

## **CAPTER: i**

### **INTRODUCTION**

A caesarean section, also called C-section refers to a surgical procedure in which an incision is given through the abdominal wall and uterus in order to deliver fetus. Dystocia is a common obstetrical problem in all farm animals. If dystocia is not corrected, it leads to death of the fetus and sometimes to dam (Robert et al., 1971; Arthur et al., 1982). It occurs in the domestic cattle in approximately 3-5% of births and most cases are handled, at least initially, are by the breeder.

Caesarean section is one of the methods for correcting dystocia. The first caesarean section in case of cattle had reported as early as 1930s to save a cow. Now a days, it has gained popularity due to high fetomaternal survival rate, less tiring, quicker, more secured than fetotomy. It has been recorded 90% of caesarean case is performed due to dystocia (Vermunt et al., 2008) in all farm animals, which unless relieved, leads to death of the fetus and sometimes to the death of the dam (Roberts et al., 1986).

Among all domestic animals, cattle and buffalo are considered to be most suspicious species having highest incidence rate of dystocia (Purohit et al., 2011). Though cattle and buffalo have same reproduction process, cattle are more prone to dystocia than buffalo (Jainudeen et al., 1986). In cattle, dystocia contributes a significant economic loss in terms of loss of perinatal death of dam and calf, uterine infections, more retained placentas, and longer calving intervals (Ghosh et al., 1992; Brounts et al., 2004; Scott et al., 2005).

Fetal causes of dystocia include mainly malposition and monsters (Majeed and Taha, 1989; Noakes et al., 2009). Maternal causes of dystocia include incomplete cervical dilatation (ring womb), narrow pelvis, and uterine inertia (Majeed and Taha et al., 1989; Thomas et al., 1992; Noakes et al., 2009). According to (Lucky et al., 2016) the prevalence of dystocia was 21.18% in cattle at syhlet district in Bangladesh. In cows the incidence of dystocia is higher in heifer than pluriparous (Berger et al., 1992; Zaborski et al., 2009).

Dystocia is an emergency condition. Any delay in correction or management of dystocia may seize the life of dam or calf. In certain situation caesarean section may save life of both or anyone between dam and calf.

A number of surgical approaches are available for the bovine caesarean section including recumbent or standing left paralumbar laparotomy, recumbent or standing right paralumbar laparotomy, recumbent ventral midline laparotomy, recumbent ventral paramedian laparotomy, ventrolateral laparotomy and the recumbent left oblique laparotomy (Schultz et al., 2008). Each of this approach varies greatly and has its own advantages and disadvantages.

Selection of an approach for C-section mainly depends on skill of the veterinarian and other factors such as the type of dystocia, the cow's condition, the environmental conditions and the availability of assistance during surgery (Campbell and Fubini et al., 1990). For this reason, it is worthwhile to select a suitable site for operation in a laying cow and most often the left paralumbar fossa approach is favored by most veterinarians (Vermunt et al., 2008).

This technique is less practiced in field condition in Bangladesh and reports on this procedure are limited.

**The objective of this study**

1. To investigate caesarean section in the Sahiwal cross cow performed under clinical conditions.
2. Attempt to describe a caesarean section in a Sahiwal cross cow with recumbent position using only local anesthesia.

## **CAPTER: ii**

### **CASE DESCRIPTION**

#### **2.1 Case history**

An owner came from Charomba with a history of 3 years old Sahiwal cross cow of first pregnancy suffering from difficult parturition at his backyard farm to Upazilla veterinary hospital & livestock office, Lohagara, Chattogram. The owner claimed that the cow had labor pain more than 24 hours. At first general physical examination was done. On clinical examination the cow revealed normal temperature, respiration, heart rate and pulse rate. The behavior of the animal was restlessness and appetite were not satisfactory. The cow was in lateral recumbent position. Per vaginal examination revealed complete opening of the cervix, anterior presentation of the fetus but only two fore limbs were in the bath canal & the head was laterally bend with existence of death fetus. Then it was decided to perform a cesarean section to deliver fetus using left flank laparotomy.

#### **2.2 Restraining and anesthesia**

Both physical and chemical methods were used to control the cow. The cow was restrained by using a rope, tied such that the animal's right flank is on the ground and the head was bended in ground in order to control the movement during surgery. The area of the intended incision was shaved then soaked with 70% alcohol followed by painted with povidone iodine (10%). After shaving local anesthesia using 30ml of 2% lidocaine hydrochloride (Inj. Jasocaine®2%) solution was injected by inverted "L" block technique. Then the cow was prepared for aseptic surgery.

