

Heifer Spay

by
Charles C. Holz*
and
Lawrence E. Evans, D.V.M.†

Spaying heifers dates back to the 1850's when it was used to prolong the productivity of milking cows. These cows were spayed at 30 to 40 days after calving or before they came into estrus. This would prolong the milking period of these older cows for two to three years. The cows would also fatten faster on high energy feed for slaughter (1).

Ovariectomy can also be used as a means of abortion in heifers. In studies on 120 head of heifers and cows, ovariectomies were performed at various stages of pregnancy from 60 to 240 days. With removal of the ovary containing the corpus luteum, essentially 100% of the heifers and cows aborted if they were less than 180 days into pregnancy. After 200 days of pregnancy very few aborted, indicating that progesterone from the CL is no longer needed for maintenance of pregnancy. A problem that developed with this technique was a large number of retained placentas, especially in cows and heifers over 120 days of pregnancy (2).

Results of 1956 feeding trials with steers, open heifers, and spayed heifers showed that there was no improved rate of gain or feed efficiency with spayed heifers over open heifers. There were two groups, one group spayed at three months and the other group spayed at one year. The results indicated a better rate of gain in the heifers spayed at one year. Carcasses of these animals were also evaluated and results showed a substantial increase in carcass quality and grade of heifers that were spayed (3).

*C. C. Holz is a fourth year student in the College of Veterinary Medicine, Iowa State University.

†Dr. Evans is an Associate Professor of Veterinary Clinical Sciences, Iowa State University.

Ovariectomies are widely used in western states to prevent pregnancy in young heifers. Many large ranches will run cows, bulls, heifers, and steers in the same pasture during grazing season. This eliminates having several different pastures and fences on a large ranch.

With the introduction of stilbestrol on the market, the use of an ovariectomy or oophorectomy was not economical. Results with stilbestrol showed a large increase in rate of gain and feed efficiency with less advantage in spayed heifers compared to open heifers. It also showed evidence of genital organ enlargement on both open and spayed heifers. Now that stilbestrol is considered a carcinogenic compound and will probably be removed from the market as a feed additive for feedlot cattle, heifer spaying may again become economically significant as a method of controlling estrus in feedlot heifers (4).

MGA, megestrol acetate, has been used for several years to inhibit the normal estrous cycle in feedlot heifers. It is fed orally as a feed additive. There are two problems with MGA. First, MGA must be fed everyday; if a day is missed, most of the heifers will cycle within two or three days. Bad weather, mechanical failure, or other management problem may cause this to occur. With many heifers coming into estrus at the same time there is a high incidence of rectal and vaginal prolapses and also a high incidence of physical injury from excess "riding" of other heifers. The second problem is the cost involved in feeding MGA, usually two to three cents per day, which over a 240 day feeding period for a 400 lb. heifer amounts to about \$4.80 per head (5).

With surgical removal of the ovaries

there is no problem with estrous cycles and no need to feed MGA. The heifers seem to respond better to other growth promotion additives resulting fast gain with a highly desirable carcass.

The usual cost of a heifer spay is between \$3.50 and \$5.00 per head in large herds, which is competitive with the use of MGA for estrus control (6).

There are several modes for performing an ovariectomy of the bovine. They all have advantages and disadvantages and are based on the size of the animal.

The first approach, through the vagina, is usually used on mature animals for the removal of cystic ovaries. No incision in the skin is made to reduce the value of the hide. The disadvantages are that the surgery is much slower and harder to perform.

The cow should be restrained in some type of chute and headgate. An epidural is used for the anesthesia. Blocks or ropes should be used for support so the cow does not lie down. An enema or purse string suture in the anus should be used to prevent fecal contamination of surgical area. The perineal area is prepped for surgery, and the vagina is washed out two or three times with a mild antiseptic.

