

Deviations of the Bovine Penis

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Deviations of the bovine penis have long been a problem in veterinary medicine. Only in the last decade has surgical correction been attempted with any frequency. This article will discuss the types of deviations, the possible etiology of these conditions, the occurrence and the surgical correction of the condition.

Deviations occur in three forms. The ventral or rainbow deviation presents the penis ventral to its normal position during an erection. Lateral deviations occur with the deviation to the lateral side of the midline. The third type of deviation is the "corkscrew" or spiral deviation.

The anatomical deviations occurring in this condition are only understood in the spiral deviation. In this deviation the corpus cavernosum of the penis rolls within the fibrous tunic and the dorsum of the penis herniates through the less dense lateral portion of the fibrous tunic. The anatomical conditions of the other deviations are unknown except that the ventral type of deviation is believed to be the result of a suspensory failure, and is not associated with the length of the retractor penis muscle.

The etiology of the deviated penis has not been completely established but the following agents have been listed as possible etiologies.

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Trauma — Some people insist that this is a very important agent while others feel it is only a minimal factor. "There is a tendency to ascribe this condition (deviation of the penis) to trauma. . . with possible bruising, laceration, or haematoma formation and subsequent unilateral fibrosis."¹

Congenital — This factor is supported by the fact that some affected bulls have a common sire or originate from the same herd. Little data has been accumulated to prove or disprove the possibility of this being an inheritable factor. But since this condition occurs predominantly in polled bulls, since it has been observed in bulls without any history of trauma, and since some affected bulls have a common sire or originate from the same herd, there is ample reason to believe that this condition is inheritable.

Management — Is considered since affected bulls sometimes originate from the same herd but have different sires.

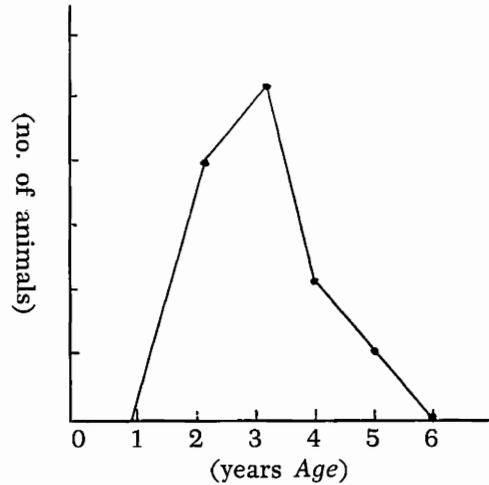
Hormonal — Due to an absence of or an improper balancing of hormones. This could lead to certain anatomical variations or weakness that would make a bull's penis more susceptible to deviations. Since the growth of the penis is completed by 18 months this hormonal condition would be linked to a hereditary factor.

Through the years 1966 and 1967, approximately twelve cases of penis deviations were treated at Stange Memorial Clinic. In only 17 percent of these cases was trauma suspected in the history, while in 83 percent of the cases no trauma was reported to have occurred.

As I have previously stated, polled bulls appear to have more deviations than horned bulls. During the years 1966 and 1967, approximately 75 percent of the bulls with a deviated penis presented to the Veterinary Clinic were polled.

The average age of bulls presented to the Clinic was three years. The distribution of twelve cases presented to the Clinic during 1966 and 1967 is shown in Graph I.

Graph I



Dr. D. F. Walker of Auburn was one of the first veterinarians to develop a surgical procedure to correct the deviated penis. His surgical procedure⁴ was especially designed to correct the spiral deviations. He accomplished this by promoting adhesions between the fibrous tunic and the tunica thus preventing rotation of the corpus cavernosa within the fibrous tunic.

Dr. Walker performs his surgery without tranquilizing the bull. The only anesthesia used is procaine which is infiltrated through the dorsum of the penis on the incision line. The penis is withdrawn and a seven inch long incision is made on the dorsum of the penis from a half inch from the cranial tip to a point two inches cranial to the attachment of the prepuce. This incision will pass through the mucous membrane and connective tissue to expose the fibrous tunic. The fibrous tunic is isolated by reflecting it around the margins of the incision. An incision is made on the midline of the dorsal ligament and extends one half inch from the tip of the corpus cavernosum penis and extends caudally to where the dorsal ligament is firmly attached. Two longitudinal strips, six inches long and one-eighth inch wide, are incised from the dorsal ligament but the caudal attachment is left intact. The slit in the dorsal ligament that remains is closed with No. 1 chromic gut. One of these strips of ligament is passed through the dorsal liga-

