

## **Investigations on Reproductive Performance of the Female Camel (AL-NAGA) '*Camelus dromedarius*'**

### **II. Peritoneal Cannulation for Ovarian Endoscopy**

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#### ABSTRACT

A surgical technique for peritoneal cannulation in the female camel was described, Polyethylene cannulae were in place for as long as 4 months, well tolerated and caused no ill-effects.

#### INTRODUCTION

In tropical countries as Libya, the camel is considered to be a draft animal as well as a good source of meat and milk. In addition, it is a part of cultural heritage and traditions. Therefore, it is of economic and practical importance to study and develop sound reproduction and breeding programs in order to increase the production potentials of this animal. Investigations of the nature and mechanisms of oestrus cycle, follicular activity and patterns of ovulation in the female camel based on rectal palpation are scarce and inefficient. Moreover, it has the disadvantage of lacking direct in situ examination of the ovaries and ovarian cycles (2, 3). Therefore the aim of the present study is to accomplish a method for peritoneal cannulation to expose the ovaries for repeated direct endoscopy.

#### MATERIALS AND METHODS

Four adult female camel (*Camelus dromedarius*) of Libyan breed were used for the study. The animals were clinically healthy, non-pregnant and checked twice daily for signs of oestrus. About the time of oestrus, all animals were examined at 6 hours intervals for the signs of vaginal oestrus and discharge of cervical mucus. At least one complete oestrous cycle was detected before animals being subjected to laparotomy and endoscopy.

Laparotomies were carried out in 3 females, in which polyethylene cannulae (Fig. 2)

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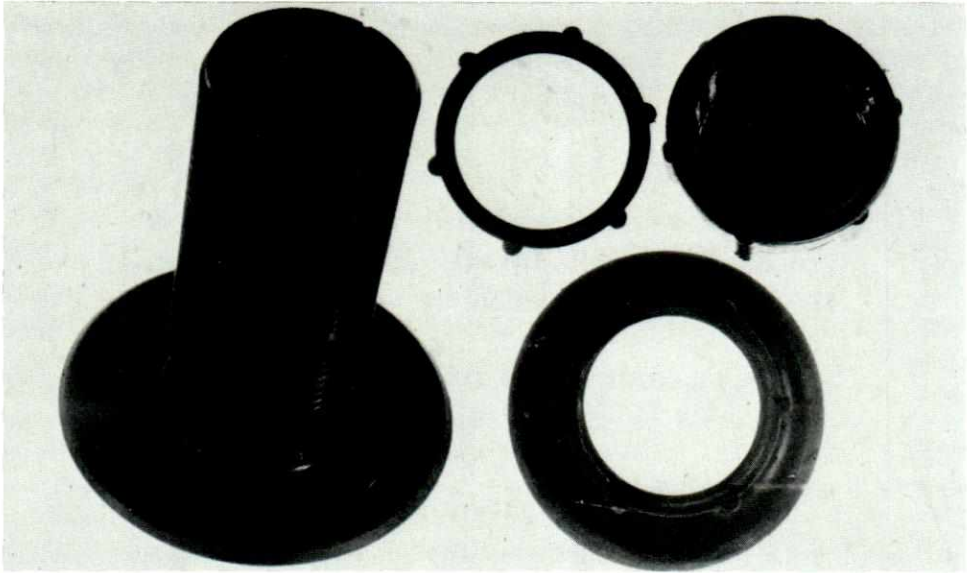


Fig. 1. The individual parts of the polyethylene cannulae. Note offset photo (negative unavailable).

were inserted for further endoscopy. Figure 1 shows the individual parts of the cannula. The cannula used in this technique composed of a tube, a screw disc plate and a cap-screw cover. The cannula tube was 8.0cm long, 4cm outside diameter of tube and 0.3cm thickness of wall. Animals were anesthetized using 'Combelen' at a dose rate of 1 ml/50kg (B.wt) 15 minutes prior to surgery. The animals were restrained in the sitting position and the operation site was prepared.

### Operation site

Right paralumbar region, 3 inches below the transverse processes of the lumbar vertebrae midway between the last rib and the tuber coxae. After preparation, it was draped with sterile towels on either side of the proposed site of incision (Fig. 3).

### Surgical technique

A longitudinal incision about 5 inches long was made through the skin, subcutaneous fascia and each layer of abdominal muscles. Peritoneum was opened as usual. Both ovaries were drawn through the laparotomy incision for usual examination before insertion of the cannula.

The cannula tube was slowly passed into the abdominal wound, base end first, and held in a more or less upright position inside the peritoneal cavity where it was fixed by sutures. A mattress stitch with chromic cat gut no. 5 was applied above and below the cannula tube to keep it in position, at the peritoneum and abdomen at incision. The rest of that wound was closed around the cannula by purse string pattern using the same cat gut. The cannula was then pulled and the screw-piece was tightened along the cannula tube on to the sutured operation wound (to lend added strength and to prevent leakage between the cannula tube and the abdominal muscles). The initial skin incision was closed by silk mattress sutures. Broad spectrum antibiotic emulsion was



Fig. 2. The inserted cannulae for endoscopy.

poured intraperitoneally via the cannula tube. The screw cap cover was applied to plug the cannula tube.

