

University of Idaho

Animal Care and Use Committee

Standard Operating Procedure (SOP)

Number: 2001.3

Version: 1

Last Updated: 7/19/2000

Title: Mammary Gland Adipose Tissue Biopsy

Species: Bovine

Purpose

Adipose tissue biopsies are used for a variety of detailed laboratory analysis including but not limited to histological morphology, biochemical analysis, and tissue culture. Their use is relative to the project under study.

Potential Impact on Animal Subjects

Mild to significant blood in the milk and minor to moderate swelling of the mammary gland at the surgical site is expected. The degree of hemorrhage is relative to the amount of blood vessels injured during the procedure. Although every effort to avoid larger vessels and provide adequate hemostasis will be made, some vessels may be difficult to visualize and others difficult to ligate. Disruption of lymphatic ducts and mammary canals will also result in minor swelling. This is unavoidable, but will be minimized by increased milking frequency early in the post-operative period. Sutures may cause local irritation until removal at 10-14 days post-operatively.

Description

Flunixin meglumine will be administered at 0.25 mg/kg intramuscularly one hour prior to surgery. The tail is gently restrained to the opposite side of the surgical site using gauze or string tied around the tail and the animal's neck. The animal and surgical site are then prepared as described in SOP 2001.1, Preparation of Mammals for Surgery. Clipping of hair is generally not required on the mammary gland.

Animals will be sedated with a 0.025-0.05 mg/lb intravenous bolus of xylazine. Approximately 1-5 ml of 2% lidocaine is infiltrated into the area surrounding the surgical site. The final surgical scrub will occur after application of the lidocaine. Using sterile instruments and appropriate aseptic technique, a 2-3 inch skin incision is made in a dorsal to ventral direction over the desired mammae. An appropriately sized sample of mammary tissue is removed by blunt dissection. Significant vessels will be ligated prior to transection. Minor bleeders are temporarily clamped with a hemostat or cauterized. If any significant bleeders are encountered, they are ligated with absorbable suture material of appropriate size. If needed, a non-absorbable suture material or synthetic tissue replacement will be used to reduce any dead space created by the biopsy. The skin is closed with a series of non-absorbable sutures in a simple interrupted and/or horizontal mattress pattern.

Anesthesia recovery from lidocaine and xylazine will occur in 1-5 hours. Flunixin meglumine (0.25 mg/kg IM) will be administered at 12 and 24 hours post-operatively. Affected mammae will be milked out at 2, 6 and 12 hours post-operatively, then returned to the normal milking schedule. Penicillin G or ceftiofur will be administered at the time of surgery at manufacturer recommended dosages. Animals will be monitored for undue signs of discomfort (rubbing, swelling, or bleeding at the incision site, appetite, etc.) and the attending veterinarian contacted if complications arise. Skin sutures will be removed at 10-14 days post-operatively. Appropriate withdrawal times following drug administration for milk and slaughter will be followed.

References

Large Animal Anesthesia. TW Riebold, DO Gobel, DR Geiser. Iowa State University Press. 1982.

Experimental Surgery in Farm Animals. RW Dougherty. Iowa State University Press. 1981.

Techniques in Large Animal Surgery. A. Simon Turner, C. Wayne McIlwraith. Lea & Febiger. Philadelphia. 1982.