

Preparation of Detector Bulls by Penile Retraction and Fixation

Joe S. Gloyd, *D. V.M.*
H. D. Schroeder, *D. V.M.*
Ken W. Ritthaler, *D. V.M.*
Wheatland, Wyoming

The weak link in the chain of achievement of maximum efficiency in an artificial insemination (AI) program, particularly in the western beef industry, has been failure of observation of the female in heat. Twice a day visual observation of eligible cows and heifers has long been the tried and true method of heat detection for the stockman. However, many other methods have been used to aid the competent observer in his detection work. One of the most successful practices used in our particular area has been the employment of the "detector" bull with a chin-ball marking apparatus† attached.

We have long discounted using detector bulls which have the ability to copulate because of the risk of disease spread by these animals. Various methods of copulation prevention have been used such as the penectomy (1), surgical adhesion of the penis to the abdominal wall (2), or bibs on the intact bull (2). One of the simplest methods is the penile retraction and fixation technique. Dr. Tracy Rhoades of Buffalo, Wyoming, (3) first explained to this writer the surgical procedure he had used in a practice in Nebraska. The authors decided to attempt the technique about a year and a half ago and have experienced a moderate amount of success.

The surgical technique is quite simple and has been used on bulls from six to eighteen months of age. The animal is restrained in a standing position using a stanchion or chute. The tail head and perineal areas are clipped and epidural anesthesia using four to six milliliters of 2% procaine (depending on the size of the animal) is used prior to surgery. Presurgical preparation consists of repeated scrubs with hexachlorophene soap* followed by thorough rinsing with chlorhexidine** solution. The tail is restrained by tying it firmly above the animal, preventing him from lying down during surgery.

Approximately half way between the anus

and the attachment of the scrotum, a three-inch incision is made on the midline (Figure 1) and extended through the subcutaneous tissue to the penis. The penis is freed by blunt dissection from its attachments and brought to the surface until an area of the penis approximately six to eight inches anterior to the attachment of the retractor muscles is exposed (Figure 2). Some difficulty in freeing the penis will be experienced in more mature bulls and occasionally the fascial attachments may have to be severed using a blunt pointed scissors. After exposing the penis in the area described, the urethra is located by manual palpation and single stay sutures of extra heavy nylon*** are placed on either side of the penis through the corpus cavernosum, taking care not to enter the urethra with the suture material (Figure 3). These sutures are then tied on either side of the initial incision incorporating a large amount of heavy subcutaneous tissue prior to tying off the sutures. This step fixes the distal penis, preventing anterior extension of the glans during erection. The excess length of penis which is exteriorized during the fixation process is then replaced manually into the area of initial location of the penis (Figure 4).

The skin incision is then closed, using simple interrupted stitches of nylon suture material. Post-operatively, eight to ten milliliters of benzethine penicillin G, procaine penicillin and dihydrostreptomycin* is given intramuscularly. The skin incision is also protected with an appropriate antibiotic or antiseptic dressing. The client is generally advised to wait at least ten days to two weeks before placing the bull in service. Prior to use of the bull as a teaser animal, the owner is requested to return the bull for examination with the electroejaculation to assure that surgery has been successful. When the bull has been placed on the electroejaculator and erection achieved, the anterior tip of the glans should be palpated and should extend no more than a few inches anterior to the attachment of the scrotum. A bulging of the

†American Breeders Service; De Forest, Wisc. 53532.

*Hexasol 40, Wittney & Co., Denver, Colo.

**Nolvason, Fort Dodge Labs, Fort Dodge, Iowa.

***Vetafil, Extra Heavy, Dr. S. Jackson, Washington, D.C.

*Longicill-S, Fort Dodge Labs, Fort Dodge, Iowa.

proximal penis will be noticed in the skin at the area of the original surgical site during erection.

The technique, as with most surgical procedures, is not without complications. The most obvious problem which may possibly occur is blockage of the urethra due to its inadvertent incorporation when fixation sutures are placed. Another complication which may result, of course, would be the extension of the penis during the breeding season due to failure of proper placement of sutures in the penis or subcutaneous tissues or failure of the sutures to stay tied. These untoward results can be avoided however, and once the technique has been mastered, results should be quite reliable.

The authors have data on 42 bulls upon which the penile retraction and fixation technique has been used (Figure 5). Thirty-two of these animals are still in service at this time. The initial 17 animals upon which surgery was attempted were part of the "learning process" and subsequent results obtained were often less than satisfactory.* One animal developed a broken bladder two days after surgery and died five or six days following surgical repair to the bladder. This particular bull showed evidence prior to surgery of an infection in the sacral region and necropsy showed a blockage in the pelvic urethra due to swelling in that area. Eight bulls out of this group had to have surgery

**The authors wish to thank the Two Bar Ranch Company of Wheatland, Wyoming, for furnishing the greatest numbers of these animals and for bearing with us during development of this procedure.*

repeated, simply because the fixation sutures had not been placed far enough anteriorly on the penis initially. However, since the first group of 17, the balance of these bulls (25) showed no complications with the exception of one animal which had received a generous epidural pre-surgically and fell down in the manure following surgery. This resulted in skin suture breakage which was reclosed but an abscess resulted at the suture site. This had no effect on the bull's libido, however, and he performed well during the AI season.