#### After care

Long acting terramycin (Pfizer) was infiltrated locally through the initial skin, muscle and peritoneal wounds. Terramycin skin ointment was applied to the sutured operation wound.

Animals were isolated, each was housed separately after surgery and kept for at least 2 weeks before left to pasture. All operated Nagas received terramycin i.m. for 3 successive days and sutures were removed after 10 days.

### RESULTS AND DISCUSSION

Polyethylene cannulae were successfully inserted into the peritoneum of 3 Nagas. Operation wounds healed by primary intension and no post-surgical problems were encountered. The cannulas were kept in place for as long as 4 months without any adverse effect on Nagas.

Endoscopy was routinely performed 4 to 6 days post surgery by the agency of Laparoscope and a pair of serum grasping forceps<sup>1</sup> separately introduced through the cannula tube.

The literature contains numerous reports concerning methods for cannulation of rumen, abomasum, intestine and oesophagus for the study of their contents, secretion

<sup>1</sup>Endoscopy equipments: Richard Wolf GmbH, Knitt Linger, West Germany.

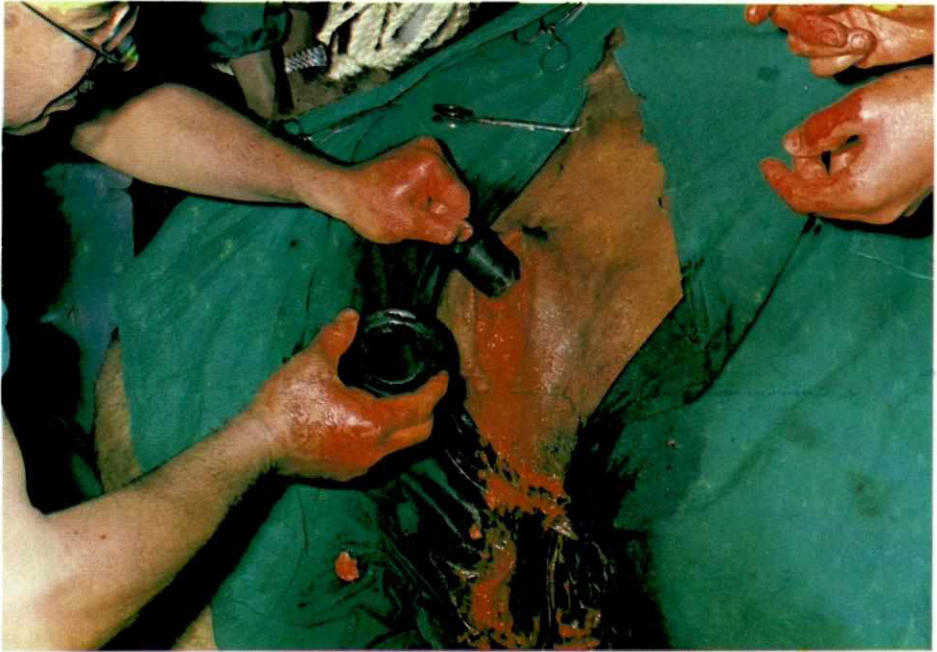


Fig. 3. Preparation for cannulae incision.

and movements as early as 1928 (1). These cannulation techniques have long been of value in research, teaching and practice.

The available literature lacks information about peritoneal cannulation in any of animal species. Therefore, it can be considered as the first record for the use of polyethylene cannula inserted into the peritoneum of NAGA, for routine 'ovarian' endoscopy. This technique has the advantage of permitting repeated direct ovarian observations in the same animal without creating any side effect. Moreover, knowledge of the normal events and cycling changes that take place in the ovaries and ovarian follicles, facilitated by the present cannulation technique, would be very helpful in developing sound programs towards profitable camel industry. In conclusion, the present technique proved its value in studying the nature and mechanisms of oestrus cycle, follicular activity and pattern of ovulation in the NAGA. It is hoped that this approach can serve as a good basis for further studies in the field of reproductive surgery.

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دراسات عن النشاط الجنسي في الإبل

٢ — طريقة لحفظ أنبوب البلاستيك (Cannula) داخل جسم الناقة ، لتتبع مركبة المبيض

بواسطة المنظار (الناصور)

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المستخلص

في هذا التقرير عملية جراحية لتثبيت ناسورة (Polyethylene cannula) في الجدار البرتوني في الناقة شرحت بالتفصيل . ومن الملاحظ أن هذه الناسورة بقت لمدة أربعة شهور بدون ظهور أية مشاكل مرضية تذكر .