Assiut Vet. Med. J. Vol. 41 No. 82, July 1999

Dept. of Surgery
Fac. Vet. Med., Assiut University.

MASTECTOMY AS A RADICAL TREATMENT FOR SOME PREVALENT UDDER AFFECTIONS IN GOATS IN AL-GASSEEM

(With 16 Figures)

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(Received at 15/6/1999)

استئصال الضرع كعلاج جذرى للاصابات الشائعة فى ضرع الماعز بالقصيم

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شملت هذه الدراسة ٢٨ ماعز بها إصابات غير قابلة للشفاء بالضرع ، حيث أجريت عملية إستئصال نصف الضرع في ١٦ حالة والاستئصال الكلى للضرع في ١٢ حالة. وقد تبين من الدراسة أن الاستئصال الكلى للضرع أسهل كثيراً عن الاستئصال النصفي. ففي الاستئصال النصفي لابد من ربط الأوعية الدموية الموصلة بين نصفي الضرع خاصة على السطح الخلفي والبطني بالإضافة إلى ربط الأوعية الرئيسية. وأثناء عملية الاستئصال النصفي يجب الحذر عند فصل نصفي الضرع لتفادى تهتك النسيج الغدي للنصف السليم لقلة النسيج الذي يفصل بين نصفي الضرع ورقة الجزء الأنسي من جهاز التعليق. ويختلف شكل واتجاه الشق الأولى للعملية وكذلك الشكل النهائي للالتئام باختلاف شكل وحجم الضرع ومساحة الالتحام بين الضرع وجسم الحيوان وكذلك التغيرات المرضية لجلد الضرع. فعندما تكون قاعدة الضرع ومساحة اتصاله بالجسم كبيرة تكون هناك حاجة لعمل شق عرضي عند مستوى القناة الأربية على أحد أو كلا الجانبين للشق المغزلي الطولي حول قاعدة الضرع وذلك لتسهيل عملية الاستئصال وكذلك تسهيل قطب الأنسجة. ولقطب جهاز التعليق بعد استئصال نصف الضرع أهمية كبيرة ليس فقط للمساعدة في حمل النصف المتبقي بل أيضاً لتسهيل غلق الفراغ بين الأنسجة وتحسين الشكل الظاهري بعد العملية.

SUMMARY

Mastectomy was carried out on 28 goats. Partial mastectomy was performed for 16 goats and total mastectomy for 12 goats. Total mastectomy was more easier than partial mastectomy. During total mastectomy, only the main blood vessels were to be ligated,

but in partial mastectomy, a lot of connecting blood vessels were to be ligated in addition to the main ones. Much more effort and atmost care were needed to avoid injury of the sound half of the udder due to the small amount of the loose connective tissue between the two halves and weakness of the medial division of the suspensory apparatus. The shape of the primary incision and the final closure differed greatly according to the shape, size and the area of attachement of the udder to the abdominal wall. Suturing of the suspensory apparatus and anchoring some stitches to the underlying structures played a role in closure of the dead space, bearing the remained udder half and the cosmetic appearance postoperatively.

Key Words: *Mastectomy goats*

INTRODUCTION

The various forms of udder affections in goats were discussed by Baxendell (1985) and Abu-Samra et al. (1988). The udder is situated in the inguinal region. It comprises two glands that are distinctly demarkated externally. In milk goats the udder is relatively large in relation to body size and is deep and rather conical (Dyce et al., 1996).

The udder is suspended by strong fascial sheets that surround and enclose the gland substance and extend inward to fuse with the connective tissue framework that permeats the entire organ. Although careful examination shows that the fascia that cover the inner and outer aspects of each udder half forms a continuous investment, it is usual to describe medial and lateral laminae as though these were independent. The chief origin of the medial lamina is from the tunica flava bordering the lina alba. The lateral lamina arises from the lateral crus of the external inguinal ring and symphysial tendon. The right and left medial laminae are separated by a small amount of loose connective tissue (Dyce et al., 1996).

