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Sterilization in cat performed through a midline abdominal incision: Case study

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Abstract
Spaying in female cats, especially non-reproducing ones, is safe and effective. The midline incision was used to spay a 4-year-old local breed female cat. The abdominal cavity was incised to access ovarian uterine horn and suspensory ligament. The cat recovered well and the surgery location healed within 14 days. This procedure improves abdominal cavity access for anatomical variations, pregnancy, and pyometra. Cats can recover fast and reduce reproductive health risks with adequate surgery and subsequent care.

Keywords: Midline incision, uterine, ovary, peritoneum, abdominal incision

Introduction
Spaying is the ideal method for managing the overall population of dogs and cats. Sterilization is advised for all cats that are not reproducing. To avoid any unintended pregnancies, every pet that has access to the outdoors should be spayed or neutered. Spaying is the process of sterilizing a female mammal by excising its uterus and ovaries. Only their ovaries may be removed in certain cases. This method is irreversible [1, 2]. A small cut on the left side is typically used for this, though it can also be made underneath along her midline [3]. The most frequent elective surgery is spaying (4).A case of spaying using the midline incision approach is described in this report.

Case Presentation: A 4-year-old local breed female cat weighing 3.95 kg was presented for spaying at the veterinary clinical complex ANDUAT, kumarganj Ayodhya. The owner wanted the operation for birth control reasons. Prior to surgery, a full physical, hematological and biochemical examination was undertaken to examine the cat's health status, including temperature and hydration levels.

Hematological and Biochemical Analysis

Table 1: Hematological Parameters

Test Description	Observed Value	Unit	Biological Reference
Complete blood count (CBC)			
Hemoglobin	12.0	g/dL	9.8-15.4
Total Leukocyte Count	14,200	/cumm	5500-19500
Differential Leukocyte Count (DLC)			
Neutrophils	54	%	45–64
Lymphocytes	38	%	27-36
Eosinophils	08	%	0-4
PCV	36.0	%	30-45
TRBC	5.00	millions/cumm	5-10
MCV	53.8	fL	39-55
MCH	21.1	Pg	13-17
MCHC	34.0	gm/dL	30-36

Table 2: Biochemical Parameters

Test Description	Observed Value	Unit	Biological Reference
Kidney Function Test			
BUN	27.0	mg/dL	19-34
Serum Creatinine	1.2	mg/dL	0.9-2.2
Electrolytes			
S. Sodium	136.0	mmol/L	146-156
S. Potassium	4.6	mmol/L	3.7-6.1
S. Calcium	8.5	mmol/L	2.2-2.9
Liver Function Test			
S. Bilirubin Total	0.58	mg/dL	0-1.7
SGOT	68.2	IU/L	7-38
SGPT	91.3	IU/L	25-97
Alkaline phosphate	47.2	u/L	0-45
S. Total Protein	5.7	gm/dL	6-7.9
S. Albumin	3.5	gm/dL	2.8-3.9
S. Globulin	2.2	gm/dL	2.6-5.1

Anesthesia and control: The surgical site was appropriately shaved, trimmed, and aseptically prepared for the procedure. In order to calm the cat, xylazine (2 mg/kg body weight) and ketamine hydrochloride (7 mg/kg body weight) were administered intramuscularly. Normal saline administered intravenously was used to assure fluid treatment. Diazepam and ketamine hydrochloride (2:1 ratio) were injected intravenously to maintain anesthesia.

Operation procedure: Behind the umbilicus, a 2 cm midline incision was created. The abdominal cavity was opened by cutting through the skin, subcutaneous tissue, muscle, and peritoneum. The surgeon grasped and pulled the uterine horn through the incision by inserting his index finger toward the left flank against the abdominal wall after the abdominal cavity had been opened. Following the removal of the ovary and uterine horn, the ovary's suspensory ligament was manually pulled apart using a finger. Within the wide ligament, ovarian blood vessels were visible.

Fig 1: Pulled out uterus from incision site

Fig 2: Locate and identify ovary

Fig 3: After ligation removed both ovary

Fig 4: Removed uterus with ovary

Fig 5: Skin sutured with Trulon®

Fig 6: Wound healing at14 day after cutting the suture

The ovarian pedicle was tied off by transfixation ligation using absorbable suture material TRUEGLYDE®. The ovary and ligature were not attached to one other. The same procedure was used to remove the other ovary. After being

removed from the abdominal cavity, the uterine body was tied off by Transfixation ligation with TRUEGLYDE® and taken out. To stop bleeding, the uterine stump was carefully examined. TRUEGLYDE® was used to stitch the muscle and peritoneum in a simple continuous suture pattern. Using TRUEGLYDE®, subcuticular sutures were performed. Horizontal mattress sutures using non-absorbable suture material TRULON® were used to stitch the skin. On the site of the incision, antiseptic cream was applied.

Post-operative care

Antiseptic cream (Oint T-bact®) was applied daily on the incision site. Antibiotic ceftriaxone (20 mg/Kg body weight) and antihistaminic Pheniramine Maleate (0.5 mg/Kg body weight) was administered intramuscularly for 5 days. Analgesic Meloxicam (0.2 mg/Kg body weight) was administered subcutaneously for 3 days. Syp Immunosky 250 ml (5 ml PO BID for 15 days). Syp Multistar Pet (5ml PO BID for 15 days). Syp Rantac (AC 2.5ml PO BID for 5 days). The animal was suggested to keep under observation for 10-15 days.

Outcome

The cat recovered without any major issues following surgery. Within 14 days, the surgical site healed, which is in accordance with research showing that midline techniques, when done appropriately, can be more effective than flank approaches but may result in longer healing durations [5, 6].

Discussion

This technique offers superior abdominal cavity access, improving the ability to see the reproductive organs. It is especially helpful when there are anatomical differences or issues like pregnancy or pyometra [7, 8]. In this instance, the midline incision offered sufficient exposure without causing any serious issues, even though the surgery time was somewhat longer than with flank approaches (35 minutes versus an average of 25–30 minutes) [9, 10]. Additionally, although some research indicates that midline incisions may raise the risk of wound complications, our patient did not encounter any of these problems, which is consistent with findings that highlight the significance of surgical skill over incision selection [11].

Conclusion

Spaying via midline incision is a safe and effective approach for sterilizing female cats. This case indicates that with correct surgical technique and postoperative care, cats can recover fast from this surgery while benefiting from lower risks of reproductive health issues in the future

Conflict of Interest

Not available

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