drawbacks (Johnston and Rhodes, 2015). Numerous surgical techniques were illustrated for castration of tom cat. Open covered or open uncovered methods are performed for neuter of a tom cat (Porters et al., 2014). Methods comprises longitudinal incision over both testicles, carry out testicles either cover with tunica vaginalis (open covered) or without tunica vaginalis (open uncovered), ligate vascular and avascular part or spermatic cord by absorbable suture materials and the skin incision left unsutured (Howe, 2006). Neuter of tom cat is performed under general anesthesia (GA) (Beths, Thierry, et al., 2014). Different anesthetic agents and protocol maintained for GA like injectable or inhalant anesthetics (Eger, 2004).

## Materials and methods

### Details of the patient

A 2.3kg, tom cat presented to PMAC Veterinary Teaching Hospital, Sylhet, Bangladesh. The owner's desired to neuter his cat for reduce aggressive behavior and spray bad odor urine.

### Clinical Examination

After a certain period of time, the cat's body temperature (102.5°F), heart rate (125/min), respiratory rate (25/min) were recorded upon arrival and externally assess by physically.

### Anesthetic protocol

Xylazine (1.1mg/kg) and atropine sulphate (0.04mg/kg) used as pre-anesthetics following clinical examinations. Ketamine hydrochloride (15mg/kg) administered intramuscularly for general anesthesia. The veterinarian advised to owner refrain from feeding the cat at least 4 hours to prevent vomiting which may cause for aspiration pneumonia.

### Surgical Procedure

Following by Bushby 2012, the tom cat has been kept in dorsal recumbence with rear legs pulled cranially. According to Griffin et al., 2016, scrotal hair has been clipped and shaved aseptically as well as covered the area around scrotum by draper. The incision was made of the tip of scrotum which incised the skin,

subcutaneous tissue, subcutaneous facia and tunica vaginalis and carry out testicles by gentle pressure. Fat and connective tissue are stripped away from the spermatic cord by using gauze. The vascular and avascular part of spermatic cord were exposed and an artery forceps applied near about inguinal canal. The spermatic cord was ligated by catgut (size: 2/0) ensuring trans fixation of vascular part of spermatic cord by figure-of-eight knot. Then the spermatic cord transected distal to the artery forceps, leaving a tag of 4-5 mm to ensure that the knot does not come untied. The knot is tightened carefully before removing of artery forceps. The artery forceps were removed after ensuring no bleeding of cutting site. Another testicle also exteriorized and ligated spermatic cord and transected is a unique manner as the first which was illustrated by Bushby, 2012.
To ensure that the ligated spermatic cords retract into the scrotum, the skin of the scrotum should be slightly raised after both testicles have been removed. By second intention, the scrotal incision or incisions are let to heal.

**Post-operative Care and treatment**

The tom cat received tolfenamic acid (Arain) 3.0 mg/kg, IM for anti-inflammatory analgesics and ceftriaxone sodium (Acicef-3 Vet) 15.0 mg/kg, IM as a prophylactic antibiotic for five successive days. Additionally, antiseptic ointment also suggested for topical use on the wound. The owner was also provided with the same medications and care instructions and was briefed on the importance of regular post-operative care, potential complications and healing period.

## Result

After surgery the cat was fully recovered from anesthesia without any complications. The procedure was fully feasible and rapid. There was minute bleeding due to incision of scrotal skin. However, there is no complication like swelling, bleeding, edema and exudates during post-operative management.