#### **2.3 Surgical technique**

A left flank laparotomy approach was used for caesarean section at laying position. An about 20 cm long vertical incision along the skin of the flank was made (Figure-2) and separated from the subcutaneous layer. The incision was given 5cm caudal from last rid. The external abdominal oblique muscle was incised in the same direction as the skin. The internal abdominal oblique muscle and transverse abdominis muscles were guided parallel to the incision using a combination of sharp and blunt dissection (Figure-3) and ligating all the blood vessels and cutting by taking care to avoid major blood vessels. Following separation of the muscles by blunt dissection, the peritoneum was incised and then guiding a cut by a finger placed underneath the peritoneum. After identifying the uterus, an incision was made on the uterus. Huge amount of amniotic fluid came out. Then grasped the hind legs of fetus (Figure-7) & a death fetus was removed from the uterus (Figure-9). Then the placenta was removed manually. Before closing the abdominal cavity, the inner surface of uterus and peritoneal cavity were given a good flush with normal saline to reduce contamination. The uterus was closed by "Czerny-lambert" suture pattern with a synthetic absorbable monofilament cat gut No. (3-0). An atraumatic needle was used starting well above the incision and using an inverting pattern without penetration of the wall. Then peritoneum and muscle layers were closed by simple continuous suture using Cat gut No. (3-0). In case of abdominal muscle layers individual layer was sutured separately and antibiotic ointment Gentamast® was scattered over the suture line to reduce bacterial contamination. Then vertical mattress sutures were used in the skin using non-absorbable suture material nylon (Figure 11). A povidone iodine solution was applied over the sutured line. The animal was then monitored for a period of 14 days to observe any complication until complete healing.

## Photo Gallery



**Figure-1: Administration of local anesthetic**



**Figure-2: Incision in the skin**



**Figure-3: Incision in the abdominal muscle**



**Figure-4: Opening of abdominal cavity**



**Figure-5: Holding of uterus**



**Figure-6: Gaspung the fetus**



**Figure-7: Removal of fetus**



**Figure-8: Complete removal of fetus**



**Figure-9: Death fetus**



**Figure-10: Suturing of uterus**



**Figure-11: Suturing of skin**



**Figure-12: Vertical mattress suture in skin**



**Figure-13: After completion of surgery**



**Figure-14: Happiness of team member after surgery**

## 2.4 Post-operative care of Dam

After surgery, sufficient fluid replacements, antibiotics and anti-inflammatory drugs were given for 5 days to combat toxemia. Oxytocin [Inj. Oxin vet® (Techno pharmaceuticals) 20 IU single dose i/m/cow] to prevent uterine bleeding and to increase uterine contraction to expel out fluid and fetal remnant, 5% dextrose saline [(Inj. DNS-5%) 1 liter/day/cow/i/v], for 5 days as fluid therapy, antibiotic Streptopenicillin [Inj. Streptopen, 10 mg/kg/day/cow/i/m for 5 days,(Renata pharmaceuticals Ltd, Bangladesh)], Calcium gluconate [Inj. Cal-D-Mag (Renata pharmaceuticals Ltd, Bangladesh) 500 ml/day/i/v] for 5 days], Meloxicam [Inj. Melvet®, (Acme Laboratories Ltd., Bangladesh) @0.5mg/Kg body wt/cow/day/s/c] as analgesic, Pheniramine maleate [@1mg/Kg body weight, (Inj. Astavet®, Acme Laboratories Ltd., Bangladesh) 1 mg/kg body wt/day/cow/i/m for 5 days] as antihistaminic, drotaverine hydrochloride [Inj. No-spa 20 ml/day/i/m (Ambee Pharmaceuticals)] for 5 days as antispasmodic was administered. For topical application at incision line in skin 5% Povidone iodine [Ointment Viodin (Square pharmaceuticals)] was recommended. Temperature, respiration, heart rate and other related physical examinations were done regularly and recorded. The behavior and appetite of the cow was satisfactory and no complications were noticed and the animal had an uneventful recovery. On the day 14th the suture was removed and it was noticed that the wound had healed completely.



