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Exploratory laparotomy followed by hysterectomy in a German shepherd bitch due to fetal maceration

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Abstract

A 3 years old German shepherd bitch was presented to the Veterinary Clinical Complex, Banaras Hindu University, Barkachha, Mirzapur with the history of sanguineous, foul smelling vaginal discharge since from last 2 days and inappetence, mating was carried around 45 days back. On Abdominal palpation fetus like mass was palpable and on Per-vaginal examination no any fetal part was palpable in vaginal passage. Trans-abdominal ultrasonography showed the presence of fetal skeleton, feeble heart beats in some fetuses and fluids in fetal sac but not in all. Some fetal sacs showed lack of fluids with no heart beats. Radiographic examination showed the presence of five fetuses. Further it was decided to perform exploratory laparotomy. The bitch was anaesthetized as per the standard protocols. Upon exploration of uterus three fetuses were found premature in the right uterine horn and two macerated fetuses were found in the left uterine horn. Post operative care was took for 5 days and Bitch was recovered uneventfully after the treatment. Fetal maceration in a bitch is a rare obstetrical condition however; it can be corrected by exploratory laparotomy.

Keywords: Fetal maceration, radiographic examination, ultrasonography examination, ovariohysterectomy

Introduction

Fetal maceration occurs as a consequence of the failure of an abortion procedure, probably due to uterine inertia (Johnston *et al.* 2001) [8]. Maceration of fetus has been reported in several species including bitches however, the incidences are very low (Johnston *et al.* 2001; Balamurugan and Maurya 2022) [10, 2]. Prenatal development consists of three stages in bitches. The first period (2-17 days) is pre implantation stage, the second period (19-35 days) is the embryonic stage and third stage is period of fetus (36-65 days). The embryo or fetus may lose its life due to many reasons that can be hardly detected in early period of pregnancy (Bodh *et al.* 2010) [4]. In the prenatal period of development, the damage of the embryo or fetus is resulted with the embryonic or the fetal losses (Bozkurt *et al.* 2018) [5]. The resorption of embryo occurs after embryonic death process, but emphysema, mummification or maceration of the fetus is seen in subsequent fetal period (Alacam 2010) [1]. In some circumstances where abortion cannot occurs due to uterine inertia or intrauterine infection, soft tissues of the fetus are autolysed and separated from bone tissues as a result of bacterial contamination of the dilated cervix (Serin and Parin 2009, Bhattacharya *et al.*, 2015) [11, 3]. The studies on fetal maceration in bitches is rare (Erdogan *et al.* 2019) [8]. In the present case report we surgically managed the fetal maceration in a bitch was recovered uneventfully.

Case History and Observations

A 3 years old German shepherd bitch was brought to Veterinary Clinical Complex, Banaras Hindu University, Barkachha, Mirzapur with the history of approximately mating was carried 45 days back and inappetence since from 2 days. All the vital parameters as body temperature 102.2°F, heart rate 72/min and respiration rate 23/min found within the normal range and Gynaeco-clinical examination revealed presence of sanguineous, foul smelling vaginal discharge. On Abdominal palpation fetus like mass was palpable and on Per-vaginal examination no any fetal part was palpable in vaginal passage.

Trans-abdominal ultrasonography showed the presence of fetal skeleton, feeble heart beats in some fetuses and fluids in fetal sac but not in all. Some fetal sacs showed lack of fluids with no heart beats. Radiographic examination showed the presence of five fetuses. Further it was decided to perform Exploratory Laparotomy

