



Population Management and Health. Detailed Procedures of Catching Techniques, Surgical Procedures, Pre-Medication and Anesthesia Protocols

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Animal birth control surgeries, specifically spaying and neutering, are essential procedures in the management of the dog population and the promotion of animal health. These surgeries not only help control the number of stray and unwanted dogs but also offer significant health and behavioral benefits to individual animals.

Understanding Spaying and Neutering

Spaying is the surgical removal of a female dog's ovaries and usually the uterus. This procedure, also known as ovariohysterectomy, prevents the female from coming into heat and eliminates the possibility of pregnancy.

Neutering, or castration, involves the surgical removal of a male dog's testicles. This procedure prevents the male from siring offspring and often reduces undesirable behaviors associated with mating instincts.

Health benefits

Spaying and neutering offer numerous health benefits. For females, spaying reduces the risk of mammary tumors, uterine infections, and ovarian cancers. For males, neutering decreases the likelihood of testicular cancer and can help prevent prostate problems. Both procedures can lead to a longer and healthier life for dogs.

Behavioral benefits

Behavioral improvements are another significant advantage. Neutered males are less likely to exhibit aggressive behaviors, roam in search of mates, or engage in marking territory with urine. Spayed females avoid the distress and behavioral changes associated with heat cycles, which can include nervousness, frequent urination, and a tendency to attract male dogs.

Population control and community impact

One of the primary reasons for animal birth control surgeries is population management. Stray and unwanted dogs can become a significant problem in many communities, leading to issues such as increased stray populations, spread of diseases, and dog attacks. By controlling the number of dogs, these surgeries help reduce the burden on animal shelters and decrease the number of animals euthanized due to overpopulation.

Additionally, managed populations contribute to a healthier ecosystem. Stray dogs often scavenge for food, which can lead to conflicts with wildlife and other animals. Reducing the number of stray dogs helps maintain ecological balance and supports the well-being of other species.

Catching techniques

Catching stray or feral dogs humanely and safely is the first step in the birth control process. Various methods are employed

Humane traps

- **Description:** Humane traps are cages designed to capture dogs without causing injury.
- **Setup:** Traps are baited with food and placed in areas frequented by stray dogs.
- **Operation:** Once the dog enters the trap to reach the bait, the door closes, securing the dog inside.

Netting

- **Description:** Handheld or pole nets are used by trained personnel to capture dogs.

- **Usage:** Nets are used in scenarios where dogs are approachable but need quick capture to prevent escape.

Chemical Immobilization

- **Description:** This method involves using tranquilizers to sedate dogs from a distance.
- **Application:** Administered via dart guns, this technique is typically reserved for aggressive or highly elusive dogs.

Manual capture with restraints

- **Description:** Using leashes or catch poles, trained individuals capture dogs manually.
- **Skill Required:** This method requires skill to ensure the safety of both the dog and the handler.

Spaying (ovariohysterectomy) procedure

Spaying is the surgical removal of a female dog's ovaries and uterus. The steps are as follows

Pre-surgical preparation

- **Physical Examination:** Ensure the dog is healthy enough for surgery.
- **Anesthesia:** Administer general anesthesia to prevent pain and movement during the procedure.
- **Clipping and Cleaning:** Shave and sterilize the surgical site, typically the lower abdomen.

Surgical procedure

- **Incision:** Make an incision in the midline of the abdomen.
- **Locate Ovaries and Uterus:** Use surgical instruments to locate and expose the ovaries and uterus.
- **Ligate Blood Vessels:** Carefully tie off the blood vessels supplying the ovaries and uterus to prevent bleeding.
- **Remove Ovaries and Uterus:** Excise the ovaries and uterus after ensuring all blood vessels are securely ligated.
- **Close Incision:** Close the abdominal wall with sutures or surgical staples in multiple layers to ensure proper healing.

Detailed procedures and catching technique

Post-Surgical Care

- **Recovery Monitoring:** Monitor the dog as it wakes from anesthesia.
- **Pain Management:** Administer pain relief medications as prescribed.

- **Wound Care:** Keep the surgical site clean and dry and prevent the dog from licking or biting the area using an Elizabethan collar if necessary.
- **Follow-Up:** Schedule a follow-up (currently no need of suture removal because of intra-dermal suture technique)

Neutering (Castration) Procedure

Neutering is the surgical removal of a male dog's testicles. The steps are as follows:

Pre-Surgical Preparation

- **Physical Examination:** Assess the dog's health status.
- **Anesthesia:** Administer general anesthesia.
- **Clipping and Cleaning:** Shave and sterilize the scrotal area.

