
1. PURPOSE

The intent of this Standard Operating Procedure (SOP) is to describe procedures for castration surgery in rodents.

2. RESPONSIBILITY

Principal investigators (PI) and their staff, veterinary care staff or any individual performing surgery on rodents, or assisting in those procedures.

3. MATERIALS

- 3.1. Analgesics
- 3.2. Anesthetic: isoflurane
- 3.3. Sterile ophthalmic ointment
- 3.4. Electric clipper or depilatory cream
- 3.5. Gauze (sterile and non-sterile)
- 3.6. Antiseptic solution for skin (e.g., chlorhexidine 2% solution or povidone-iodine solution used alternatively with 70% alcohol, or 2% chlorhexidine in 70% alcohol solution)
- 3.7. Heating disc, warming pad or warm-water circulating pad. Do not use electric heating pads unless specifically designed for use with laboratory rodents.
- 3.8. Sterile surgical drapes or Glad® Press'n Seal® wrap
- 3.9. Sterile isotonic saline solution
- 3.10. Sterile cotton-tipped swabs
- 3.11. Sterile surgical instruments
- 3.12. Dry bead sterilizer
- 3.13. Surgical tissue glue (Vetbond®) or absorbable suture

4. PROCEDURES

- 4.1. Refer to Rodent Surgery SOP.
- 4.2. Document the details of the surgical procedure in the Rodent Procedure Log.
- 4.3. Administer analgesia as per Rodent Analgesia SOP.
- 4.4. Anesthetize animal using isoflurane as per Anesthesia SOP.
- 4.5. Apply ophthalmic ointment in both eyes to prevent corneal desiccation. Reapply as needed.
- 4.6. Remove hair over the scrotum of the animal using a clipper or depilatory cream. Remove loose hair with gauze.
- 4.7. Wipe the skin surface with antiseptic solution.
- 4.8. Castration:
 - 4.8.1. Place animal in dorsal recumbency.
 - 4.8.2. Make a midline incision in the scrotum, approximately 1 cm in length. This will expose the tunica.
 - 4.8.3. Make another midline incision in the tunica, slightly smaller than the incision in the skin.
 - 4.8.4. Soak a sterile gauze pad with sterile isotonic saline.
 - 4.8.5. Push one testes out of the tunica. Gently raise it to expose the underlying blood vessels and tubules and rest it on the saline-soaked gauze.

- 4.8.6. The fat surrounding the vas deferens and spermatic blood vessels may be gently removed using dry sterile gauze to facilitate cauterization.
- 4.8.7. Cauterize the vas deferens and spermatic blood vessels. Place removed testes aside. Check for bleeding.
- 4.8.8. Use sterile cotton-tipped swabs to gently return any remaining tissues into the scrotum.
- 4.8.9. Repeat with the other testes.
- 4.8.10. Apply topical local analgesic to the incision.
- 4.8.11. Hold the edges of the incision together with forceps and use one drop of tissue glue to close the skin. Alternatively, suture the incision.
- 4.9. Disinfect the instruments between each animal by dipping them in a hot glass bead sterilizer for approximately 30 seconds after removing any blood and debris (let cool completely).
- 4.10. Allow animals to recover in a clean cage. Provide supplemental heat (use a heating disc or pad, heating lamp or incubator) for approximately 30 minutes and monitor the animals until they have fully recovered prior to returning them to their housing room.
- 4.11. Administer analgesics post-operatively as per Rodent Analgesia SOP.

SOP REVISION HISTORY

DATE	NEW VERSION
2016.09.22	Title: MOUSE RODENT CASTRATION
2016.09.22	1. PROCEDURE The intent of this Standard Operating Procedure (SOP) is to describe procedures for castration surgery in the rodents .
2016.09.22	4.3. Anesthetize mouse animal using isoflurane according to Mouse Anesthesia SOP.
	4.5. Remove hair over the scrotum of the mouse animal using a clipper or depilatory cream.
2016.09.22	4.7.1 Place mouse animal in sternal recumbency.
2020.11.17	3.6. Antiseptic solution for skin (e.g., chlorhexidine 2% solution or povidone-iodine solution used alternatively with 70% alcohol, or 2% chlorhexidine in 70% alcohol solution) 3.7. 70% Alcohol 3.8. Chlorhexidine 2% solution or povidone-iodine solution
2020.11.17	3.8. Heating disc, warming pad or warm-water circulating pad. Do not use electric heating pads unless specifically designed for use with laboratory rodents. 3.13. Heating disc/pad, red heat lamp or incubator
2020.11.17	3.8. Sterile surgical drapes or Glad® Press'n Seal® wrap
2020.11.17	4.6. Wipe the skin surface with 70% alcohol followed by 2% chlorhexidine solution or povidone-iodine antiseptic solution.
2020.12.07	4.2. Document the details of the surgical procedure in the Rodent Procedure Log.

Investigator:	Protocol:
Procedure: Castration	Performed by:

Instructions: complete this log for rodent procedures requiring anesthesia, analgesia or post-procedure care (ex. surgeries, experimental infection). Keep the log in the housing room while active and in your files for 3 years for future review by the Quality Assistant and/or the FACC.

ANALGESIA

- carprofen: mouse: 20mg/kg, rat: 5-10 mg/kg, SC, every 24 hrs
- buprenorphine: mouse: 0.1mg/kg SC or IP every 4-8 hrs;
rat: 0.05mg/kg, SC or IP, every 8-12 hrs
- lidocaine/bupivacaine (local analgesic)
- other: _____

ANESTHESIA

- isoflurane 2-2.5%
- ketamine/xylazine/acepromazine*:
mouse: 100 mg/kg (K)- 10 mg/kg (X)- 3 mg/kg (A) IP
rat: 50 mg/kg (K)- 5 mg/kg (X)- 1 mg/kg (A); IP or IM
- other: _____

OTHER AGENTS ADMINISTERED

- _____
- _____
- _____

Animal ID	Date	Anesthesia		Analgesia		Other		Heat Source Provided		Recovery time	Comments/observations	Initials
		dose	time	dose	time	dose	time	procedure	recovery			
1								<input type="checkbox"/>	<input type="checkbox"/>			
2								<input type="checkbox"/>	<input type="checkbox"/>			
3								<input type="checkbox"/>	<input type="checkbox"/>			
4								<input type="checkbox"/>	<input type="checkbox"/>			
5								<input type="checkbox"/>	<input type="checkbox"/>			
6								<input type="checkbox"/>	<input type="checkbox"/>			
7								<input type="checkbox"/>	<input type="checkbox"/>			
8								<input type="checkbox"/>	<input type="checkbox"/>			
9								<input type="checkbox"/>	<input type="checkbox"/>			
10								<input type="checkbox"/>	<input type="checkbox"/>			
11								<input type="checkbox"/>	<input type="checkbox"/>			
12								<input type="checkbox"/>	<input type="checkbox"/>			
13								<input type="checkbox"/>	<input type="checkbox"/>			
14								<input type="checkbox"/>	<input type="checkbox"/>			

Comments/footnotes:

*Dose can vary with the sex, the age, the strain, and the body condition of the animal.

ANALGESIA

- carprofen: mouse: 20mg/kg, rat: 5-10 mg/kg, SC, every 24 hrs
- buprenorphine: mouse: 0.1mg/kg SC or IP every 4-8 hrs; rat: 0.05mg/kg, SC or IP, every 8-12 hrs
- OTHER _____

Initial the appropriate boxes when completed

Animal ID	Date	Analgesia			SC fluids			Wet food			Time			Remove Sutures (Day 7-10)
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														

Comments/footnotes: