

CASE REPORT

Surgical Removal of a Granulosa Cell Tumor from a Heifer

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Summary

A twelve month old, noncycling Holstein-Friesian heifer, was examined because of abnormal udder development. Rectal palpation revealed a tense right uterine horn. A solid mass in the right abdomen was detected by ballottement. A granulosa cell tumor of the right ovary was removed and nine months later the animal conceived.

Résumé

Excision chirurgicale d'une tumeur des cellules de la granuleuse chez une taure

Une taure de race Holstein-Friesian, âgée de 12 mois et n'ayant pas encore présenté d'oestrus clinique, fut examinée pour développement précoce de la glande mammaire. La palpation transrectale révéla une corne utérine droite tendue et une masse fut détectée par ballottement au niveau du flanc droit. Suite à la présence d'une tumeur des cellules de la granuleuse de l'ovaire droit, une ovariectomie unilatérale fut pratiquée. Neuf mois plus tard, l'animal fut inséminé avec succès.

Introduction

Granulosa cell tumor (GCT), the most common bovine ovarian tumor (4,5,10), is seen usually in aged cows although cows of any age can be affected (6,7). It is frequently metastatic in the cow (1,2) and can disseminate to the peritoneal surface, the broad ligament, the lungs and regional lymph nodes. The neoplasm is also reported to produce endocrine disorders modifying the animal's behavior and causing body changes such as mammary development (3,9,11). We report a case in which surgical removal of the affected ovary appeared as a

useful alternative to slaughter and allowed a valuable animal to conceive.

History and Clinical Signs

The animal was a twelve month old Holstein-Friesian heifer whose owner had noticed a marked mammary development in the preceding three weeks (Figure 1). She was kept isolated from other animals in order to prevent suckling. Behavioral disturbances were not seen. The udder was hypertrophied and secreted a thick colostrum-like substance but it was not inflamed. The sacrosciatic ligaments were normal. At rectal examination, the left uterine horn was normal and the left ovary (2 x 1 cm) carried no identifiable structure. The right uterine horn was pulled cranioventrally and could not be retracted. Ballottement of the right abdominal side revealed the presence of a solid, movable mass.

Based on the history and clinical signs, an ovarian tumor or cyst was suspected and the animal was prepared for an exploratory laparotomy.

Surgical Treatment and Follow-up

The animal was given 300 mg mep-eridine¹ and 30 mg acepromazine² intramuscularly, 15 minutes prior to surgery. The right abdomen was routinely prepared for laparotomy and a 35 cm line was infiltrated with mepivacaine 2%.³ Upon opening the peritoneal cavity, a multilobular spherical mass (20 x 25 cm) was found in place of the right ovary. Mesenteric lymph nodes and adjacent viscera appeared normal. Unilateral ovariectomy was performed. The ovarian pedicle was ligated in a transfixed pattern with umbilical tape and major blood vessels were ligated separately. The tumor weighed 4 kg and histopathological



FIGURE 1. Hypertrophy of the mammary gland in a one year old heifer.

¹Demerol, Winthrop, Aurora, Ontario.

²Atravet, Ayerst Laboratories, Montréal, Québec.

³Carbocaine, Winthrop, Aurora, Ontario.

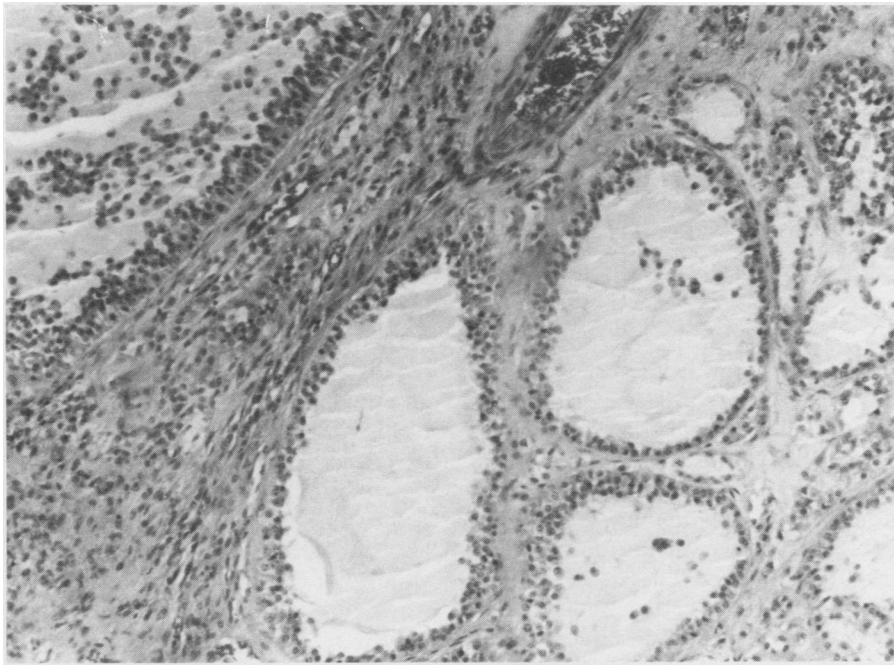


FIGURE 2. Granulosa cell tumor of the mammary gland. Note the epithelial aspect of the cells with round nuclei and abundant cytoplasm. The fluid-filled, rounded open spaces have the appearance of Graafian follicles. X400.

examination confirmed a diagnosis of GCT (Figure 2).

The animal had an uneventful recovery and the mammary gland returned to normal in the month following surgery. The heifer conceived at the second insemination nine months after the operation and subsequently calved normally.

Discussion

Practitioners presented with a case of ovarian tumor in cattle may often recommend that the affected animal be slaughtered but it would seem that ovariectomy can be a useful alternative. In the mare, the surgical approach is often used in case of GCT

with fairly good results (12). In the present case, the laparotomy revealed no morphological evidence of metastasis to adjacent viscera and regional ganglionic structures. This is important for the prognosis because a study of bovine cadavers reported that GCT was found to have metastasized in nine of 13 cases (9).

The heifer presented no behavioral disturbances such as nymphomania or virilism. Anestrus and hypertrophy of the mammary gland presumably from excess estrogen secretion were the clinical signs. If the mammary gland is normal, hormone assays are necessary to predict the histopathological type of the tumor (8).

Acknowledgments

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