Regarding the blood supply to the udder, in the cow, the external pudendal artery is complemented by a small mammary branch of the ventral perineal artery. The mammary arteries from the left and right halves of the udder are interconnected caudal to the laminae. The venous drainage is effected by the external

pudendal veins and the subcutaneous abdominal (milk) veins, in addition to one or two ventral labial veins (Dyce et al., 1996). The blood supply to the udder in the small ruminants is entirely through the external pudendal artery (Shively, 1984).

The udder receives a multiple innervation from lumbar and sacral spinal nerves. The gland substance and the deeper parts of the teat wall are served by the genito femoral nerve alone but the skin covering the udder is supplied from three directions. The ventral branches of the first and second lumbar nerves pass caudoventrally over the abdominal wall to supply the skin over the cranial parts, the genitofemoral nerve passes through the inguinal canal and sends superficial branches to the skin over the middle section of the udder. The mammary branches of the pudendal nerve supply the skin over the caudal part (Dyce et al., 1996).

It was stated that mastectomy is indicated for the irreparable udder injuries such as chronic suppurative mastitis, chronic obstructive mastitis or gangrenous mastitis (Ramadan, 1994). The present study is a comparison between partial and total mastectomy in goats. The variations of the surgical interventions and various findings are also discussed.

MATERIALS and METHODS

The present study was carried out on 28 goats. Partial mastectomy was done for 16 goats and total mastectomy was performed for 12 goats.

Food was withheld 24 hours preoperatively. The animals were tranquillized by the intramuscular administration of Calmvet (Vetoquinol S.a., Magnyvernois, 70200 lure, France) in a dose rate of 2.5 mg/10 Kg. body weight, 10 minutes preoperatively.

The operations were performed while the animals were secured in the right lateral recumbency and the left hind limb was tied to the opposite vertical side of the table. The tail was tied away from the operative side. When the right half of the udder was to be excised, the left lateral recumbency was used.

Surgery was performed after making field block subcutaneously around the udder base and deep in the inguinal region using 2% lidocaine HcL. Intravenons infusion with 5% dextrose in isotonic saline was given during surgery.

In case of total mastectomy, a longitudinal fusiform incision was performed in the skin of the udder leaving skin enough for coapitation without tension.

In the non pedunculated udder where the area of attachement to the abdomen is broad, a vertical incision was done extending from the level of the inginal ring ventrally towards the fusiform incision. Before joining the longitudinal incision the vertical one was bifurcated cranially and caudally to meet smoothly the former incision. Using blunt dissection, as much as could be done, the skin was elevated to expose the udder base. The milk veins were double ligated and were cut. The udder mass was excised by blunt dissection after cutting the suspensory apparatus. After excision of the udder, the subcutaneous tissue was closed in the vertical incisions then the longitudinal one. While closing the subcutaneous tissue small bits from the underlying structures of the abdominal wall were encluded to tuck the free folds to the abdomen to prevent gaping. Finally the skin was closed. When the udder was pedunculated no vertical incisions were done.

In case of partial mastectomy, the medial line of the fusiform incision was performed about 2 centimeters lateral to the groove between the the two udder halves towards the one to be excised. Dissection was made carefully and the interconnecting blood vessels between the two halves of the udder were double ligated and cut. A considerable part of the suspensory apparatus of the excised half was left to suspend the other half. Before closing the skin and the subcutaneous tissue the suspensory apparatus was sutured and the gap was closed by anchoring the subcutaneous tissue to the medial lamina of the suspensory apparatus of the remained half.

