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COMPARATIVE STUDIES OF RUMENOTOMY IN SHEEP AND GOATS

(With 5 Figures)

By

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دراسات مقارنة لعملية فتح الكرش في الأغنام والماعز

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لقد أجريت دراسة مقارنة لعملية فتح الكرش في عدد ١٧ حيوان (٨ ماعز و ٩ أغنام) . رغم سهولة التحكم في المجترات الصغيرة في وضع الرقود الجانبي أثناء العمليات الجراحية لكن عند فتح الكرش تكون العملية آمنة وأسهل في الوضع واقفاً . ويكون الرقود الصدري هو الحل المناسب عند عدم قدرة الحيوان على الاستمرار في وضع الوقوف . أما في حالة الانفوخ الرغوى يكون الوضع واقفاً هو الحل الأمثل تفادياً للخطر الذي يحدث عند محاولة ترقيد الحيوان . وقد إتضح أن طريقة خياطة الكرش الى البريتون بالخياطة المستمرة تؤدي الى تكوين ثنية غير مرنة حول شق الكرش مما يعيق إخراج الأجسام الغريبة التي تكون ملفوفة على شكل كتل كبيرة . الحالات التي بها نفاخ رغوي وتلك التي سبق عمل بذل لها يجب أن تعامل بحرص لتقليل التلوث . وقد كانت الأجسام الغريبة في معظم الحالات على شكل كتل من الحبال الملفوفة أو المواد البلاستيكية أو الجلد الملفوف .

SUMMARY

Comparative studies of rumenotomy were carried out on 17 animals; 8 goats and 9 sheep. Although, it was easy to secure small ruminants for surgery in the recumbent position, rumenotomy in the standing animal was safe and much more easier than in the recumbent one. When the animal was not able to persist standing, sternal recumbency was a good option. The standing position was the unique solution in case of frothy

tympany. Suturing of the rumen to the peritoneum in a continuous seromuscular pattern formed a non elastic ring around the rumenotomy opening that hindered the passage of the large foreign bodies. The animals with frothy tympany and the recently trocarized cases should be handled carefully to diminish contamination. The foreign bodies were coiled ropes, coiled plastics or coiled leather in most cases. In the standing small ruminants it was easy to withdraw the sutured ruminal surface out of the abdomen, where it was thoroughly flushed with normal saline.

Key words: Comparative studies of rumenotomy in sheep and goats

INTRODUCTION

While rumenotomy is done in standing position in cattle and buffaloes, sternal recumbency is required in camels. Rumenotomy is indicated to remove foreign bodies from the reticulum, in cattle and buffaloes. In camel, rumenotomy is indicated to remove impacted feed and foreign bodies (Tyagi *et al.*, 1996). The foreign bodies in the rumen are to be removed before examination of the reticulum (Oehme and Prier, 1974).

Several techniques are available for performing rumenotomy. In general, it is necessary to use some methods secured firmly against the flank wall so that contamination of the muscles and peritoneal cavity is avoided. These methods include suturing the rumen to the skin or peritoneum, the use of a rumen ring and shroud inserted into rumenotomy incision and the use of a self retaining rumen retractor with large vulsellum forceps and hooks. All of these techniques aim to avoid contamination of the peritoneal cavity by isolating the rumen before opening it or as it is opened (Oehme and Prier, 1974; Noordsy, 1980; Jennings, 1984 and Tyagi *et al.*, 1996).

It seems to be easy to secure small ruminants for surgery in the recumbent position. The situation may differ in case of rumenotomy. The present study aimed to compare between rumenotomy in standing and recumbent position in small ruminants.

MATERIALS and METHODS

The present study was carried out on 17 animals; 8 goats and 9 sheep. Rumenotomy was performed in the standing position in 12 animals (8 goats and 4 sheep) and in the recumbent position in 5 sheep.

The operations were performed under effect of local infiltration analgesia with lidocaine hydrochloride (2% solution). A left flank laparotomy was done by making an incision; about 15 cm long, parallel to the last rib and about 4 cm caudal to it. The skin and the external oblique abdominal muscles were incised, but the internal oblique and the transverse muscles were split along the direction of the muscle fibres. Weingarh's set was used in the standing position in 9 cases. The rumen was sutured to the peritoneum by a seromuscular suture in a continuous pattern in four cases. The rumen in four cases was fixed to the external abdominal muscle and the subcutaneous tissue by 4 stay stitches; upper, lower and both sides. These stitches did not penetrate to the ruminal lumen. A sterile towel was used to isolate the abdominal wound from the exteriorized ruminal fold. The ruminal wound lips were drawn asides using towel clips. After exterioration of the foreign bodies, the ruminal wound sides were cleaned by saline moistened gauze. The rumen was closed with chromic catgut size 1, in cushing suture pattern in two raws. Before the second raw, the ruminal wall was re-cleaned by saline moistened gauze. Penicilline-streptomycin was applied locally on the sutured rumen. The abdominal wall was closed as usual. The skin stitches were removed 10 days post operatively.

