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Research Article

Laparoscopic examination of reproductive tract in buffaloes*

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ABSTRACT

Laparoscopy in three infertile buffaloes revealed that fasting helps in better laparoscopic visualization of organs creating more space inside the peritoneal cavity and sufficient pneumo-peritoneum due to air insufflations. Laparoscopy was performed more easily through right paralumbar fossa approach than left paralumbar fossa approach as it was time consuming, disadvantageous for accidental puncturing of rumen and also provided less space to manipulate the laparoscope. Uterine horns were seen as reddish coloured tapering tubes, clearly distinct from other organs. Large follicle was seen as translucent area on the ovarian surface.

Key words: Laparoscopy, Reproductive tract, Buffalo

INTRODUCTION

The diagnosis of fertility related problems in animals is usually made on palpation per-rectum. However, the findings made on palpation per-rectum have the limitation of documentation and accuracy due to its subjective nature. The use of laparoscope facilitates an immediate diagnosis with proper documentation of findings. This paper puts on record the findings made on the laparoscopic examination of reproductive organs in buffalo.

MATERIALS AND METHODS

Laparoscopic examinations were carried out in infertile buffaloes (n=3) to see ovarian activity and to diagnose the abnormalities, if present any. A long version straight forward rigid telescope (Karl Storz, Tuttlingen. Germany) of 10 mm in diameter x 57 cm of working length, a trocar with pyramidal tip of 11 mm diameter and 20 cm of working length, a cannula with automatic valve and insufflations stop cock, a cold light fountain (150 watt), a fibre optic light cable of size 3.5 mm diameter with 180 cm length, simple lens reflex camera body with synchronization cable and Karl Storz special zoom lens (f= 70-140 mm) were the main equipment used for laparoscopic examinations.

Roughage and water was with-held for 24-36 hrs and 12 hrs, respectively before laparoscopy. Animals were restrained properly in standing position in a simple crush. Animals were tranquilized with 2.5 ml (50 mg) of Siquil (Triflupromazine hydrochloride, Sarabhai) intramuscularly. Right and left paralumbar fossa approach was used for laparoscopic examination. The center of paralumbar fossa in 5 cm^2 area was shaved, scrubbed with savlon (ICI), wokadine solution (Wockhardt) and anaesthetized with 20 ml of lignocaine hydrochloride (ICI) 10 minutes before examination.

Laparoscopy was performed through right paralumbar fossa in two animals while in one case left paralumbar fossa approach was tried. A 1.5cm skin incision was made at the center of the fossa. The trocar cannula assembly was passed caudoventrally at 45° angle through the skin incision with a rapid and firm

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thrust in to the peritoneal cavity. Trocar was removed from the cannula. On opening valve in the cannula, a hissing sound was heard, This confirmed that the tip of the cannula had penetrated the peritoneal wall. Air was allowed to go inside peritoneal cavity to establish pneumoperitoneum.

Laparoscope, which was connected to the cold light source by a fibre optic cable was introduced through the cannula focusing towards the pelvic cavity. Inadvertent injury to abdominal organs if any was checked and then laparoscope was advanced towards pelvic cavity in between greater omentum on medial side and parietal layer of peritoneum on lateral side. While introducing the laparoscope through the cannula, the pelvic cavity was viewed from the eye piece of the laparoscope. During laparoscopic examination, the ovarian structures were photographed using special zoom camera connected to the laparoscope. After completion of examination, the valve in the cannula was dismantled, abdomen deflated by pressing it on either side to create negative pressure inside the peritoneal cavity. After removal of cannula, skin was closed by simple interrupted suture. Local antibiotic (Vetbacin, Agrivet, Glaxo) was applied on the sutured site. Sutures were removed 7 days after examination.

RESULT AND DISCUSSION

Improper fasting in two animals hindered the laparoscopic visualization of organs, as fasting helps in creating more space inside peritoneal cavity. It also makes sufficient pneumo-peritoneum after air insufflations, which further helps in visualization of organs.

Megale *et al.* (1956) stated that both the ovaries and the uterus could be examined through a single puncture site of paralumbar fossa. Holland *et al.* (1981) examined the ovaries through the left paralumbar fossa approach, whereas, Maxwell and Kraemer (1980), Carter *et al.* (1981) and Jainudeen *et al.* (1982) have performed laparoscopy via right paralumbar approach for ovarian examination. In the present study, right paralumbar fossa approach was attempted in two animals whereas, in one animal left paralumbar fossa approach was tried for laparoscopy.