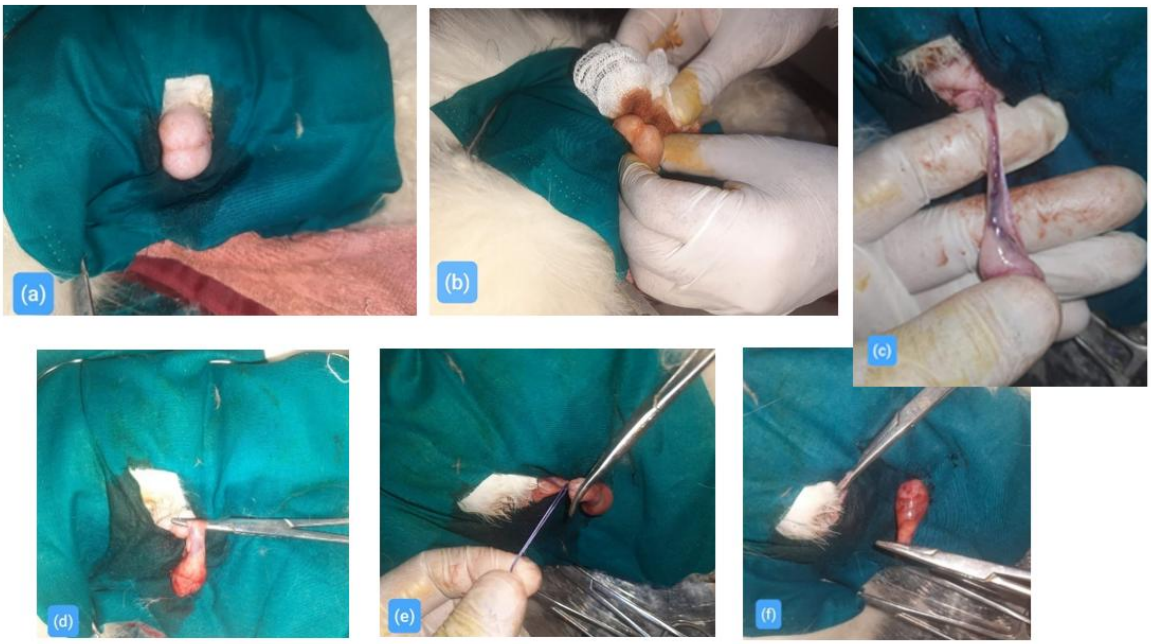


**Figure 1.** Surgical steps for neuter in a tom cat, (a) Draping around surgical site (b) wiping of surgical site with tincture iodine, (c) Pull out testicle after incising skin, (d) Crashing spermatic cord by artery forceps (e) Ligating spermatic cord (f) Incising Spermatic Cord

## Discussion

Surgical sterilization of tom cat has been regular surgical programmed thought it has impact on animal welfare and ethics (Crawford, 2025). Wongsaengchan, C, & and McKeegan, D. E., 2019 noticed that the pet owner of UK would like to neutered their cat to reduce reproduction and reproductive diseases. Iris people also neutered their cats and dogs to prevent overpopulation (Downes et al., 2015). Both surgical and non-surgical technique has been established for sterilization of cats. Chemically or pharmacologic sterilization of cat is more safe than surgical technique (Kutzler and Wood, 2006)) but it has several drawbacks like temporary method and exist numerous side effects (Murray et al., 2015). Deslorelin (Furthner et al., 2020) which prevent to produce Gonadotrophin Releasing Hormone (GnRH) (Rhodes, 2017) ultimately leads to temporary infertility. Progestins pills, DSRI, melatonin and proligestone injection (Schaper et al., 2025 and Furthner et al., 2020) administered for the purpose of contraceptive means. But several authors illustrated benefits of surgical sterilization in their literature (Brahmbhatt et al., 2020).

General anesthesia would be practiced widely for performing surgical intervention on feline (Grubb et al., 2020). Administration of several drugs are used in different routes for GA in cats. Most common routs for GA are intramuscular, intravenous and inhalation. (Steagall et al., 2017). Although only ketamine used as anesthetics by several authors, pre-anesthetics and anesthetics combined use is safer (RAJENDRA, 2018). Atropine sulphate (0.05mg/kg) use as anticholinergic and xylazine hydrochloride (1.1mg/kg) as narcotics which administer combined at intramuscular rout. Ketamine (15mg/kg) use as dissociative anesthesia after few minutes of premedication which leads a balance anesthesia for surgical sterilization of a tom cat (Sharmal et al., 2007). Veterinarians commonly use open covered and uncovered method for neutering in cats. Testicles pulled out with tunica vaginalis is known as open covered otherwise open uncovered. (Murray et al., 2015, Valdez, V. 2021).

## Conclusion

The use of a well-established anesthetic protocol (xylazine, atropine, and ketamine) ensured a smooth induction and recovery, while the post-operative care prevented complications and promoted appropriate healing. Despite the availability of non-surgical sterilization methods, surgical neutering remains a reliable, long-lasting, and low-risk solution when performed correctly. Promoting responsible pet care by increasing knowledge and acceptance of these veterinary interventions is crucial as pet ownership in Bangladesh continues to rise.

## Competing interest

The authors declare that they have no competing interests relevant to this manuscript.

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