INTRODUCTION

Fetal mummification is one of the gestational accidents that occurs due to intra-uterine death of the fetus, and is characterized by failure in the expulsion of dead fetus and absorption of all fetal fluidswith the presence offirm fetus in the uterine horn as compact mass without clinical signs (Roberts, 2004).Ithappens in the last stage of gestation after mineralization of the bones. While most often seen in multiparous and polytocous species, it is also observed in monotocous ones when the fetus is retained for a long time (Lefebvre, 2015).

Both non-infectious and infectious causes are associated with fetal mummification. Among non-infectious causes, abnormalities during developmental and chromosomal disorders, endocrinological problems, physical injuries and iatrogenic drugsareimportant ones. With viral infections being a common one in case of most feline mummification. Feline panleukopenia, feline rhinotracheitis, and feline infectious peritonitis have been associated with not only abortion, stillbirth, and neonatal death but also fetal mummification (Crownover et al., 1976; Cotter, 1976; Scott et al.,1979). These causative agents lead to fetal death and resulted in mummified fetus (Planellas et al.,2012).Mummification may also be caused by hormonal shifts or abnormalities. Progesterone is the hormone that is responsible for maintaining pregnancy in the cat; low levels of this hormone can lead to mummification.

To occur fetal mummification, a number of events must be present: 1) the fetus must die after the development of bones is complete, 2) uterine and fetal fluids must be reabsorbed rapidly , 3) there must be no oxygen in the uterus until the mummification process is complete, and 4) there must be no bacteria in the uterus (Lefebvre, 2015). Normally the cervix is closed to prevent the entry of putrefactive organisms present in the vagina and vestibule. In addition, the endometrium is intact, and so blocks the entry of organisms potentially present in the vascularization (Janaway et al., 2008).

Mummified condition can only be observed in 2nd half of canine and feline pregnancy as in 1st half whole fetal reabsorption will occur in case of fetal death (Johston et al., 2001). The uterus contracts on fetus, placental fluid get absorbed and fetal membrane get shriveled and dried (Roberts, 2004). These conditions may alter the environment of

uterus and lead to fetal death and subsequent mummification (Planellas et al., 2012).Fetal mummification usually occurs in last stage of gestation after ossification of the bone.

In many cases, there are no visible signs of fetal mummification and typically result in resorption of the embryo, with no outwardly visible signs at early stage and it is only detectable if a pregnancy was confirmed on an early ultrasound. Later-term fetal mummification may be associated with clinical signs, but they may also be asymptomatic. Abnormal vaginal discharge (brown, green, black, or pus-colored) at any time during pregnancy, abdominal pain, and fever are all potential signs of fetal mummification or infection.

Fetal mummification in cat is not so common. The present case report describes the diagnosis and successful management of fetal mummification in a cat.

CASE DESCRIPTION

A 3-year-old female calico cat was brought to the SAQTeaching Veterinary Hospital, Chattogram Veterinary and Animal Sciences University with a history of not showing any signs of parturition even after completion of full-term pregnancy. Physical examination of the cat revealed an abnormal mass in her abdomen, and it was recommended for X-ray of abdomen. Radiographic examination showed two kittens in the abdomen by observing the kitten's vertebrae and skulls on the radiograph. Later, abdominal ultrasound was performed, and the result revealed two mummified fetuses in her uterus. Based on X-ray and ultrasound, the cat was diagnosed to be having mummified fetus. Surgical correction was advised to remove the mummified fetuses, and permission was taken from the owner to perform a surgery.

Restraining and anesthesia

The cat was kept in fasting for 12 hours for solid and 6 hours for water before the surgery.The area of intended incision was clipped, shaved, and soaked with tincture iodine and alcohol (Figure 1).The catwas sedated using xylazine at the rate of 1mg/ kg body weight intramuscularly and ketamine 6 mg/ kg body weight intravenously.

Surgical procedure

At first,the cat was kept in its back on the surgical table. A draper was placed over the area of site of surgery and a continuous skin incision was given through the linea alba (Figure 2),two inches distal from the umbilicus. After incising the muscle layer, the uterine horn was found out (Figure 3) which became thin due to presence of mummified fetus inside it. Both horns were exteriorized (Figure 4). A linear incision was made on the uterine bodyto expose the mummified fetuses and removed. Uterine body and ovary were removed and placed at kidney tray. Finally, simple continuous suture was given at muscle by absorbable suture catgut (1-0) and then simple interrupted suture at skin by non-absorbable silk suture. A povicep solution was applied over the suture line and covered with a gauge. The animal was then monitored for a period of 1 hour to regain its sense and to observe any complication immediately after surgery.

