May 17, 2019

Working

Vandy - Vertical Sleeve Gastrectomy in Mice

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dx.doi.org/10.17504/protocols.io.zcjf2un

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ABSTRACT

Summary:

This is the protocol for the vertical sleeve gastrectomy in the mouse. This procedure eliminates the greater curvature of the stomach leaving approximately 30% of the preoperative stomach capacity. Specifically, this procedure eliminates the greater curvature of the stomach where the ghrelin-producing cells are located.

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=295&docType=Protocol

MATERIALS

NAME	CATALOG #	VENDOR
6-0 monocryl suture	Y432H	Ethicon
7-0 Prolene	8648G	Ethicon
7-0 PDS II	H206Z1551R	Ethicon
Cotton swabs	19-072333	Fisher Scientific
10 ml 22G syringe	Ref 309640	BD Biosciences
Gause 3X3	Ref 2346	Kendall
0.9% Saline	2B1322	Baxter
Gloves	PK20782	Ansell
8-0 Nylon	TK-081438	Arosurgical

MATERIALS TEXT

The remaining materials that are necessary for any surgical procedure in mice are sterile, high quality surgical instruments for microsurgery. A dissecting microscope (at least 10x magnification) is also highly recommended, however, surgical loupes or other magnification aid could be substituted. The individual performing the operations should be well-trained in small animal surgical and mouse anatomy.

Note:

BD Biosciences RRID:SCR_013311
Baxter RRID:SCR_003974
Fisher Scientific, RRID:SCR_008452

1 Preoperative Care

1. All animals **must be** singly-housed, given Ensure 12 hours before surgery and have all bedding removed.

2. Preoperative pain medications should be administered:
   a. Ketoprofen (5 mg/kg)
   b. Saline is given at the end of surgery and a second dose is given 24 hours later.

3. Ensure adequacy of anesthesia.

4. Place mouse on surgical board/surgical field over a warm water circulating blanket and immobilize gently.

5. Prep and drape animal sterilely.

2 Operation

1. Begin the procedure by making a midline laparotomy incision with sharp surgical scissors. Be sure to stay on the linea alba and away from the rectus abdominus muscles.

2. Using cotton swabs, gently sweep the intestinal contents until the stomach is located.

3. Gently cut away all connective tissue around the stomach and ligate the vessel attached to the greater curvature of the stomach using cautery pen or 7-0 PDS II.

4. Place ligatures on all stomach vessels using 7-0 PDS II.

5. Using 6-0 monofilament suture a continuous line below your ligatures.

6. Remove greater curvature of the stomach by cutting below ligated vessels and monofilament line of suture.

IMPORTANT: When removing the greater curvature of the stomach keep all pancreatic vessels intact.

7. Close stomach using 7-0 PDS II continuous pattern.

8. Next, close the abdomen in a simple, two-layer, interrupted fashion. The first interrupted layer should be a simple, interrupted muscle layer with 6-0 monocryl suture. Using good technique suture the connective tissue and not the muscle proper. The second layer is a skin layer also done in a simple, interrupted fashion with 7-0 Prolene suture.

3 Postoperative Care

1. All mice receive 1.0 ml of warmed, sterile saline following the procedure before being placed in the recovery cages.

2. All mouse cages are kept partially on a veterinary-approved heating pad for 5 to 7 days postoperatively.

3. Mice will remain on an Ensure diet for 24 hours post-surgery with no bedding in the cage.

4. Mice are monitored until recovered from the procedure, which typically takes 7-14 days depending on the procedure. General behavior (i.e. bright/alert/responsive vs. depressed/obtunded) is monitored.

5. Pain medication is administered per protocol: ketoprofen 5 mg/kg post-op and again at 24 hours postoperative.

6. Additional pain medication may be needed depending on postoperative recovery.