Surgical Procedure

- **Incision:** Make an incision in the skin of the scrotum.
- **Expose Testicles:** Push the testicles through the incision.
- **Ligate Blood Vessels and Spermatic Cord:** Tie off the blood vessels and spermatic cord to prevent bleeding.
- **Remove Testicles:** Excise the testicles after ensuring all vessels are securely tied off.
- **Close Incision:** The incision may be closed with sutures or left to heal naturally, depending on the surgical approach.

Post-Surgical Care

- **Recovery Monitoring:** Observe the dog as it recovers from anesthesia.
- **Pain Management:** Provide pain relief as needed.
- **Wound Care:** Keep the area clean and monitor for signs of infection.
- **Follow-Up:** Schedule a follow-up visit to ensure proper healing.

Medicines and anesthesia in animal birth control surgeries: dose

Rates and Protocols

In animal birth control surgeries for dogs, appropriate use of medicines and anesthesia is crucial for ensuring the safety and comfort of the animals. This includes pre-surgical medications, anesthesia induction and maintenance, as well as post-surgical pain management.

Pre-surgical medications

Sedatives and Tranquilizers

Acepromazine:

- **Dose:** 0.02-0.05 mg/kg IM or IV
- **Purpose:** Provides sedation and reduces anxiety.

Medetomidine (Domitor)

- **Dose:** 10-20 µg/kg IM
- **Purpose:** Provides sedation and analgesia.

Analgesics

Butorphanol

- **Dose:** 0.2-0.4 mg/kg IM or IV
- **Purpose:** Provides preemptive pain relief.

Buprenorphine

- **Dose:** 0.01-0.02 mg/kg IM or IV
- **Purpose:** Provides longer-lasting analgesia.

Anesthesia induction and maintenance

Induction agents

Propofol

- **Dose:** 4-6 mg/kg IV (to effect)
- **Purpose:** Rapid induction of anesthesia.

Ketamine/Diazepam

- **Dose:** Ketamine 5-10 mg/kg IV + Diazepam 0.25-0.5 mg/kg IV
- **Purpose:** Provides induction and short-term anesthesia.

Maintenance agents

Isoflurane

- **Dose:** 1.5-2.5% inhalation (adjust based on response)
- **Purpose:** Maintains anesthesia depth during surgery.

Sevoflurane

- **Dose:** 2.5-4% inhalation (adjust based on response)
- **Purpose:** An alternative to isoflurane, with a smoother induction and recovery.

Post-surgical pain management

- Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

Carprofen (Rimadyl)

- **Dose:** 2.2 mg/kg PO or SC once daily
- **Purpose:** Provides postoperative pain relief and reduces inflammation.

Meloxicam

- **Dose:** 0.1-0.2 mg/kg PO or SC once daily
- **Purpose:** Long-lasting pain relief and anti-inflammatory effects.

Opioids

Tramadol

- **Dose:** 4-6 mg/kg PO every 8-12 hours
- **Purpose:** Provides additional pain relief, especially for moderate to severe pain.

Fentanyl Patch

- **Dose:** 2-5 µg/kg/h transdermal
- **Purpose:** Continuous pain relief for up to 72 hours.

Local Anesthetics (Optional for Additional Pain Relief)

Lidocaine or Bupivacaine can be used locally at the surgical site to provide additional pain relief.

Lidocaine

- **Dose:** 2-4 mg/kg as a local infiltration
- **Purpose:** Provides immediate, short-term pain relief.

Bupivacaine

- **Dose:** 1-2 mg/kg as a local infiltration
- **Purpose:** Provides longer-lasting pain relief compared to lidocaine.

Monitoring and adjustments

Throughout the surgical procedure, monitoring of the dog's vital signs (heart rate, respiratory rate, blood pressure, and oxygen saturation) is essential to ensure the appropriate depth of anesthesia and overall safety. Anesthetic dosages may need adjustments based on the dog's response.

Recovery and post-operative care

Post-surgical monitoring is crucial to ensure the dog's smooth recovery. This includes

- **Monitoring Vital Signs:** Regular checks on heart rate, respiratory rate, and temperature.
- **Pain Management:** Continued administration of analgesics as needed.

- **Wound Care:** Keeping the surgical site clean and monitoring for signs of infection.
- **Activity Restriction:** Limiting the dog's activity to prevent strain on the surgical site.
- **Follow-Up:** Scheduling follow-up visits to assess healing and remove sutures if necessary.

Conclusion

Proper use of medications and anesthesia in animal birth control surgeries is essential for the safety and well-being of dogs. Understanding the appropriate doses and protocols ensures effective pain management, reduces surgical risks, and promotes a smooth recovery process. Animal birth control surgeries, including spaying and neutering, are essential for controlling dog populations and enhancing animal health. Understanding the detailed procedures and humane catching techniques ensures the well-being of the dogs throughout the process. These efforts contribute significantly to community health and the overall welfare of the canine population.