RESULTS

Rumenotomy in the standing position (Fig. 1, 2 & 3) was much more easier than in the recumbency. When the animal was not able to persist standing sternal recumbency was a good option. The use of a towel around the ruminal fold provided a good protection from contamination. Weingarh's set was used only in the standing position. Rumenotomy in the standing position was the unique solution in case of frothy tympany (Fig. 4), where it was dangerous to put the animal with a distended rumen in the recumbent position. In these cases the weingarh's set was not used because of the great distention of the rumen.

Rumenotomy for an animal in lateral recumbency proved to be a non suitable technique. Much more effort was needed to avoid contamination of the peritoneum. Additional effort was needed when the rumen had more fluids.

Suturing of the rumen to the peritoneum in a continuous seromuscular pattern formed a non elastic ring around the rumenotomy opening. This made a difficulty in passing the large foreign bodies out of the rumen. This technique was time consumer.

When the animal was operated within few days or hours after trocarization, the rumen surface around the trocar site and the opposite peritoneal surface was cleaned carefully. The rumen incision was performed passing through the trocar site. When the rumen was severely distended, the rumen wall was grasped by two seromuscular stitches about 1.5 cm on both sides of the line where the rumen incision would pass. These stitches gave an aid to avoid massive contamination after incising the rumen.

The foreign bodies were coiled ropes, coiled plastics or coiled leather (Fig. 5) in most cases (12 animals). These coiled materials formed large masses and much effort was needed to get rid of them. The foreign bodies were in the form of hair balls in 2 cases. Small amounts of sand and stones were found in some cases (2 animals). Some of the sand and stones were in the reticulum. In one case (4 months lamb) the rumen had a large amount of sand. External palpation gives the feel of a solid heavy mass. When a part of that mass was held between the thumb and index finger sand was felt to escape from between the fingers.

DISCUSSION

Although it is easier to secure small ruminants for surgery in the lateral recumbency, the situation differs greatly in case of rumenotomy. The lateral recumbency is dangerous for the animals with distended rumen. The peritoneum is more prone to contamination and great care is needed to avoid contamination. The standing position which was described for cattle and buffaloes (Oehme and Prier, 1974 and Tyagi *et al.*, 1996) is the best one for rumenotomy in sheep and goat. The sternal recumbency which was described for camels (Tyagi *et al.*, 1996) may be used when the animal can not be operated in the standing position.

Many techniques may be used for rumenotomy in sheep and goat. Suturing the rumen to the peritoneum by continuous seromuscular suture may form a non elastic ring around the rumenotomy opening. This non elastic ring may cause difficulty to exteriorize the large foreign bodies out of the rumen. When foreign bodies are in the form of coiled ropes or coiled plastic sheets much effort is needed to get rid of these coils. Fixation of the ruminal wall on both sides of the line of rumen incision by two stitches before rumenotomy is of great help for holding the wound lips and minimizing contamination in case of frothy tympany. Cleaning of the ruminal wound lips before closure is easier in the standing animal. The sutured ruminal surface could be withdrawn out of the abdominal cavity and could be thoroughly flushed with normal saline. In the recumbent animal the ruminal surface could be only cleaned with moistened gauze. Therefore, the potential hazards, for adhesions is lower in the standing than in the recumbent position.

REFERENCES

- Jennings, P.B. (1984):* The practice of large animal surgery, Vol. 1, First ed., W.B. Saunders Company, Philadelphia.
- Noordsy, J.L. (1980):* Diagnostic and prognostic consideration related to exploratory laparotomy in the bovine species. VM/SAC 75: 862-564.
- Oehme, F.W. and J.E. Prier (1974):* Textbook of large animal surgery. The Williams & Wilkins Company, Baltimore.
- Tyagi, R.P.S.; Singh, J.I.T.; Singh, A.P. and P.K. Peshin (1996):* Ruminant surgery. First ed., CBS Publisher & Distributors Shahdara, Delhi, 110032, India.

FIGURES

- Fig. (1):** Rumenotomy in standing position.
- Fig. (2):** The big coiled masses recovered from rumen.
- Fig. (3):** The sutured ruminal wall after cleaning.
- Fig. (4):** An animal with a dangerous frothy tympany.
- Fig. (5):** The coiled ropes and plastics which were extracted in the rumen.

