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## Caesarian Section in a Sow

Vandana Sangwan, Ashwani Kumar, Nikita Gupta\*, Shashi Kant Mahajan and Arun Anand

Department of Veterinary Surgery and Radiology, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India, 141004

### ABSTRACT

A 14 months old, full term pregnant sow, weighing 148 Kgs was presented with the history of straining since previous night. Four fetuses were delivered prior to the presentation (one naturally and 3 with assistance), but no fetus was expelled for six hours of the delivery of the last fetus. Per vaginum delivery was not possible due to narrow and edematous vaginal passage. Caesarian section was successfully performed from right paralumbar fossa in lateral recumbency and under general anesthesia added with local infiltration. The four fetuses removed (two from each horn) were dead. The sow recovered from general anesthesia and continued to live up to one year post surgery. However, during this one year, it did not conceive.

**Keywords:** Caesarian section, Dystocia, Sow, Uterine inertia.

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## INTRODUCTION

Dystocia in a sow is uncommon as compared to other species (Ghosh, 2007) and is mainly attributed to primary or secondary uterine inertia. Feto-pelvic disproportion, maternal immaturity, pelvic deformities, torsion of one or both the uterine horns, fetal deformities are other less common causes of dystocia (Noakes *et al.*, 2018). It is inability of the sow to deliver the fetuses within 2 hours from onset of labour or delivering subsequent fetuses after longer duration (>1 hour), that prompts towards immediate expert assistance (Coward, 2007).

Per rectal and per vaginal evaluation and assistance is usually not fruitful because of narrow passage and inability

to palpate fetal parts effectively. Excessive manipulation also leads to edematous rectal or vaginal mucosa, making the conditions to retrieve the fetuses worse (Singh *et al.*, 2008). In such cases, caesarian section may be performed. It is a rare surgical procedure performed in a sow and bears good prognosis for survival of sow post-surgery, if performed within 24 hours from onset of labour, before toxemia develops. However, the prognosis for future breeding is usually guarded (Lozier *et al.*, 2021). Caesarean section is difficult to perform in a pig as restrain is a major problem and hence, needs effective anesthetic protocol and trained personnel. This report describes the anaesthetic protocol and surgical procedure for performing caesarian section successfully in a sow, which can be knowledgeable for field veterinarians

\*Corresponding author.

E-mail address: [guptanikita086@gmail.com](mailto:guptanikita086@gmail.com)(Nikita Gupta)

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## CASE HISTORY AND OBSERVATIONS

A 14 months old sow, weighing 148 Kgs was presented to Teaching Veterinary Hospital with a history of full term gestation (first parity) and straining since the previous night. The sow delivered a fetus by itself and three were delivered with assistance, out of which 2 were alive. The sow continued to strain, but was unable to deliver any more fetuses even after 6 hours of delivery of last fetus due to uterine inertia. Per-vaginal examination revealed palpable fetal parts but vaginal passage was narrow and edematous. Per vaginal delivery hence, was not possible and as per the willingness of the owner, the sow was decided for caesarean section.

## TREATMENT AND DISCUSSION

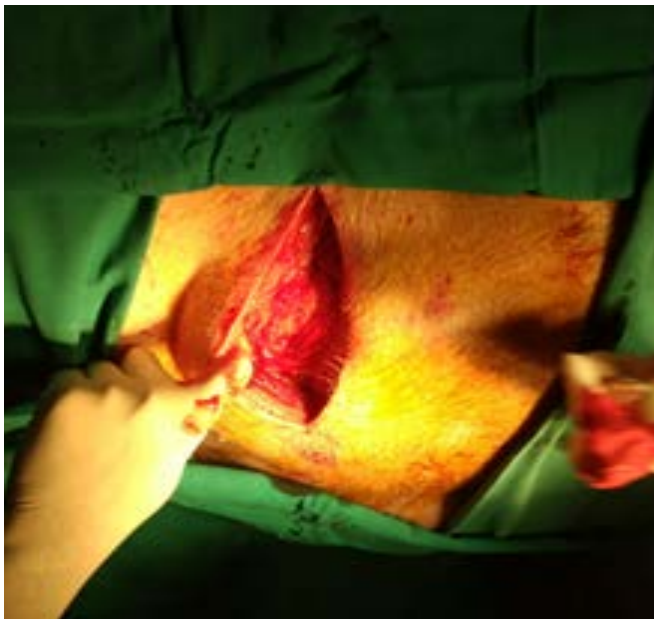
**Anesthetic Protocol:** The sow was hyper, with stress vocalization and was not allowing intravenous cannulation. A

