

1960

# Surgical Procedures of the Bovine Teat

J. P. Arnold  
*University of Minnesota*

Follow this and additional works at: [http://lib.dr.iastate.edu/iowastate\\_veterinarian](http://lib.dr.iastate.edu/iowastate_veterinarian)



Part of the [Large or Food Animal and Equine Medicine Commons](#), and the [Veterinary Anatomy Commons](#)

---

## Recommended Citation

Arnold, J. P. (1960) "Surgical Procedures of the Bovine Teat," *Iowa State University Veterinarian*: Vol. 22: Iss. 1, Article 1.  
Available at: [http://lib.dr.iastate.edu/iowastate\\_veterinarian/vol22/iss1/1](http://lib.dr.iastate.edu/iowastate_veterinarian/vol22/iss1/1)

This Article is brought to you for free and open access by the College of Veterinary Medicine at Digital Repository @ Iowa State University. It has been accepted for inclusion in Iowa State University Veterinarian by an authorized administrator of Digital Repository @ Iowa State University. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

# Surgical Procedures of the Bovine Teat

J. P. Arnold, D.V.M., M.S., Ph.D.

**S**TERILE INSTRUMENTS, a carefully prepared operative field, the necessary restraint, a knowledge of the technique for the particular operation, and proper after-care are all important in the performance of successful teat surgery.

It is the purpose of this article to discuss the surgical technique and the post operative treatment of the more commonly performed operations on teats of dairy cattle.

## HARD MILKERS

In dairy areas hard milkers constitute a large number of the calls for teat surgery. A hard milker is a cow in which the teat fills readily but it is difficult to express the milk from the teat. When one places his hand around the teat and tries to express milk, part of the milk can be detected passing past the fingers into the gland sinus.

If this condition is noticed at the beginning of the first lactation period, it very likely is congenital in origin. When congenital, more than one teat may be involved. Those that have been acquired since the beginning of the first lactation period are the result of trauma or irritation. The trauma may be the result of being stepped-on or too much vacuum in milking machine. When milking was done by hand many of the acquired hard milkers were believed to be the result of a strong milker exerting too much pressure on the teat with his fingers. Now many of

these are blamed on milking machines. If the end of the teats around the orifice are inflamed or somewhat everted, the vacuum in the milking machine should be checked and adjusted according to the manufacturer's specifications.



Trauma to the teat often requires medical attention.

The treatment for hard milkers is to enlarge the diameter of the papillary duct or teat canal. This is accomplished by cutting or tearing fibers in the sphincter muscle which acts to close the papillary duct. In preparation for the operation the teat is cleaned, dried and the end painted with tincture of iodine. In mild cases the diameter can be enlarged with Moore's Conical Dilator which stretches and tears fibers. In the more severe cases the muscle can be incised. Teat bistouries, No. 11 Bard Parker blades, or knives with concealed blades which are opened after the

Dr. J. P. Arnold in Head of the Division of Veterinary Surgery and Radiology, School of Veterinary Medicine, University of Minnesota.

blade is in the teat sinus are all used for this purpose. Any of these are satisfactory in the hands of an operator who is accustomed to their use. The papillary duct is enlarged until the milk runs freely from the teat. One may think that such an increase in diameter is too large but when the teat heals and the connective tissue contracts the opening should be large enough to permit easy milking without leaking. The greatest mistake that is made in this type of operation is not sufficiently enlarging the papillary duct.

The after-care consists of infusing antibiotics into the teat and massaging them up into the quarter. Then instructions are left to milk one good forceful stream of milk out of the teat every one-half hour until the milk is no longer blood tinged. This prevents a blood clot from forming in the duct. The teat can be rolled between the fingers if the edges of the incision seem to be adhered at milking time. No teat dilators are used.

#### **COMPLETE OBSTRUCTIONS OF THE END OF THE TEAT**

These are either congenital or acquired through trauma. Regardless of the etiology the treatment is the same. An opening is made where the orifice should be with a 16 gauge needle. Then the opening is enlarged as for hard milkers.

In some teats a large amount of firm connective tissue is present where the orifice should be located. Part of this may have to be removed with a curette or a reamer. Then a teat dilator must be used for a few days.

#### **COWS THAT LEAK MILK**

Cows that leak milk from the end of the teat are usually called "leaky milkers." One should check to see whether this is only when the cows are put in the barn for milking. Cows that do this have been conditioned to let down their milk and should be moved to the head of the milking line.

Those teats from which milk continually drips are true "leaky milkers" and should be treated. This is done by injecting small quantities of Lugol's solution around the teat orifice. A small amount is injected in 4-5 places around the orifice.

One will have to judge the amount to be injected on the fibrosis necessary to prevent the leakage of milk. The end of the teat will swell for a few days and be difficult to milk; then the swelling will subside.

Another cause of leaking milk is teat fistulas. These also may be congenital or be the result of trauma in the form of being stepped on or wire cuts.