Treatment and Discussion

The surgical site was prepared aseptically and the bitch was pre-medicated with inj. Atropine sulphate @ 0.04 mg/kg I/M and inj. Butorphanol @ 0.1 mg / kg I/M. anesthesia was induced with inj. Diazepam @ 1 mg/kg I/M and inj. Propofol @ 2.5 mg/kg I/V upto the animal becomes unconscious. The bitch was put on surgical table in dorsal recumbancy. For maintenance of gaseous anesthesia in the form of isoflurane 3% along with endotracheal tube intubation was given. Venous catheterization was performed before surgery and the risk of hypovolemia was brought under control with the support of 0.9 % NaCl solution during the surgery. The umbilical scar was detected and mid line incision took 1 – 1.5 cm caudal to umbilicus. After skin incision fat layer is dissected and identified linea Alba, grasped it upward to create a distance between it and the internal organs. Incising of all the abdominal layers along the linea Alba. Then opening of peritoneal cavity to exteriorize the uterus. It was observed that right uterine horn, enlarged structure with normal fetuses, normal vascularization while left uterine horn with less vascularization, shrunken in size, less uterine content. After incision of the right uterine horn three premature fetuses were removed. Similarly left uterine horn also incised in that, coagulated blood with foul smelling content and two macerated fetuses, fetal bones were removed. To prevent further reproductive problems and for the animal safety with the owners concern ovarioectomy and hysterectomy was done with controlled bleeding and ligation using 1-0 no. chromic catgut. Muscle layers and peritoneal cavity sutured with absorbable suture material like polyglycolic acid no. 1-0. Intra dermal skin sutured with polyglycolic acid no. 2-0. Post operative care was taken for 5 days with inj. (Intacef) a @ 2.2 mg/kg I/M and inj. (Melonex) b @ 0.2 mg/kg IM Surgical site was dressed with antiseptic ointment daily. The bitch was recovered uneventfully.

Fetal maceration is a type of incomplete abortion which occurs as a consequence of the failure of an aborting fetus to be expelled due to uterine inertia, complicated by entry of ascending pathogens into uterus through the completely or partially dilated cervix (Balamurugan and Maurya 2022) [2]. This results in putrefaction and autolysis of muscles and soft tissues leaving fetal bones within the uterus. Fetal maceration is commonly encountered in cattle but the incidence is rare in bitches probably because of the fact that all fetal death generally results in expulsion of fetus or may lead to death of the dam before maceration is initiated (Noakes *et al.*, 2019) [11]. In the present case, of fetal maceration of a bitch occurred at later stage of gestation and it was diagnosed by ultrasonography and radiographic examination. The macerated fetuses were successfully removed by exploratory laprotomy and ovarioectomy and hysterectomy was done. Similarly, Verma *et al.*, (2021) [13] and Devi *et al.*, (2020) [6] removed the macerated fetus through cesarean section. Generally, macerated fetuses in bitch were removed through cesarean section. (Feldman and Nelson, 1996) [9].

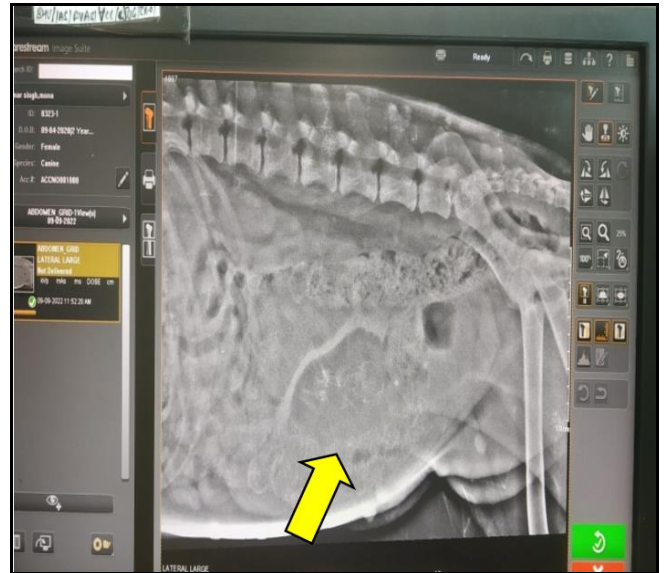


Fig 1: Radiograph of 3 Years Old German shepherd Bitch Taken on Lateral Recumbancy. The Arrow Mark Indicates Presence of Fetuses In Abdominal And Pelvic Cavity.