combination of Injection diazepam @ 0.5 mg/Kg body weight (15ml) and inj. Ketamine @ 15 mg/Kg (44ml) was given intramuscular for induction/deep sedation. After 15 minutes, the sow was sedated and intravenous cannulation was done in the ear vein for normal saline fluid administration. Local infiltration of anesthesia (40ml) was done at the incision site in different layers. The maintenance of anesthesia was done using inj. Propofol (Fig. 1) as a continuous rate infusion in normal saline solution @ 0.2mg/Kg/min. (3ml/Min; 14ml/500ml NSS with a drip rate set at 60ml/minute with a 20 gauge cannula). One liter of Normal saline was used with Continuous Rate of Infusion and then normal saline without any anaesthetic agent was continued while closing abdominal wound.

**Surgical procedure:** The sow was put in left lateral recumbency with right flank upwards. The right flank region was widely prepared aseptically for the procedure. A 5 inches long vertical incision was given in the right upper flank (Fig. 2) avoiding the mammary glands. The right uterine horn was palpated and was partially exteriorized after adequately packing the abdominal cavity with sterile drapes.



**Fig. 1:** Ear vein cannulated for constant rate infusion of propofol



**Fig 2:** The upper right flank vertical incision for the approach to uterus

The caudal portion of the piglet with tail was palpated and a nearly 6 cm long hysterotomy incision (Fig. 3) was made on it, near the uterine body. Two dead fetuses were removed from each horn (total 4) (Fig. 4). The uterine horns were again palpated for any fetus. The uterine inci-

sion was closed using catgut no. 1 in inversion pattern. The uterine body and the peritoneum were thoroughly lavaged with normal saline solution and were closed using polygalactin 910, no. 2. The skin was closed using nylon in cross mattress pattern.



**Fig. 3:** Hysterotomy for the removal of the four dead fetus



**Fig. 4:** Dead fetus

**Post-Operative Care and Follow up:** The sow was discharged after recovery from general anaesthesia and was prescribed with antibiotics: Inj. Ampicillin and cloxacillin @10mg/Kg, BID; Gentamicin @ 4 mg/kg, OD, for 5 and 3 days respectively. Inj. Flunixin meglumine @ 2 ml/50 kg, OD was prescribed for 3 days, Intramuscular. Suture removal was advised at 14<sup>th</sup> day of surgery. The sow recovered well from surgery. Telephonic follow up revealed that the sow lived a healthy life for one year post surgery, but did not conceive again.

Dystocia in swine is said to be a rare occurrence and might need timely surgical assistance as delaying the decision can potentially lead to development of toxemia and hence mortality of the sow. In presented case, prompt decision for caesarian section was made (Kumar *et al.*, 2013). Uterine inertia is the most common cause of dystocia in sow (Noakes *et al.*, 2018). Radiography of the abdomen can be done to know the number of fetuses in a gravid uterus (Kumar *et al.*, 2013). Multiple prevaginal examination are not advised due to the risk of development of odema and further narrowing it.

Various combinations of anesthetics are described in sows for sedation and general anaesthesia; dopram and tolazoline (Prince, 2024), epidural and local infiltration using procaine (Ghosh, 2007), thiopentone and methohexital followed by maintenance with halothane (Kumar *et al.*, 2013). Endotracheal intubation in sow is difficult and require deep anaesthesia. In this case, a combination of diazepam and ketamine, along with propofol as constant rate of infusion was successfully used, which was also augmented with local infiltration of surgical site (Singh *et al.*, 2008) and no anesthetic complication was encountered.

For caesarian section, the sow can be restrained in either left or right lateral recumbency (Lozier *et al.*, 2021). The flank approach has an advantage of reduced blood loss, but exteriorizing both the horns is sometimes difficult. Usually, one hysterotomy incision is enough to retrieve all the fetuses, but multiple hysterotomies might be needed in cases of emphysematous fetuses or due to difficult exteriorization, all fetuses cannot be expelled from the same site (Singh *et al.*, 2008; Fubini and Ducharme, 2016).

The sow, if suffering from metabolic and toxemic changes, might not survive due to surgical shock (Noakes *et al.*, 2018). But, in this case, the sow recovered well and survived for 1 year post surgery.

## CONCLUSION

Caesarian section in a sow can potentially save life of a sow with dystocia if performed early and bears good prognosis for survivability of the sow. However, the sow may be rendered reproductively infertile.

## CONFLICT OF INTEREST

Authors do not have any conflict of interest.

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