The congenital teat fistulas are usually smaller and are not surrounded by firm connective tissue as are the acquired ones. The best time to treat fistulas is when the animal is dry. Small teat fistulas are treated by dissecting out the lining and closing with a purse string suture or by mattress sutures. Many times the veterinarian is called when the cow is in lactation. A method which seems to work best in these animals is to cover the fistula with plastic dehorning fluid and to place a Larson plastic teat tube without the cap in the teat so that milk drains from the teat as it collects. Several applications may be necessary.

#### **TEAT INJURIES**

These are varied and range from lacerations to severely contused and infected teats. It seems as if no two are exactly alike and all must be treated as they are presented.

Lacerations of recent origin and in which the teat sinus has not been invaded may be gently cleansed and debrided if necessary. The laceration may then be sutured providing sufficient viable tissue is present. Chromic catgut is used for buried stitches while synthetic suture material is used in the skin. Lacerations which have become infected and severely contused teats are debrided and treated as open wounds. Bandaging is optional and depends on the particular lesion presented. Teats from which it is difficult to remove milk are infused with antibiotics and a plastic teat tube is inserted into the papillary duct or teat canal. Severely infected and contused or swollen teats can be benefited by soaking them in a 1:1000 solution of bichloride of mercury before each milking.

Lacerations and contusions which in-

*(Continued to page 17)*

A cotton swab is satisfactory although some prefer a bacteriological loop which can be sterilized in the flame and used for direct inoculation. The plates should be examined in 18-24 hours when most pathogens encountered will have grown. They include hemolytic Streptococci, *Klebsiella* and hemolytic *E. coli*.

**PORCINE: Rectal Swabs:** — Certain serological types of *Escherichia coli* are responsible for intestinal tract infections of young pigs and enterotoxemia. Many of these strains are hemolytic and are the predominate aerobic organism on blood or MacConkey's agar. The direct sensitivity test on the rectal swab will indicate the chemotherapeutic agent most likely to be successful in controlling the infection. *Vibrio coli* will not grow under the conditions described, but can be observed in large numbers as a curved gram negative organism on a gram stained smear of feces

**BOVINE: Milk Samples** — In the diagnosis and treatment of bovine mastitis, a cultural examination has marked value as most pathogens grow in 24-48 hours. These include hemolytic *Staphylococcus aureus*, *Streptococcus agalactiae*, other streptococci species exhibiting varying degrees and types of hemolysis, *E. coli*, *Klebsiella pneumoniae*, *Corynebacterium pyogenes* and yeast. The colonies are sufficiently distinctive for recognition although a 24 hour growth of a yeast will resemble a non-hemolytic streptococcus. The sensitivity pattern and a stained smear help to identify the organism, i.e. a yeast will be resistant to all antibiotics while the streptococcus is sensitive to most. The number of colonies will vary but the average loopful will give 10 colonies or more on the plate. There will be no growth in approximately 25 percent of the cases. These prove to be a disappointment to the clinician when he begins culturing milk from acute cases. One reason, for this is the fact that during the acute phase the number of bacteria is drastically reduced due to leucocytic activity.

#### Summary

A brief outline of a method has been presented whereby a clinician may conduct simple and useful procedures for diagnosis of bacterial infections. *End*

#### Bovine Teat Surgery

(Continued from page 10)

vade the teat sinus and in which milk is leaking from the teat are more difficult to treat. Lacerations with little swelling are gently cleansed and a rubber band or a compression forcep is placed across the base of the teat to prevent the flow of blood and milk over the operative area. The mucosal layer and the tough connective tissue layer just beneath it are sutured with a simple continuous stitch. Mattress tension stitches of synthetic material are then used to bring the edges of the wound in apposition. The skin is closed with simple interrupted stitches of synthetic material. The teat is infused with antibiotic and a Larson type plastic teat tube is inserted with the cap off. The wound is covered with a plastic spray. The teat tube is removed in three to four days, the synthetic sutures in about eight days. If the papillary duct is opened by the laceration, Mutrux places the teat tube in the duct first and closes the wound over it.

Contusions and infected lacerations are debrided to remove the infected tissue. Then if enough tissue remains, the wall is closed by using a subcuticular stitch and closing the skin if possible. Bandaging the greatly swollen teats is sometimes of value.

In conclusion it can be said that more successful operations could be performed on the bovine teat if careful attention were given to the use of sterile instruments, the preparation of the operative field, restraint, technique of the operation, and to post operative care.

#### REFERENCES

1. Arnold, J. P. and Weber, A. F., Teat Surgery, *Vet. Med.* 52:417-426. 1957.
2. Dykstra, R. R., Some Bovine Udder Surgery, *Vet. Med.* 23:131-140. 1928.
3. Fowler, G. R., Bovine Surgery, *Jour. Am. Vet. Med. Assn.* 98:393-398. 1941.
4. Mutrux, R. A., T.V. Demonstration at 96th Annual Meeting of Am. Vet. Med. Assn. 1959.

*End*

---

Superior meat and wool have resulted from U. S. Department of Agriculture crossbreeding of Hampshire, Shropshire and Southdown sheep.