Most owners who used these detector bulls successfully plan to use the same bulls again for at least another year. All but one of the bulls mentioned here were used with the chin-ball marking harness and were rotated in and out of use at four to ten day intervals. This rotation method seems to keep the bull's libido at a higher level than if he were placed with the breeding herd for the full AI season. Bulls which seemed to be most successful as detector animals were those which were used as breeding animals for one season previous to penile retraction-fixation surgery. As these bulls age and grow in size, it seems obvious to this writer that economics will dictate that owners replace them with younger, less expensive animals from time to time.

References

1. Stuart, O. C. and Kendrick, John W., Preparation of Teaser Bulls for Penectomy. *J.A.V.M.A.*, 147:373-376, August 15, 1965. —
2. Belling, Theodore H. Preparation of a "Teaser" Bull for Use in a Beef Cattle Artificial Insemination Program. *J.A.V.M.A.*, 138:670,672, June 15, 1961. —
3. Rhoades, R. T., Buffalo, Wyoming. Personal communication.

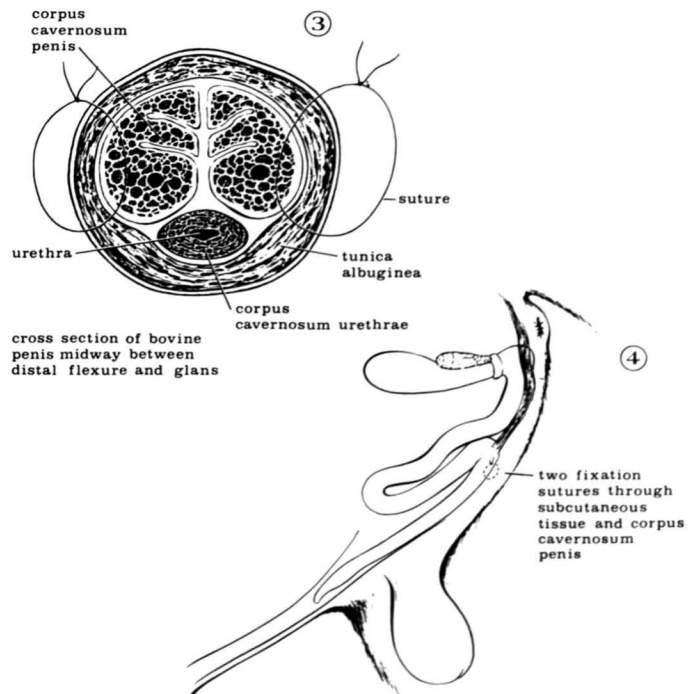
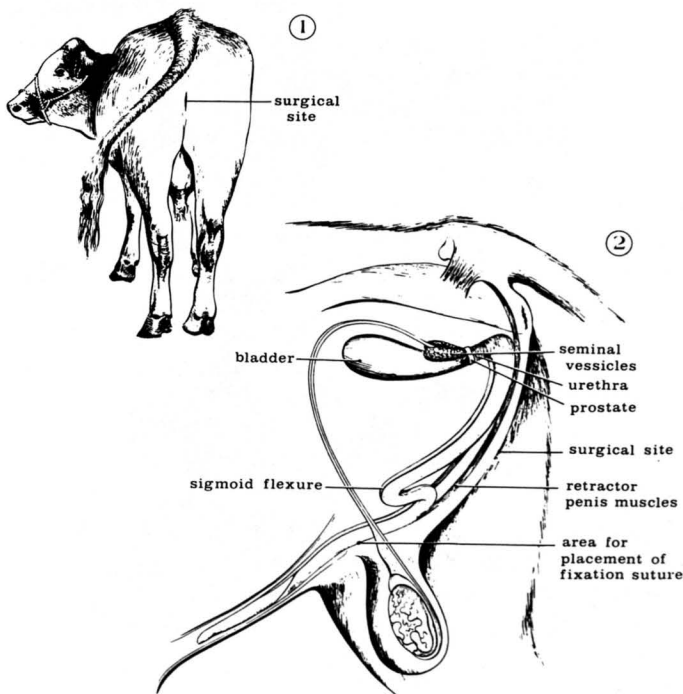


Figure 5

Date of Surgery	Number of Bulls	Number Still in Service	Surgery Repeated	Disposition of Remaining Animals
10-7-71	34	34	1	
10-11-71	15	6	7	One died following surgery, three died during summer of 1972 (snakebite, lightning, drowning), five were sold—poor libido.
3-13-72	11	11	0	Twelve bulls in this group—one dead prior to surgery of peritonitis from service per rectum.
3-28-72	5	5	0	
4-1-72	1	1	0	
4-12-72	2	2	0	One bull abscessed at incision site—libido OK.
4-25-72	2	2	0	
5-10-72	1	0	0	Died—infectious suppurative arthritis of carpal joints.
5-15-72	1	1	0	
5-23-72	2	2	0	
TOTALS	42	32	8	