



RESEARCH ARTICLE

LAPAROSCOPIC VASECTOMY BY ELECTROCAUTERIZATION IN WILD BOARS

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ABSTRACT

The aim of the study was to vasectomize three male wild boars by laparoscopic technique. The animals were anaesthetized with xylazine (2 mg/kg) and ketamine (15mg/kg) intramuscularly. The vas deferens was clearly seen close to the urinary bladder and occlusion of the vas deferens was done by electrocauterization using electrocautery forcep connected to an electrocautery unit. The procedure was completed in 10 to 12 minutes. There were no complications and recovery of the animals were uneventful.

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INTRODUCTION

Laparoscopic surgery also called as blood less surgery has been widely in use in medical as well also well documented in veterinary science. Laparoscopic vasectomy has been found safe and effective in domestic (Silva *et al.*, 1993; Mohammad *et al.*, 2011) as well as in wild animals (Bravo and Sumar, 1991). To curb the population of domestic boars there are various methods (Open method, immunocastartion, semen sexing, chemical castration) being practiced all over the world. In domestic boars castration by open methods of surgery without anaesthesia is presently in use throughout the world. But now a days surgical castration without anaesthesia is forbidden and recommended under local and general anaesthesia in many countries like Norway and Swedon, Neatherland (Fredriksen and Nafstad, 2006). The wild boars are regarded as agricultural pests (Tisdell,1982; Brooks *et al.*,1989) as the increased population of wild boars causing the loss of farmers by destroying their crops. Presently there has increased wild pigs-human conflict throughout the country. Wild boars led high destruction of agricultural crops near the forest areas as well as also found as a cause of mortality in human beings in india (Chauhan, 2011). The present study of laparoscopic vasectomy in wild boars is the first study as per best of our knowlwdge. Present study was done in order to standardize a new method of vasectomy by laparoscopy in wild boars.

MATERIALS AND METHODS

The animals were fasted for 15 – 18 hrs before surgery. Three wild boars of age ranging between 8-14 months were

transferred to squeeze cage one by one. Anaesthesia was administered by intramuscular injection of ketamine 15 mg/kg (100mg/ml) and xylazine 2 mg/kg body weight (100mg/ml) (TROY LABORATORIES PTY LTD, Australia).

After achieving anaesthesia animals were prepared for surgery by clipping of hairs of the ventral area (from end of ribs upto pubic area) and clipping of the hairs were also done on the dorsal 2-3 cmm area near sacrococcygeal point. The shaving of the surgical area was done very gently as because the hairs of the animals were hard like bristles. Asepsis was achieved by scrubbing with 70 % alcohol followed by 5 % Betadine. Animal was placed in Trendelenburg's (head lower than body) position at 30⁰ angle (Fig.1). The position of the animal was given by turning surgical table at maximum angle of 30⁰. Conducting gel was applied on the dorsal area of the animal in order to complete the electric circle for the functioning of the electrocautery unit. An incision of about 5mm was given below 3-4 cm of the umbilical area on ventral midline with scalpel. In large sized wild boar the post umbilical incision was given more than 4cmm below then the small sized animals. 1st port was created and a veress needle connected to CO₂ insufflator was inserted through this incision. Pneumoperitoneum was achieved with CO₂ at the rate of 2L/min with a pressure gradient of 12 mmHg. After achieving the pneumoperitoneum needle was pulled out and a 5 mm trocar canula inserted in this por. One same port was created at left lateral side at parallel position of the midline port (Fig.2). A telescope (Frontline Limited – German) connected to a light source inserted through this midline canula. The vas deferens entering into the inguinal canal as clearly seen through the telescope. Cautery forcep was inserted from lateral port and the vas deferens was grasped by cautery forcep

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(Fig.3) and occlusion of vas deferens was done by electrocauterization at 60 watt. The same procedure was applied for opposite vas deferens.

RESULTS AND DISCUSSION

The induction time 5.22 ± 0.08 min, duration of anesthesia 142 ± 0.16 min, recovery time 46 ± 0.10 min and surgical time for laparoscopic vasectomy was found to be 10-12 min. Absorbable surgical suture (Vicryl 3-0, Ethicon) was used to avoid subsequent removal. Physiological parameters on an average were recorded, heart rate (62 ± 5 /min), respiration rate (32 ± 3 /min), and rectal temperature ($99 \pm 0.4^\circ\text{C}$). Post operatively, all the animals were given antibiotic and anti-inflammatory coverage viz. Injection Intamox @ 15 mg /kg body weight (i/m) and Inj Melonex @ 0.25 mg/kg body weight (i/m) for three days. All the animals recovered within 2-3 hrs after surgery.