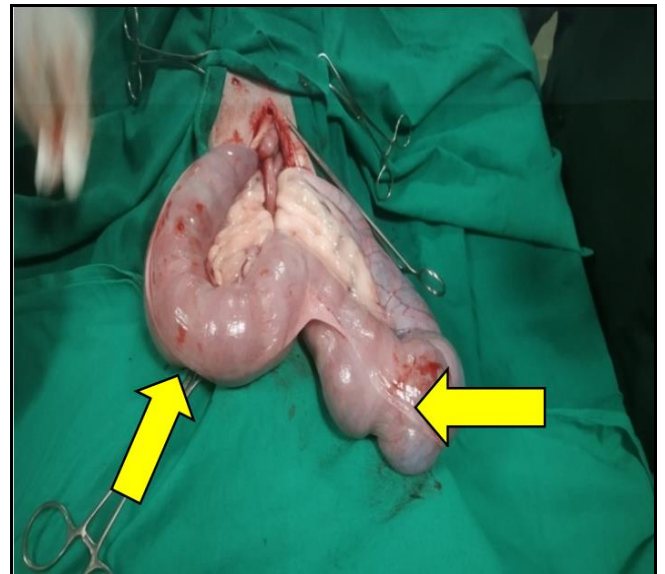


Fig 2: Exteriorization of Uterus with Normal and Shrunken Uterine Horn.



Fig 3: Premature Fetuses from Right Uterine Horns.

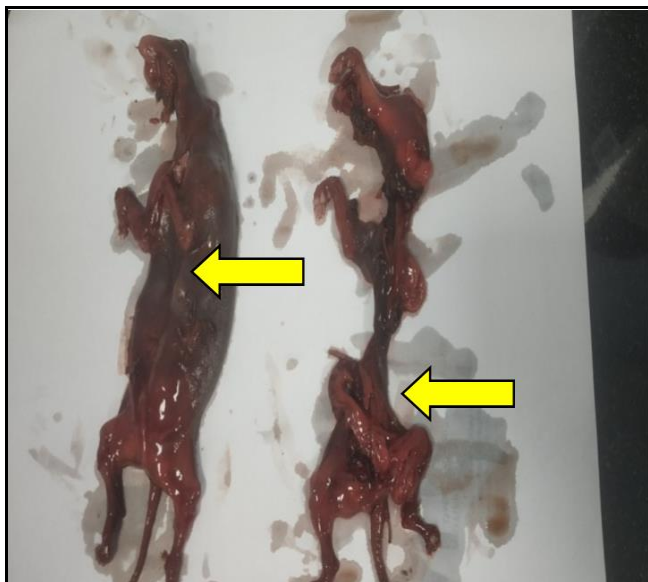


Fig 4: Two Macerated Fetuses from Left Shrunken Uterine Horn.

The fetal maceration in the present case was acute; therefore all vital parameters were within the normal physiological range and animal was active and alert. In multipara, maceration of early fetuses usually gets absorbed, more commonly. Here abortion followed fetal maceration. But generally, Fetal maceration follows abortion in late stage of gestation, in which the cervix is dilated, but fetus is not expelled due to failure of genital tract to dilate sufficiently or contract normally, or because of an abnormal presentation, position or posture of dead fetus (Drost M, 2007) [7]. The use of ultrasonography in bitches is very important for diagnosing early pregnancy, the determination of fetal viability, interpretation of the physiology or pathology of the genital organs, prediction of number, age and sex of fetus, the time of delivery and imaging of postpartum uterus (Balamurugan and Maurya 2022; Erdogan *et al.*, 2019) [2, 8].

Conclusion

Early diagnosis of fetal maceration in bitch can be done with the help of ultrasonography and radiographic examination. The fetal maceration should be managed surgically through cesarean exploratory laparotomy in order to save the life of the animal.

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