Fig. 1

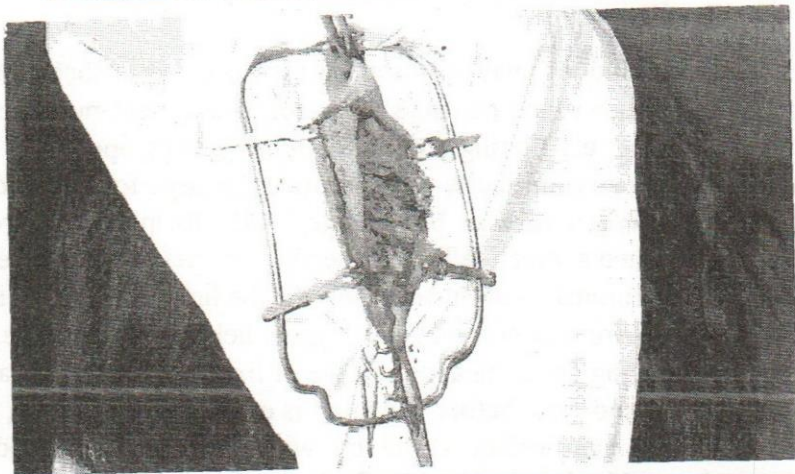


Fig. 2

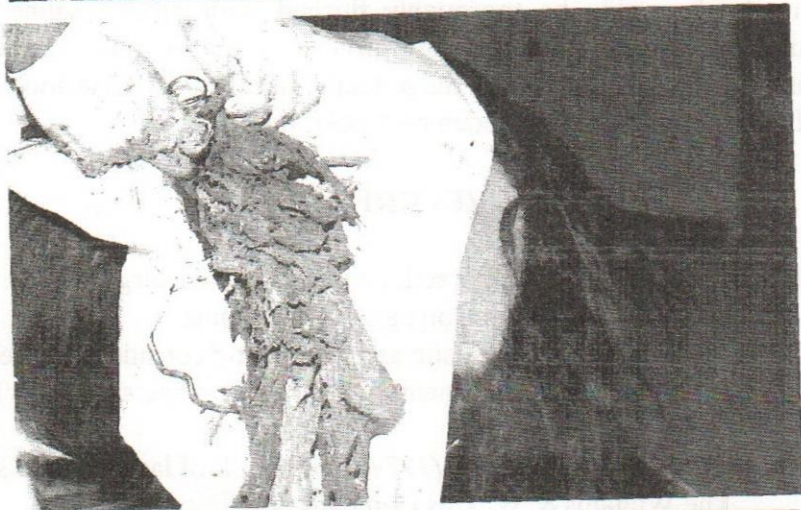


Fig. 3

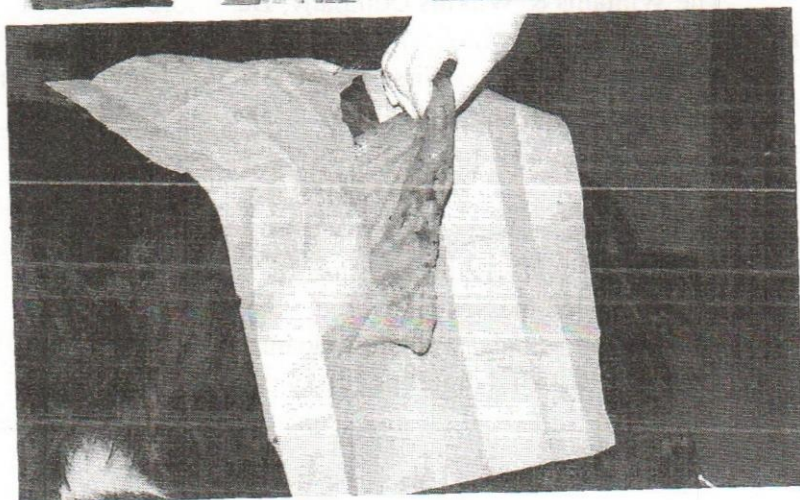




Fig. 4

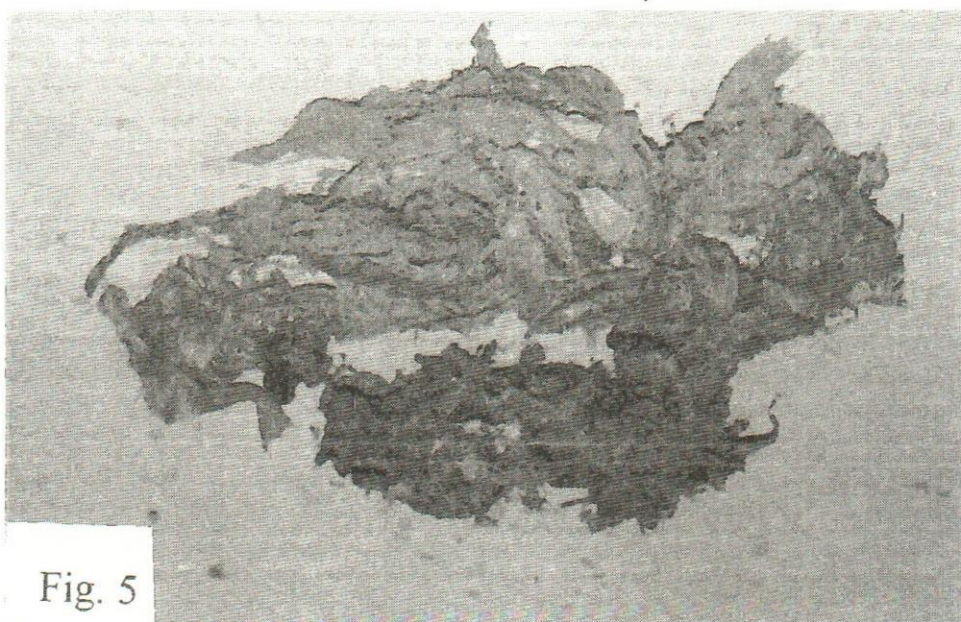


Fig. 5

