Laparoscopic ovariohysterectomy is considered as an appropriate substitute for open procedure because of the less morbidity associated with its use (Austin et al., 2003). Smaller incision, less complication and decreased post-operative pain are main advantages of laparoscopic ovariohysterectomy (Davidson et al., 2004). Ovariectomy in pig is a very common surgical procedure in Mizoram. People in this state rear pigs mainly for meat purpose. It is observed that the ovarioectomised pigs grow better, yielding improved quality meat. This paper describes the successful laparoscopic ovariectomy performed in ten gilts.

**Materials and Methods**

The study was conducted on 10 clinically healthy gilts of 2-3 months age weighing 18-23 kg. Food was restricted for 12 h and ceftriaxone (20mg/kg) was administered i/v as a pre-operative prophylaxis. The gilts were premedicated with diazepam @ 2mg/kg bw and the anaesthesia was induced by i/v administration of ketamine @15 mg/kg bw (Konwar and Saikia, 2006). The animals were placed in dorsal recumbency and then in the Trendelenburg position for laparoscopic ovariectomy. The area from xyphoid to pubis was prepared under aseptic condition.

Desired pneumo-peritoneum was achieved using a veress needle technique at a flow rate of approximately 1L/min with pressure ranging from 10 to 15 mmHg. Hanging drop test was performed before attaching the automatic high flow CO$_2$ insufflator. A 10mm Safety trocar and cannula unit (11mm) was inserted into the abdominal cavity on ventral midline near to the umbilicus. A forward oblique telescope (30°, diameter 10mm, length 33cm) connected to a light source (40W; halogen lamp) and a digital camera was then introduced through the cannula. The intra-peritoneal organs were visualized. The urinary bladder was identified first by its characteristic tortuous structures of blood vessels. The fallopian tube and ovarian structure were visualized. Two paramedian ports of 5mm diameter were created under the guidance of the telescope, distal to the laparoscopic insertion site and 4-6 cm bilaterally from the ventral midline for insertion of the operative instruments.

A grasping forceps was placed through the rigid paramedian port and the right ovary was pulled caudally to visualize the right ovarian ligament and vessels properly. A 5 mm bipolar electrocautery forceps was introduced through the left paramedian port. The ovarian ligament along with vessels was cut and cauterized by using 60 w current.

The total ovarian mass was dislodged and removed through a 5 mm port as ovaries were small. The ovarian pedicle was identified and brought up by the grasping forceps for ensuring haemostasis. The opposite ovary was removed in the same manner. The portal sites were sutured in a routine manner.
Results and Discussion

All of the laparoscopic surgical procedures were conducted under diazepam and ketamine anaesthesia. Induction as well as recovery from anaesthesia was smooth and uneventful in all of the animals. During laparoscopic ovarioctomy, capnoperitoneum (CP) was established at 10-15 mm Hg pressure gradients intra-abdominally. The initial flow rate of carbon dioxide at 1L/min was sufficient to achieve CP. This pressure and flow rate provided adequate infiltration and excellent working space as was also reported by Dar et al. (2010) for laparoscopic nephrectomy in pigs.

Three ports were adequate to conduct the laparoscopic bilateral ovarioctomy. Two 5mm ports were created at the left and right paramedian site distally to the telescope insertion site and 4-6 cm laterally at the inguinal regions. The remaining port (10mm) was at the umbilical site for insertion of the telescope. The same protocol was also used by Wildt and Lawler (1985) in dog. Proper fasting prior to surgery emptied the intestine and urinary bladder and thereby facilitated proper visualization of the utero-ovarian structures, ovarian blood vessels and broad ligament, as also reported by Thiels et al. (1995). In pig the ovarian bursa covers the ovaries like a cap. The bursa does not enclose the ovaries completely as in dog and cat. Moreover, the ovaries in pig are suspended within the mesovarium only and no other additional ligamentous attachment like in dog and cat (Konig and Liebich, 2008). So to expose and excised off ovary in pig was easy as compared to dog and cat.

Electrocautery with 60 w bipolar current was found to be a haemostatic measure in all the animals. Rodgerson et al. (2001) also observed that monopolar electrocautery alone was sufficient for effective haemostasis in equine mesovarium cauterization.

All the animals returned to their normal feeding habits within 8-10 h of surgery. Urination and defecation were normal upto eight post-operative days. The animals appeared quite alert and responsive. No post-operative emphysema, post-site herniation or wound dehiscence was observed in any animal.

The result of this study indicated that laparascopic ovarioctomy with electrocautery in pigs provided optimum haemostasis and effective removal of ovaries without intra-operative or post-operative complications.

References