Fig.1. Positioning of wild boar in trendelenburg's position

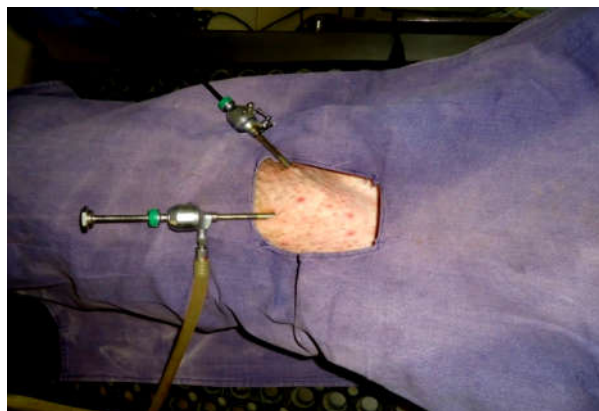


Fig.2. Insertions of trocar and canula

The laparoscopic surgery in wild animals has been used rarely while used at large scale in other animals as well as in humans. Laparoscopic vasectomy has various advantages as compared to open methods of vasectomy. The wild animals can be retained in cages only for small time, faster recovery, very less haemorrhages, very small incision makes laparoscopy advantageous than the open methods of surgery. At present various steps are being taken throughout the world regarding the painless surgery in the domesticated pigs by encouraging the local as well as general anaesthesia (Horgan, 2006; Leidig *et al.*, 2009). Some countries has already taken

steps to stop the inhumane castration of the domestic pigs. So the castration in wild boars under general anaesthesia and by laparoscopy, a blood less surgery may be an effective approach for painless surgery in wild boars. The vasectomy permitted the clear identification of the vas deferens inside the pelvic cavity. Th anaesthesia was givn as per standard dose in this species i.e. in domesticatd boars (Green *et al.*, 1981) The combination of both @2 mg xylazine and @15 mg ketamine produced good muscle relaxation in wild boars. The 12 mmHg pressure was sufficient and animal was placed at 30° trendelenburg's position. At 30° the abdominal contents were slightly displaced towards the anterior part of the body and makes clear visibility of the pelvic organs. The maximum angle of 30° of the surgical table was also given because of the large size and volume of the intestine of wild boar in the pelvic cavity as well as abdominal cavity. The incision for creation of 1st port was just 2-3 cm below the umbilicus so that the visibility of the vas deferens can be more clear. The two ports were sufficient in vasectomy of the animals by vas deferens occlusion. The surgical wound was only about 5mm in size only one absorbable (Vicryl) suture on each wound was applied.

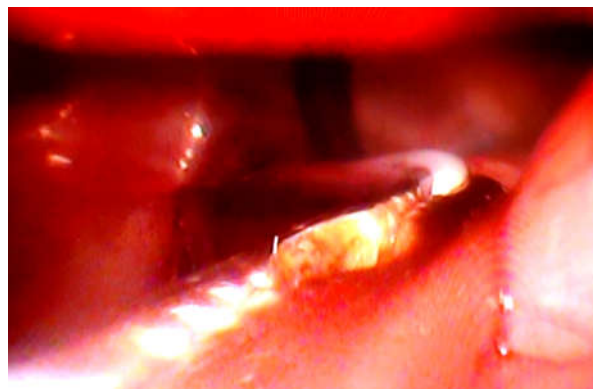


Fig.3. Grasping of Vas Deferens



Fig.4. Electrocauterization of vas deferens

In the present case of laparoscopic vasectomy the animals were immediately released in an open enclosure after recovery from anaesthesia. The animals were in continuous observation upto one week and no animal showed any surgical affections. All the animals recovered well from the surgical wound and animals were not anaesthetized again. The surgical wounds were seen during the time of feeding of the animals as during

feeding time they comes to a plane surface so the wounds were seen easily from outside the enclosure. The small incision of 5mm surgical wound was seen completely healed on 3rd day of operation. This study shows that the wild animals can be easily vasectomized by laparoscopy and this method is found effective and easy method of vasectomy in wild boars .

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