Castration and ovariohysterectomy/ovariectomy: dogs

Castration and ovariohysterectomy/ovariectomy performed in dogs is associated with pain of varying severity and is influenced by the degree of surgical trauma. General anaesthesia and preemptive/multimodal analgesia techniques are strongly recommended. There are many options available for perioperative management; below are examples of some. Postoperative treatment with analgesics may be required for up to 5 days after surgery. The same NSAID should be used pre- and postoperatively.

**Protocol for castration**

**Preoperative:**
- **Analgesia:** Opioid
- **Sedation:** Acepromazine and/or benzodiazepines (midazolam or diazepam 0.25–0.4 mg/kg IM; diazepam is best given IV – painful IM); alpha2 adrenoceptor agonist
- **Induction of anaesthesia:**
  - Intravenous: Propofol to effect (3–5 mg/kg), ketamine (3–5 mg/kg) + diazepam or midazolam (0.25 mg/kg), or alfaxalone (1–2 mg/kg)
  - Intramuscular: Alpha2 adrenoceptor agonist + ketamine (3–5 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).

**Maintenance of anaesthesia:** Inhalation anaesthesia or propofol, alfaxalone or ketamine (1/3 or ½ of initial dose) to effect; venous access is recommended. Equipment should also be available for endotracheal intubation.

**Local anaesthetic techniques:** Intra-testicular block, incisional block.

**Postoperative analgesia:** NSAID.

**Protocol without controlled drugs:**

**Preoperative:** Combination of a NSAID and an alpha2 adrenoceptor agonist ± tramadol (2–5 mg/kg IM)

**Protocol with limited availability of analgesic drugs:**

**Preoperative:** Alpha2 adrenoceptor agonist ± NSAID.

**Induction and maintenance of anaesthesia:** Any available injectable or inhalant agent; venous access is recommended.

**Local anaesthetic techniques:** Intra-testicular block, incisional block.

**Postoperative analgesia:** NSAID.

**Protocol for ovariohysterectomy/ovariectomy**

**Preoperative:**
- **Analgesia:** Opioid
- **Sedation:** Acepromazine and/or benzodiazepines or alpha2 adrenoceptor agonist
- **Induction of anaesthesia:**
  - Intravenous: Propofol to effect (3–5 mg/kg), ketamine (3–5 mg/kg) + diazepam/midazolam (0.25 mg/kg) or alfaxalone (1–2 mg/kg).
  - Intramuscular: Alpha2 adrenoceptor agonist + ketamine (5.0–7.5 mg/kg) or tiletamine/zolazepam (3–4 mg/kg).

**Maintenance of anaesthesia:** Inhalation anaesthesia, or propofol, alfaxalone, ketamine (1/3 or ½ of initial dose) to effect; venous access is recommended. 

**Local anaesthetic techniques:** Incisional and intraperitoneal/ovarium ligament block.

**Postoperative analgesia:** NSAID.

**Protocol without controlled drugs:**

**Preoperative:** Combination of a NSAID and an alpha2 adrenoceptor agonist ± tramadol (2–5 mg/kg IM).

**Protocol with limited availability of analgesic drugs:**

**Preoperative:** Alpha2 adrenoceptor agonist ± NSAID.

**Induction and maintenance of anaesthesia:** Any available induction agent; venous access is recommended.

**Local anaesthetic techniques:** Epidural or incisional and intraperitoneal/ovarium ligament block.

**Postoperative analgesia:** NSAID.

Analgesia may be supplemented after most surgical techniques by application of non-drug modalities such as cold therapy, laser therapy, acupuncture, mild exercise, nursing care and massage.