## **CAPTER: iii**

### **DISCUSSION**

Caesarean section is widely used an emergency operative technique for surgical delivery cattle calves in dystocia affected cows. In the present case, a left vertical laparotomy approach was used for caesarean section in a recumbent cow to deliver one death fetus using only local anesthesia. The procedure holds distinct advantages for surgeons with either smaller stretch or less physical strength. The manipulation and exteriorization of the gravid uterine horn is readily permitted, and the apposition of the transverses abdominis and internal abdominal oblique muscles are facilitated by using of this approach (Newman and Anderson et al., 2005).

Following Caesarean section, the survival rate of dam has been recorded 36-100% (Phogat et al., 1992; Singh et al., 1978; Dhindsa et al., 2010). The survival rate may reach 64.7-100% if the operation is done within 24-26 hours of dystocia (Nanda et al., 1991). The economy of a farm depends on one calf per year per cow. Deviation from this causes loss to farm. So, if the fetus is live and all other efforts relieving dystocia fail, we should go for caesarean section. In the present case, a left vertical laparotomy approach was used for caesarean section in a recumbent Sahiwal cross cow to deliver a calf under local anesthesia. C-Section of a cow in recumbent condition is somewhat different from standing condition. Closure of the abdominal wall is straightforward and relatively easy, less assistance is necessary and exteriorization of gravid uterus is easier (Schultz et al., 2008) in case of standing condition. Both physical as well as chemical restraining provided to control the cow.

In uterus inverting suture pattern e.g. Czerny-lambert, in muscles apposition suture pattern e.g. simple continuous and in skin everted pattern e.g. Vertical mattress suture was given which follows the report of (Schultz et al., 2008). The success of an operation depends on careful postoperative care (Sood et al., 1999) described as antibiotic, antihistaminic, anti-inflammatory, fluid therapy as postoperative medication which is similar with our study. The calf was found death following caesarean section. It is important to remember that caesarean section is a major abdominal operation and complications are common both during and after the operation. Common complications include metritis, adhesions, peritonitis, hemorrhage, wound dehiscence, poor fertility, disgalactia etc. which is also reported by Velhankar et al., 1968; Newman et al., 2005. In the reported case, no such complication was recorded and the cow was fully cured up to 14 days observation.

## **CAPTER: iv**

### **LIMITATION OF THE STUDY**

There are some limitations of the study. These are given below:

- There is no well-equipped operation theater at lohagara upazilla for veterinarian.
- Shortage of surgical instruments.
- Inadequate antiseptic materials.
- No laboratory for hematology & blood chemistry.
- Lack of farmer interest for such kinds of surgery.

## **CAPTER: v**

### **CONCLUSION**

Caesarean section through left flank laparotomy is an effective method of resolving dystocia in large ruminants even if it performed in delayed cases of dystocia. The information of this report will enrich the knowledge of owner and field veterinarian to early diagnosis, treatment management of dystocia. This case will also inspire the veterinarian of Bangladesh to perform caesarean section at field condition to save endangered mother and her calf. Thus, in future the researchers may investigate the future fertility of cow having history of caesarean section.

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**Author**

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# QUESTIONNAIRE

SI. NO.: .....

Date:

## Section-1: Farmer's information:

a. Name: .....

b. Sex: Male/ Female

c. Age: ..... year

d. Location: Village: ..... Union: .....

e. Education: Illiterate/1-5/6-10/SSC/HSC/Higher

f. Occupation: Farmer/ Day labor/ Service holder/Businessman/Housewife

g. Training: Yes/No

h. Source of investment: Loan/Own/Both

i. Grazing land: Yes/No

j. Status: Rich/Middle class/low middle class/poor/landless

## Section-2: Farm's Information:

a. No. of animal: ..... b. Source of animal: Brought/External

c. Having others Species: Chicken/Duck/Pigeon/Turkey/goat/sheep/others

d. No. of other animal: .....

## Section-3: Animal's Information:

a. Breed: .....

b. Age: .....M/Y

c. No. of Bull: .....

d. No. of cow: ..... e. No. of calf: ..... f. Body Weight: .....kg

g. BCS: Fatty/Good/Poor/Fair/Cachectic

h. Vaccination: Yes/No i. De worming: Yes/No 24 j. Breeding: Natural/AI

## Section-4: Animal's Husbandry:

a. Rearing System: Intensive/Semi-intensive/Extensive/Tethering

b. Flooring Materials: Wood/Bamboo/Soil/Others

c. Cleaning Materials: Yes/No

d. Cleaning Frequency of Floor: Once in a day/ Twice in a day/ Once in a week/ Twice in a week.