The vaginal speculum is placed in the vagina and is pushed up to cause the dorsal vaginal wall to move away from the rectum. A scapel or guarded bistoury is inserted and an incision long enough to insert a hand is made in the dorsal wall of the vagina just caudal to the cervix. The surgeon follows the horns of the uterus to the ovaries. An ecraseur is inserted and placed around the pedical of the ovary. A 180° turn of the ovary is made and then the ecraseur is closed to pinch off the ovary. The other ovary is removed in the same fashion. The vaginal opening is closed with catgut and the operation is complete. Usually no aftercare is necessary.

The second method, a midventral approach, is used mostly on heifers less than 350 lbs. The heifer is placed on her back and the legs are tied to posts about twelve feet apart. (7).

The area just caudal to the umbilicus is prepped and a line block can be used in the skin. The incision is made on the midline through the skin and fascia. The hand of the surgeon is inserted into the abdominal

cavity usually by way of grid opening through the muscle. The uterus is located at the brim of the pelvis. The surgeon follows the horns of the uterus to the end and grasps the ovaries. The ecraseur is inserted along the opening and placed around the ovarian pedical. A 180° turn of the pedical is made and the ovary is pinched off. The other ovary is removed in the same way. The ecraseur and ovaries are removed from the abdominal cavity. Two or three through and through umbilical tape sutures are placed in the skin and underlying fascia. The animal is released. No aftercare is needed (8).

The advantages of this method are that the hide of the animal is not damaged and it is easy to suture. Because the animal must be laid on its back, restraint during surgery may be a disadvantage.

The third and most common method of an ovariectomy is the left laparotomy approach. The advantage of this approach is that it is quick and easy to perform. The disadvantage is that it causes some damage to the hide.

This standing laparotomy approach is used mostly on heifers 400 lbs. and above. The animal is placed in a restraining chute. Local anesthesia can be used. The left lumbar area is clipped and prepped.

An incision is made through the skin and fascia large enough to allow the left hand of the surgeon to enter. A grid opening is made by pushing the hand through the muscle layers and peritoneum. The uterus is located at the brim of the pelvis. Following the horns of the uterus, the ovary is grasped and twisted 180°. The ecraseur is inserted and placed around the ovarian pedical. The ovary is pinched off. The other ovary is removed in similar fashion and ecraseur and ovaries are removed from the abdominal cavity. The skin is sutured with two or three umbilical tape sutures. Tetracycline powder may be sprayed into the incision as a precaution against infection. The animal is released and no aftercare is needed (9).

The third method is the fastest and will be expedited when three people aid in the surgery: one to clip and prep the area, one for the surgery, and one for the suturing. 300 to 400 head can be spayed in about eight hours.

The death rate for heifer spaying is usually between 0.5% to 1%, which can be greatly reduced with use of good surgical technique and proper instruments. The usual cause of death is shock or hemorrhage (10).

FOOTNOTES

1. W. L. Williams, "Surgical and Obstetrical Operations," (1912), pp. 130-131.
2. V. L. Estergreen, Jr., "Effects of Ovariectomy on Pregnancy Maintenance and Parturition of Dairy Cattle," *Journal of Dairy Science*; August, 1967, 50:1293-5.
3. "Feeding Comparison of Steers, Open Heifers and Spayed Heifers," *North Dakota Agricultural Experimental Station Bimonthly Bulletin*; 1956, 19:53-57.
4. H. W. Reuber, "Genital Effects of Diethylstilbesterol in Spayed Heifers," *Journal of American Veterinary Medical Association*, September 1, 1960, 137:304-7.
5. I. A. Dyer, and C. C. O'Marcy, "The Feedlot," (1974), p. 87.
6. R. L. Lundvall, Personal Interview.

7. Williams, pp. 131-134.
8. J. A. W. Dollars, "Regional Veterinary Surgery and Operative Techniques," (1912), pp. 227-241.
9. E. R. Frank, "Veterinary Surgery", (1961), pp. 271-272.
10. R. L. Lundvall, Personal Interview.

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