RESULTS

The primary incision shape for mastectomy in goats, and the final closure differed greatly according to the shape, size and the attachement area of the udder to the abdominal wall. When the udder was pedunculated, the area of attachement to the abdomen was narrow (Fig. 1 & 2), therefore the longitudinal fusiform incision was sufficient for excision of the udder. The longitudinal closure was easy (Fig. 3). On the contrary, when the

udder had a wide attachement to the abdomen there was a need to a considerable skin of the udder to cover its place after excision. When both halves of udder were enlarged with wide base, two vertical incisions were needed to facilitate dissection and closure (Fig. 4, 5 & 6). When only one side was enlarged the need was only for one vertical incision (Fig. 7 & 8). The vertical incisions were done at the level of inguinal ring. These vertical incisions facilitated dissection of the udder base and final closure of the incision. Also, anchoring the subcutaneous tissue to the underlying abdominal wall appeared to be of great importance to avoid gapping. Careful dissection and double ligation of the blood vessels were inevitable to avoid the dangerous haemorrhage that might occur during mastectomy.

Total mastectomy was more easier than partial mastectomy. In case of total mastectomy only the main blood vessels were ligated, but in partial mastectomy a lot of connecting blood vessels were to be ligated in addition to the main ones. The connecting blood vessels between the udder halves were numerous on the caudal and ventral aspects of the udder. Dissection of the suspensory apparatus, in case of partial mastectomy needed much patience and great care especially in the distal part, otherwise injury of the other half might occur. Leaving a considerable part of the suspensory apparatus of the excised half enabled good suspension for the remained one. The shape of the skin closure after partial mastectomy varried according to the udder shape and size (Fig. 9, 10, 11, 12, 13 & 14). The transfixing stitches into the underlying structures during coapitation of the cut edges of the suspensory apparatus enabled good closure of the gap which was left from the excision of the udder half. Suturing of the cut edges of the suspensory apparatus seemed to be of great importance in bearing the remained half and preventing its discent (Fig. 15 & 16).

DISCUSSION

Mastectomy is indicated in many instances such as irreparable udder injuries, chronic suppurative mastitis, chronic obstructive mastitis or gangrenous mastitis (Ramadan, 1994). Although, mastectomy can be performed under effect of epidural analgesia, the field block may be better to avoid the fall in blood

pressure that might occur after the use of epidural analgesia (Hall, 1977). The mastetic udder is usually so large and has a massive net of blood vessels that its excision may be dangerous if epidural analgesia is used.

During mastectomy in goats, the udder shape, size, area of attachement to the abdominal wall and the viability of the skin affect greatly the shape of both the primary incision and the final closure of the skin. Total mastectomy of the pedunculated udder with narrow attachement to the abdomen is more easier than that with wide base and broad attachement. The longitudinal fusiform incision is quite sufficient for excision of the pedunculated udder. The udder with wide base needs a considerable skin flap to be dissected from the udder to cover the udder place. The vertical incisions are needed not only to dissect the udder base but also to facilitate the gap closure and let the skin to be tucked to the abdominal wall. To relieve the tension on the longitudinal closure, the transverse closure can be extended medial on one or both sides.

Control of haemorrhage needs more effort during partial mastectomy because of the numerous interconnecting blood vessels between the two halves of the udder especially on the caudal and ventral surfaces. Suturing of the cut edges of the suspensory apparatus after partial mastectomy seems to be of great importance not only to bear the other half but also for the cosmetic appearance postoperatively.

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EXPLANATION of FIGURES

Fig. (1): A goat with complicated gangrenous mastitis. the udder is pedunculated and is resting on the ground.

Fig. (2): A pedunculated gangrenous mastetic udder.

Fig. (3): A longitudinal closure of the fusiform incision after excision of a pedunculated udder, one week postoperatively.

Fig. (4): A goat with gangrenous mastitis. the udder has a broad attachement to the abdominal wall.

Fig. (5): A goat with gangrenous mastitis. The udder has a broad attachement to the abdomen.

Fig. (6): Closure after excision of the udder with broad attachement to the abdomen. There are two vertical incisions on both sides of the longitudinal one.

Fig. (7): A complicated mastitis. The udder is enlarged and has a wide base on one side.

Fig. (8): Closure after excision of a unilaterally enlarged udder. There is only one vertical incision in addition to the longitudinal one.

Fig. (9): A unilateral complicated mastetic udder.

Fig. (10): A unilateral mastetic udder.