e. Feeding Materials: Roughage/Concentrate/Both

.....  
**Signature of farmer**

.....  
**Signature of collector**

## References

- Arthur, GH, Noakes, DE, Person, H. 1982. Veterinary Reproduction and Obstetrics. 5<sup>th</sup> edition. Bailliere, Tindall, London, pp. 161-182.
- Berger PJ, Cubas AC, Koehler KJ, Healey MH. 1992. Factors affecting dystocia and early calf mortality in Angus cows and heifers. *Journal of Animal Science*. 70: 1775-1786.
- Brounts SH, Hawkins JF, Baird AN, Glickman LT. 2004. Outcome and subsequent fertility of sheep and goats undergoing cesarean section because of dystocia: 110 cases (1981–2001). *Journal of the American Veterinary Medical Association*. 224: 275-281.
- Campbell ME, Fubini SL. 1990. Indications and surgical approaches for cesarean section in cattle. *The Compendium on continuing education for the practicing veterinarian (USA)*. 12: 285-292.
- Dhindsa SS, Dhaliwal GS, Ghuman SP. 2010. Factors influencing dam survival rate in bovines subjected to caesarean section. *Indian Journal of Animal Reproduction*. 31: 49-51.
- Ghosh A, Yeasmin F, Alam MG. 1992. Studies of ringwomb in Black Bengal goats (*Caprahircus*). *Theriogenology*. 1;37: 527-532.
- Jainudeen MR, 1986. Reproduction in the water buffalo. In: *Current therapy in Theriogenology*, Edu. Morrow DA WB Saunders Company, Philadelphia, 443-449.
- Lucky NS, Hossain MK, Roy AC, Haque MM, Uddin AM, Islam MM, Howlader MM. 2016. A longitudinal study on clinical diseases and disorders of cattle and goats in Sylhet, Bangladesh. *Journal of Advanced Veterinary and Animal Research*. 3: 24-37.
- Majeed AF, Taha MB. 1989. Preliminary study on treatment of ring womb in Iraqi goats. *Animal Reproduction Science*. 18: 199-203.
- Newman KD, Anderson DE. 2005. Cesarean section in cows. *Veterinary Clinics: Food Animal Practice*. 21: 73-100.
- Nanda AS, Sharma RD, Nowshahari MA. 1991. The clinical outcome of different regimes of treatment of uterine torsion in buffaloes. *Indian Journal of Animal Reproduction*. 12: 197-200.
- Noakes DE, Parkinson TJ, England GC. 2009. *Arthur's Veterinary Reproduction and Obstetrics*, 9<sup>th</sup> edition. 578-585.
- Phogat JB, Bugalia NS, Gupta SL. 1992. Incidence and treatment of various forms of dystocia in buffaloes. *Indian Journal of Animal Reproduction*. 13: 69-70.
- Purohit GN, Barolia Y, Shekhar C, Kumar P. 2011. Maternal dystocia in cows and buffaloes: a review. *Open journal of Animal sciences*. 13: 69-70.
- Roberts SJ. *Veterinary obstetrics and genital diseases*. Veterinary obstetrics and genital diseases. 1986.
- Schultz LG, Tyler JW, Moll HD, Constantinescu GM. 2008. Surgical approaches for cesarean section in cattle. *The Canadian Veterinary Journal*. 49: 565.

- Scott PR. 1989. Ovine caesarean operations: a study of 137 field cases. *British Veterinary Journal*. 145: 558-564.
- Singh J, Prasad B, Rathor SS. 1978. Torsio uteri in buffaloes (*Bubalus bubalis*). An analysis of 65 cases. *Indian veterinary journal*. 55: 161-165.
- Sood P, Kumar P, Sharma A, Barman P, Kumar N. 2011. Successful management of dystocia due to incomplete abortion in a buffalo. *Buffalo Bulletin*. 30: 4.
- Thomas JO. 1992. Survey of the causes of dystocia in sheep. *Veterinary Record*. 127: 574-575.
- Vermunt JJ. 2008. The caesarean operation in cattle: A review. *Journal of Veterinary Surgery*. 82-100.
- Velhankar DP, Deshpande BR, Hadi MA, Hattangadi SR, Sane CR. 1968. Occurrence of *Gastrothoracodidymus octopes* twin monsters in buffaloes. *The Indian veterinary journal*. 45: 823-829.
- Zaborski D, Grzesiak W, Szatkowska I, Dybus A, Muszynska M, Jedrzejczak M. 2009. Factors affecting dystocia in cattle. *Reproduction in domestic animals*. 44: 540-551.

## BIOGRAPHY



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