Post-operative care

After surgery, medication was given to the cat. Post-operative care was maintained with antibiotic ceftriaxone 40 mg/kg body weight (Trizon vet®, Acme Laboratories Ltd.) administered intramuscularly for 7 days. Antihistaminic pheniramine maleate @ 1 mg / kg body weight (Alerin®,Eskayef Bangladesh Ltd.) was administered intramuscularly for 5 days. Analgesic meloxicam 0.2 mg / kg body weight (Melvet®, Acme Laboratories Ltd.) was administered subcutaneously for 3 days. Antiseptic dressing with povidone iodine ointment (Povin®, Opsonin Pharma Limited) was applied on surgical site daily for 10 days. The suture was removed after 16 days. No complication was noted, and the cat had an uneventful recovery.

Figure 1: Preparation of surgical site

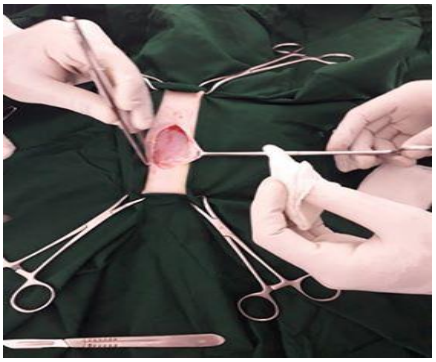

Figure 2: Skin incision at linea alba

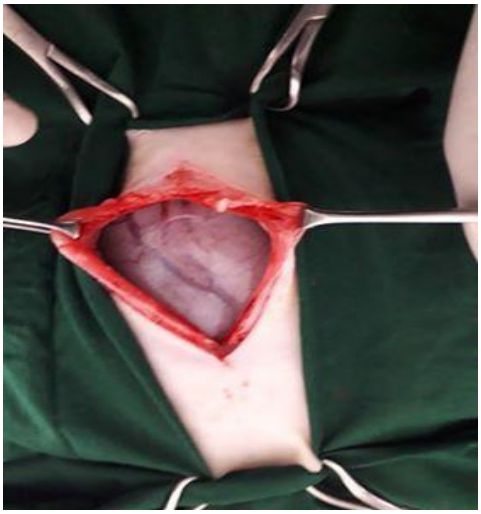

Figure 3: visualization of visceral organs

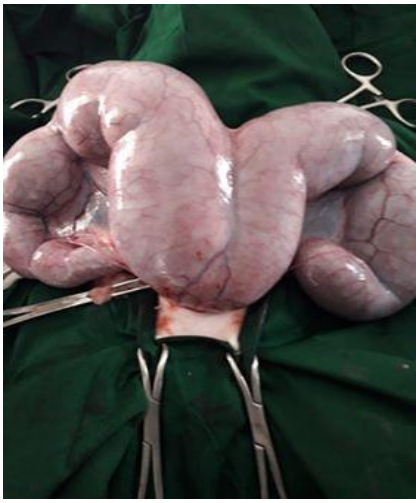

Figure 4: Exteriorization of uterus

Figure 5: Separation of uterus with mummified contain.

DISCUSSION

Fetal mummification has been reported in several domestic species including cow (Barth, 1986), sheep (Hailat et al., 1997), goat (Tutt, 1997), horse (Meyers et al., 1991), swine (Christianson, 1992),but it is not common in cat.Fetal death can occur at any stage of pregnancy and can result in resorption, abortion or retention of fetus which can become mummified (Mudasir et al., 2012). The nature of outcome depends on cause of fetal death, the stage of pregnancy and immune-competence of fetus and mother (Romagnoli, 2002).

After performing the surgery, gross examination was performed over the uterine horns and ovaries which revealed that the uterus contracts on fetus, placental fluid get absorbed and fetal membrane get shriveled and dried (Roberts, 2004). These conditions may alter the environment of uterus and lead to fetal death and subsequent mummification (Planellas et al., 2012). Fetal mummification usually occurs in last stage of gestation after ossification of the bones.

In this case, a total of 2 mummified fetus were removed from both the horns. Mummified fetuses were soft in consistency without any odour and with little placental fluids. Roberts (2004) reported the presence of one or more mummified fetus along with normal live fetus in dogs. Radiography revealed only presence of bony structures in the uterus which were most likely the shadows of fully developed dead kittens. The uterine inertia could be a cause for retention of mummified fetus.

CONCLUSION

In addition to clinical observation, radiography and ultrasonography facilitated the diagnosis of fetal mummification in cat. In the present case, mummified fetuses were removed successfully, and the surgical treatment given ensured a good recovery of the cat.

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The Author
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BIOGRAPHY

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