fungus-free Kenhy gained 1.37 pounds per day while cattle grazing fungus-free Kenhy that had been renovated with red clover gained 1.64 pounds per day.

Although many questions remain, the Tall Fescue Research Program in the Fescue Belt has resulted in major breakthroughs. We are possibly nearing discoveries which will answer many of the remaining questions relating to fescue quality and perhaps provide additional solutions. Cooperative interdisciplinary efforts will be required within and among states for this and forthcoming information to be of maximum benefit to livestock producers.

Literature reviewed by Dr. Garry Lacefield, Extension Forage Specialist, University of Kentucky.

The Effect of Unilateral Orchiectomy on Semen Quality in Bulls

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Introduction

Inflammatory processes within the scrotum of the bull are common clinical occurrences. Numerous pathogenic bacteria, viruses, and fungi as well as trauma and neoplastic diseases may cause orchitis, periorchitis, or epididymitis in bulls. It is difficult to predict the long term effect of conservative (nonsurgical) therapy of these cases. The heat associated with the inflammatory process in one testicle produces degenerative changes in the contralateral testicle.[1] Reversibility of degenerative change depends upon the severity and duration of the insult. Morphologically abnormal sperm can appear in the ejaculate as early as 2 days following the onset of acute inflammation.[2,3] The magnitude of the added insult of scrotal surgery is presently known. One report shows that stallions were aspermic 30 days following the unilateral orchiectomy.[4]

This project was designed to determine: (1) if there was a decline in semen quality following unilateral orchiectomy; (2) the length of time required for semen quality to return to normal following surgery; (3) the magnitude and duration of alterations of normal scrotal thermographic patterns following surgery; and (4) comparison of the degree of surgical insult between bulls operated in winter and summer.

Materials and Methods

Nine mature mixed breed bulls (650 kg average weight) with good semen quality were used. On the day of surgery the bulls were restrained in a squeeze chute, scrotal circumference was recorded and semen was collected by electrojaculation. Semen was evaluated for motility and morphology according to the standards of the Society of Theriogenology.[5]

Each bull was restrained in a closed room and allowed to acclimate to room temperature. Five thermographic views[a] of the scrotum were taken as follows: left anterior (LA); left lateral (LL); posterior anterior (PA); right anterior (RA); and right lateral (RL). The large abdominal girth prevented direct frontal views of the scrotum.[6]

Beginning 2 days following surgery semen was collected and the scrotum thermographed on alternate days for 2 weeks and once weekly for 8 weeks. Mean environmental temperature was recorded for each sampling day.

The bulls were restrained in right lateral recumbency and induced with 10% thiamylal sodium[b] and maintained with halothane[c] inhalation anesthesia. The left rear leg was abducted and the scrotum clipped and disinfected with povidoneiodine[d].

A 15 cm vertical skin incision was made from near the base toward the apex on the lateral surface of the scrotum. The incision was deepened through the skin, tunica dartos, and scrotal fascia leaving the tunica vaginalis parietalis intact. The testicle in the parietal tunic was bluntly dissected from the scrotal fascia and a 12 cm incision was made through the tunica vaginalis parietalis beginning proximally and ending

[a] *Thermovision Model 680, AGA Infrared Systems AB, and AGA Model 101 OR, Infrared Systems AB, Lindingo, Sweden.*

[b] *Surital Veterinary, Parke Davis and Co., Detroit, MI.*

[c] *Fluothane, Ayerst Laboratories, New York, NY.*

[d] *Betadine Surgical Scrub, Purdne Frederick Co., Norwalk, Ct.*

at the cranial pole of the testis. The testis was exteriorized and the spermatic cord exposed.

Eight cm proximal to the pampiniform plexus the spermatic artery, vein and ductus deferens were doubly ligated with No. 0 chromic gut and then transected between the ligatures. The tunica vaginalis parietalis was transected and the external cremaster muscle was ligated and transected just distal to the stump of the spermatic cord. The tunica vaginalis parietalis was closed with a Connell pattern using No. 0 chromic gut.

The tunica dartos was closed with No. 0 chromic gut in a simple continuous pattern. Skin closure was with a continuous interlocking pattern of 0.4 mm synthetic suture[e]

Results

Semen parameters were within satisfactory limits for all bulls before surgery. The percentage of normal sperm declined on postoperative day 6 ($p<0.05$) and there was no significant difference ($p>0.05$) in the percentage of total abornormalities on the remaining sampling days. Progressive motility scores varied throughout the study and on postoperative days 6, 8, 29, 42 and 58 there was a significant ($p<0.05$) decrease in progressive motility. When all scores were compared for the duration of the study there was no significant difference ($P>0.05$) in semen progressive motility.

Comparing the semen parameters of those bulls having winter (n=4) as opposed to spring (n=5) surgery, no differences were found ($p>0.05$). Neither were any differences found to exist among bulls having right (n=4) or left (n=5) testical removal.

Preoperative thermograms were normal and demonstrated a constant and symmetrical thermal pattern with the apex of the scrotum being 4 to 6 C cooler than the base. On postoperative day 3 the intact scrotal side maintained a normal thermal pattern and the side of the scrotum subjected to surgery showed disruption of the symmetrical thermal pattern and loss of the temperature gradient from base to apex. By postoperative day 7 a normal scrotal temperature pattern was returning for all bulls although the thermal patterns over the incision sites were irregular the temperature gradients was between 3 and 4 C. On postoperative day 14 most of the bulls had normal thermal patterns and temperature gradients and by day 21 all bulls had regained a normal temperature pattern and gradient.

Discussion

Unilateral orchiectomy had no detrimental effect on semen quality of the remaining testicle of normal bulls by the third week following surgery. The decreased progressive motility scores and percentage of normal sperm were transient and had little influence on breeding soundness. The scrotal thermal pattern showed early postsurgical inflammation but in some cases returned to normal as early as 10 days and all were normal by day 21.

Bulls subjected to this procedure for correction of pathological conditions can be expected to sustain minimal additional inflammation to the remaining testicle. It is proposed that the use of proper surgical technique, asepsis, brevity of surgical time and convalescence in clean quarters are important factors to minimize the insult to the remaining testicle.

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[e] *Vetafil, S. Jackson, Inc., Washington, DC.*

Effect of Feeding Microbial Cultures to Milk Fed Dairy Calves

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Two trials using two different commercially available microbial culture products containing *Lactobacillus acidophilus* and other related organisms, were conducted to determine their effect on grain intake, weight gain, and diarrheal disease morbidity and mortality in milk fed dairy calves.