Fig. (11): A unilateral mastetic udder.

Fig. (12): A curved incision after unilateral mastectomy.

Fig. (13): A half circle incision after unilateral mastectomy.

Fig. (14): A vertical incision in addition to the longitudinal incision after unilateral mastectomy.

Fig. (15): A unilateral gangrenous mastitis with disendence of the whole udder.

Fig. (16): A unilateral mastectomy. Suturing of the cut-edges of the suspensory apparatus of the excised half is effective in preventing the descent of the remained half.


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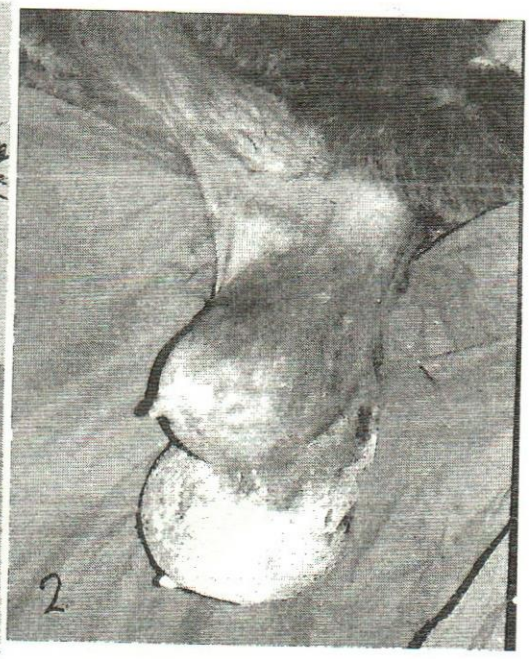