In the present study, we found that when laparoscopy was performed .through left paralumbar fossa more difficulty was observed to reach the organs present in the pelvic cavity including the left ovary. However, right ovary was visualized easily. It needed more time for complete visualization of the reproductive organs from left paralumbar fossa approach as compared to that from right side. Megale *et al.* (1956) also found difficulty in observing the reproductive organs from left side. Left side approach also has a disadvantage of accidental puncturing of rumen and also provides less space to manipulate the laparoscope.

In our study, laparoscopy was done in standing position without elevating the hind quarter of the animals. In contrast to this, Jainudeen *et al.* (1982) and Ambrose *et al.* (1993) have placed the animal on a graded platform. The platform was tilted in such a way that the animal's hindlimbs were elevated 18-24 inches above the level of forelimbs that provided more space in the utero-ovarian region for easy visualization of the ovaries and uterus.

In our study, for creating pneumo-peritoneum atmospheric air was allowed to rush in to the abdominal cavity without producing any ill effect, whereas, Wishart and Snowball (1973) have recommended insufflations of CO_2 in to the abdomen only for very fat animals or when repeated observations were made over a short period of time. Maxwell and Kraemer (1980) reported that gas insufflation of the bovine peritoneal cavity is seldom required. Moreover, Richenback *et al.* (1994) suggested that if the visceral mass of the animals was small, the reproductive tract could be seen without use of gas insufflations.

Uterine horns were seen as reddish coloured tapering tubes, clearly distinct from other organs (Fig l.). Large follicle was seen as translucent area on the ovarian surface (Fig 2.). These findings are in fair agreement with those of other Jainudeen *et al.*, 1982 and Ambrose *et al.*, 1993. Regressed CL was seen as white pinhead on the ovarian surface. This finding was similar to that of Jainudeen *et al.* (1982). Mature CL appeared as reddish coloured structure and found to be raised above the ovarian surface (Fig 3.). Ambrose *et al.* (1993) also recorded similar observation.

Laparoscopic examination including preparation of animal and still photograph)' was completed within one hour. Jainudeen *et al.* (1982) reported that the time from insertion of the laparoscope for observation of both ovaries to closer of the incision was approximately 10-15 minutes, but was longer if photographs of the ovaries were taken. Whereas, Ambrose *et al.* (1993) stated that excluding the preparation time an average of 20 minutes were required to complete ovarian observations and photography. No ill effect of laparoscopy on the animal was observed.

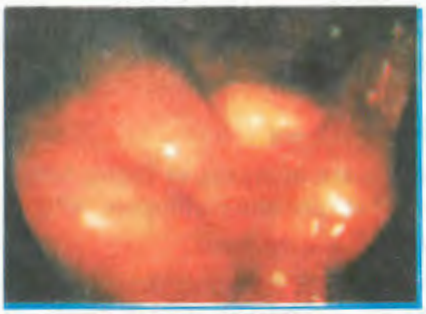

Fig 1. Photograph showing uterine horn and left ovary in an aneoestrus buffalo

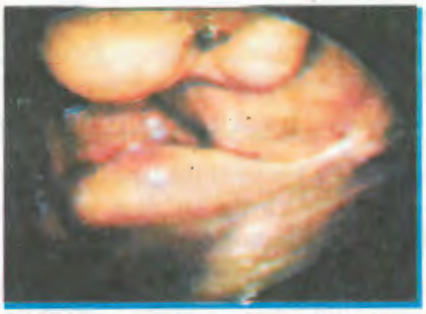

Fig 2. Photograph showing presence of a large follicle on the ovarian surface

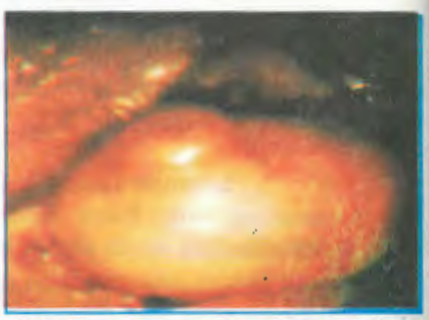

Fig 3. Photograph showing ovary with a mature CL

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