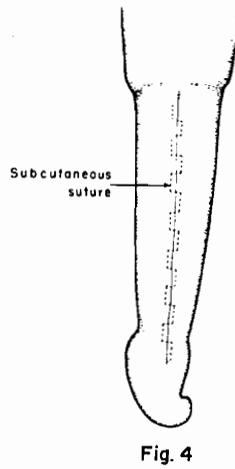
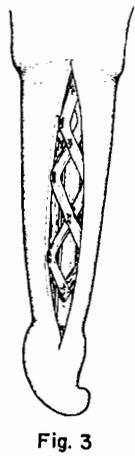
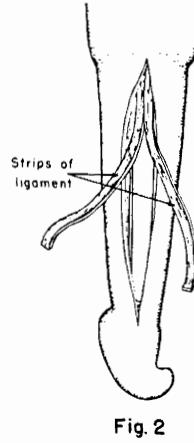
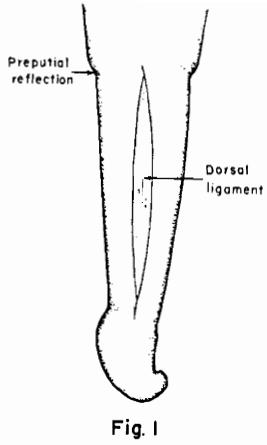


Illustration of technique used at Iowa State to correct a deviated penis.

ment and well into the tunica albuginea and back to the surface. To facilitate the threading of these ligamentous strips a large-eyed full curve needle is required. A strip is then inserted slightly to the left of the midline about a half inch cranial to its attachment. This strip is then threaded through the penis for an inch and a half in a cranial lateral direction passing to the right of the midline and one and a half inches cranial to the exit point of the first suture. This same strip is then crossed to the left side about one and one-half inches cranial to the exit point of the first suture. The second strip is handled in a similar manner. The entry point is about three-fourths inch cranial to the first entry point. In doing so it first crosses over the buried part of the first strip and then under the superficial part of the first strip. This forms a double cross on the dorsum of the penis. The two ends are then transfixated and sutured with No. 1 chromic gut. The elastic tunic and connective tissue are then sutured with No. 0 gut and the mucous membrane is closed with No. 1 gut.

The procedure used at Stange Memorial Clinic to correct the deviated penis is a modification of Dr. Walker's procedure by Dr. Richard F. Bristol, Professor of Veterinary Medicine and Surgery, Iowa State University, Ames, Iowa. With this procedure the bull is tranquilized with Sparine prior to surgery. The penis is withdrawn and Lidocaine Hydrochloride* is infiltrated around the penis behind the pre-

* Lidocaine Hydrochloride: Xylocaine, Jen-sal Laboratories.

putial attachment to the penis. The length of the incision will vary but may extend from a quarter inch from the anterior tip through the preputial attachment to the penis. An incision is made to the dorsal ligament of the penis directly opposite the median raphae (Figure I). Two quarter inch strips of this ligament are reflected from each side of the incision, but the caudal attachment is left intact (Figure II). The slit in the dorsal ligament is not sutured. These two strips are used to form a criss-cross pattern over the dorsal ligament of the penis. The strips are sutured to the corpus cavernosum with chromic gut and the ends are sutured together and to the corpus cavernosum (Figure III). The incision is closed by using a continuous sub-cuticular pattern that is buried in the mucous membrane (Figure IV). The bull is given sexual rest for three weeks then the penis is examined to determine the outcome of the surgery.

Failure of these operations have been associated with nerve and vascular damage to the penis that prevents an erection. The success of these operations will vary with the severity of the condition but it appears that a majority of these bulls are benefited by these procedures.

REFERENCES

1. Arthur, G. H.: *Wrights' Veterinary Obstetrics*, Williams and Wilkins Co., Baltimore, Maryland, 1964.
2. Milne, F. J.: Penile and Preputial Problems in the Bull. *Journal of American Veterinary Medical Association*, 124 (1954):11.
3. Roberts, Stephen J.: *Veterinary Obstetrics and Genital Diseases*, Edward Brothers, Inc., Ann Arbor, Michigan, 1961.
4. Walker, O. E.: Deviations of the Bovine Penis. *Journal of American Veterinary Medical Association*, 145 (1964):679-681.