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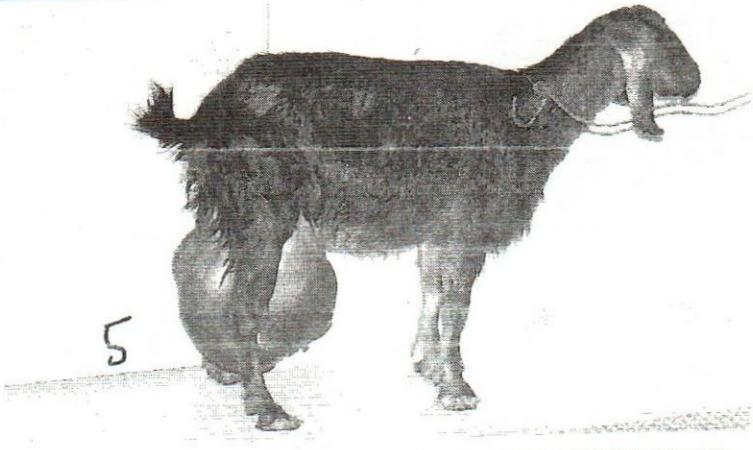
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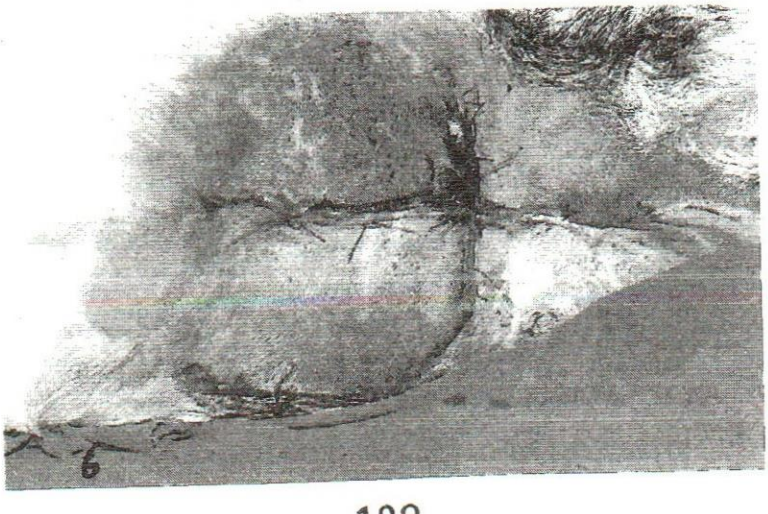
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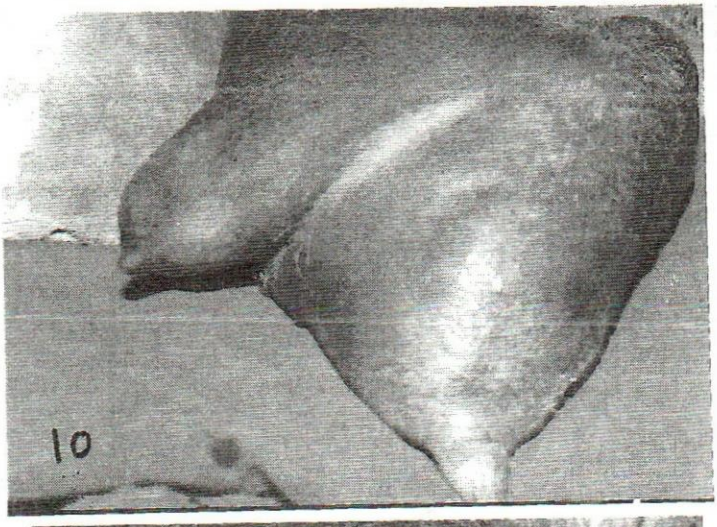
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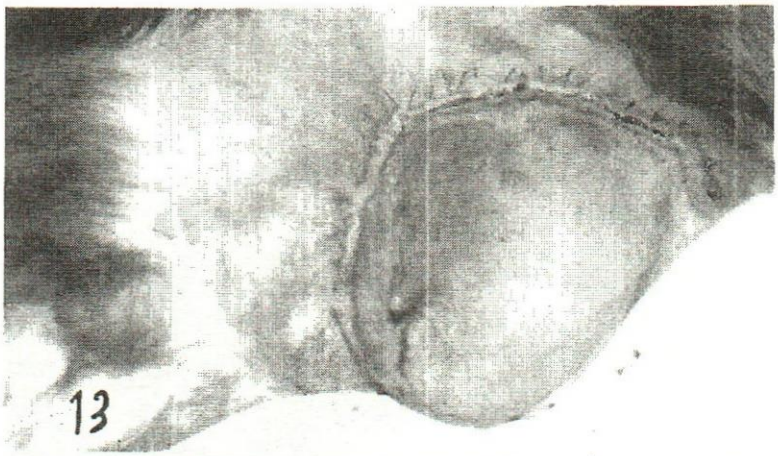
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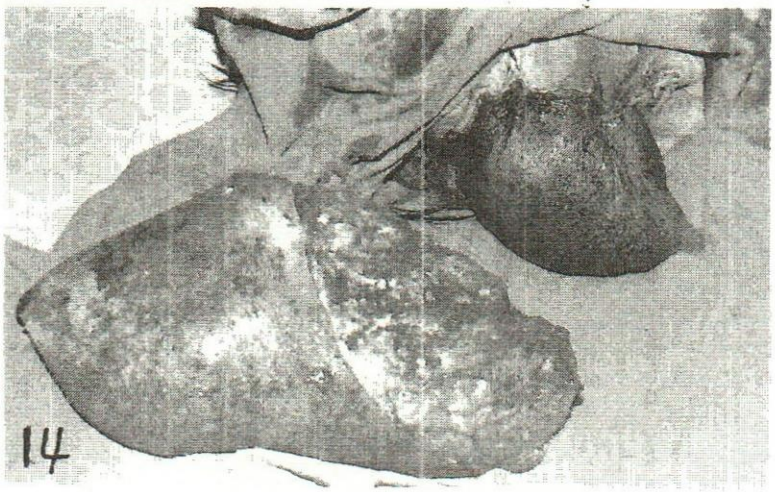
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