

The Clinical Efficacy and Safety of Acepromazine and Propofol Anesthesia for the Cesarean Section in the Cat

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Abstract

A 3-year-old crossbred cat was presented at the clinics. History revealed that the cat had sustained frequent straining for the last 12 hrs. One kitten was found stuck in the birth canal. The cat was premedicated with atropine sulphate @ 0.04 mg/kg b.wt and tranquilized with acepromazine maleate @ 0.1mg/kg b.wt. I/M, and anesthetized with propofol @ 4 mg/kg b.wt. I/V. via the cephalic vein. The abdominal region was aseptically prepared from the umbilicus to the pubis region. A ventral mid line incision of approximately 3.5 cm was made in linea alba between the umbilicus and pubis, caudally. The gravid uterus was exposed through the surgical wound. A longitudinal incision was placed on the uterine body and kittens were taken out slowly one by one. One of the kittens, which was stuck in the vaginal orifice, was taken out slowly by gently manipulating its presentation. A total of four kittens were born. The use of acepromazine and propofol anesthesia for the cesarean section in the cat proved to be an easy and excellent method without any complications.

Key words: Cat, cesarean section, acepromazine, propofol

Introduction

A cesarean section (C-section) is a procedure that is performed in order to retrieve fetus (es) from the uterus of a pregnant animal that is unable to deliver them herself. It is performed when an animal is having problems while delivering the newborns and is typically an emergency (not an elective) surgery. It is for certain breeds prone to dystocia (difficult birth), such as Persians, but is rare in Mongrel cats. Most C-sections are not planned procedures, as it is unusual for most cats to have problems delivering. The animal is usually brought to the veterinarian after prolonged straining without delivering, extended duration between deliveries or when a kitten is visibly stuck within the vaginal canal. Occasionally, the kitten may get stuck within the pelvic canal and manual help may be required. Digital vaginal palpation may also indicate whether the mother has an abnormal pelvic conformation that prevents proper delivery.

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Case History and Observation

A 3-year-old crossbred cat was presented at the clinics. History revealed that the cat had sustained frequent straining for the last 12 hrs. Clinical examination revealed an increased respiration rate as well as tachycardia. One kitten was found stuck in the birth canal.

Surgical Treatment

The animal was given 150 ml of normal saline I/V with corticosteroid dexamethasone @ 0.4mg/kg b.wt. to make the animal physiologically balanced to decrease the surgical risk. The cat was premedicated with atropine sulphate @ 0.04 mg/kg b.wt and was tranquilized with acepromazine maleate @ 0.1mg/kg b.wt. I/M, and anesthetized with propofol @ 4 mg/kg b.wt. I/V. via the cephalic vein. The abdominal region was aseptically prepared from the umbilicus to the pubis region. The cat was placed in dorsal recumbency. A ventral mid line incision of approximately 3.5 cm was made in linea alba between the umbilicus and pubis, caudally. The gravid uterus was exposed through the surgical wound. A longitudinal incision was placed on the uterine body and kittens were taken out slowly one by one. One of the kittens, which was stuck in the vaginal orifice, was taken out slowly by gently manipulating its presentation. A total of four kittens were born. Out of these, three were alive and the one that was stuck in the birth canal was dead at birth. The uterine incision was closed using 2/0 chromic catgut in double row of lamberts pattern after sprinkling thoroughly with antibiotic powder Intamox (Intas pharmaceuticals, Gujarat, India). The skin incision was closed with braided silk in a cross mattress fashion and antiseptic dressing was done in a routine manner. The cat recovered uneventfully and without any complication from anesthesia in approximately one hour. Postoperatively, slow intravenous normal saline was continued for 30 minutes to ensure adequate rehydration and detoxification. Inj. Intacef (Intas pharmaceuticals, Gujarat, India) @ 15 mg/kg b.wt. I/M once daily along with Inj. Melonex (Intas pharmaceuticals, Gujarat, India) @ 0.5 mg/kg I/M and Inj. Tribivet (Intas pharmaceuticals, Gujarat, India) @ 0.5 ml I/M were administered for 5 days. The cat was maintained with intravenous fluid for the first three days and a liquid diet was given in fractional dose form until the fifth day. The skin wound was dressed

with povidone solution daily. The skin sutures were removed on the tenth postoperative day without any complications.

Discussion

The uterus of the cat is separated into two horns and, with most labors, all the kittens in one horn are delivered, and then all the kittens in the other horn are delivered, normally with no break in between. In instances where even after 12 hours of labor there is no normal delivery, a cesarean section is usually recommended. The litter size in the cat ranges from 1 to 10 kittens, with a modal litter consisting of 4 kittens [1]. Causes of feline dystocia include obstruction to fetal regression through the birth canal and uterine inertia. Obstructive causes may be maternal or fetal in origin [2], whereas uterine inertia is solely maternal in origin. Uterine inertia may be primary (failure to start synchronous uterine contractions) or secondary (uterine fatigue). Acepromazine is the most widely used phenothiazine sedative in veterinary medicine, and it decreases reaction to external stimuli through its sedative effect [3]. Propofol is a short-acting hypnotic agent that is usually injected as a single bolus in small animals and it does not cause destabilization of the heart rate [4].

An important factor concerning general anesthesia for a cesarean section in women is the choice of induction drugs, which ideally should induce maternal unconsciousness rapidly with a minimum of undesirable side effects as well as avoiding concomitant direct or indirect neonatal depression as much as possible [5].

Thiopental sodium is the standard and routine induction drug in a cesarean section in human cases. However, in recent years propofol and ketamine have been recommended as an alternative to thiopental sodium for the induction of general anesthesia. Many studies approved the use of propofol @ 2mg/kg b.wt. and ketamine @ 1mg/kg b.wt. as alternative and safe induction drugs for general anesthesia in a cesarean section. The frequency of awareness with propofol may be very high, especially when used in a low dose [6]. In conclusion, both propofol and ketamine can be used as alternative induction agents to thiopental for an elective cesarean section with maternal acceptability with no significant neonatal effects, as measured by Apgar scores after 1 minute. No awareness, low incidence

of dreams and postoperative nausea and vomiting (PONV), and low incidence of unpleasant sleep in the mother were found [5].

Kariya N et al. reported that propofol anesthetic agent is the best choice for a cesarean section of a woman with cerebral palsy. A 45-year-old pregnant woman with cerebral palsy was scheduled for a cesarean section at 37 weeks gestation due to the risk of athetotic reaction. Spinal anesthesia appeared difficult to perform due to maintenance position, and because maternal respiratory depression due to athetotic reaction to mechanical stimulation might cause fetal hypoxia. Therefore, they selected general anesthesia. Propofol and succinylcholine were administered for induction, and additional propofol was administered intravenously for hemodynamics stabilization. Neonatal Apgar scores were 8 at one minute and 10 at five minutes. No maternal respiratory depression was observed postoperatively, and a healthy baby was successfully delivered [7].

As a conclusion, perioperative management can greatly influence an outcome in emergency situations. The safety margin of all anesthetics is decreased during an emergency cesarean section because many maternal and fetal functions are compromised. However, in the present case, the use of acepromazine and propofol anesthesia for the cesarean section proved to be an easy and excellent method without any complications.

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Conflict of interest statement

The authors do not declare any conflict of interest or financial support in this study.

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