

The Caesarean Operation (Section)

Caesarean section was named after the roman Emperor Julius Caesar was delivered in this manner. Caesarean section is now a routine obstetrical procedure in cattle.

The reasons for caesarean operation include most causes of dystocia & when the foetus is still a live & all the methods to deliver a live foetus are failed as in the following cases:

1. Foetal over size, large foetus with marked difference between its size & bony and soft birth way. In some cases of foetal diseases which cause increase in the foetal size as in case of foetal anasarca and hydrops foetalis.
2. Immature heifers when conceive at an early age at only one year even at eighteen months of age that its pelvis is still immature also soft birth way.
3. Incomplete cervical dilatation is a common cause of dystocia in cows.
4. In case of uterine torsion, that when all methods of torsion treatment are failed caesarean section should be performed.
5. To deliver certain monsters and abnormal fetuses such as:
 - Schistosomus reflexsus.
 - Double monster.
 - Ankylosed foetus.

Operation should be performed early by 6-18 hours after the onset of labor and the cow must be physically good for successful operation.

• Site of operation:

The caesarean operation in cattle can be performed through a ventral, ventrolateral or sub lumbar (flank) incision; it is easily performed on standing animals because recumbency greatly increases the intra abdominal pressure.

1- Upper left flank in standing position:

A- Advantages

- It is safe and the incision can be extended ventrally.
- Use local anaesthesia.

B-Disadvantages

- Large rumen may hinder the uterus.

2- Upper right flank in standing position:

A- Advantages

- Use local infiltration anaesthesia.
- The incision can be small and less risk for herniation.

B- Disadvantages

- Difficult in holding the small intestine if the incision is extended and when cow strain or cough during the operation.
- The peritoneum may be contaminated with uterine contents.

3- Oblique abdominal incision in lower flank region:

It is occurs in right or left side on lateral recumbent cow.

A- Advantages

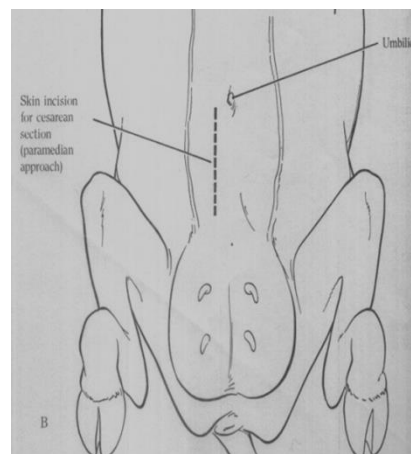
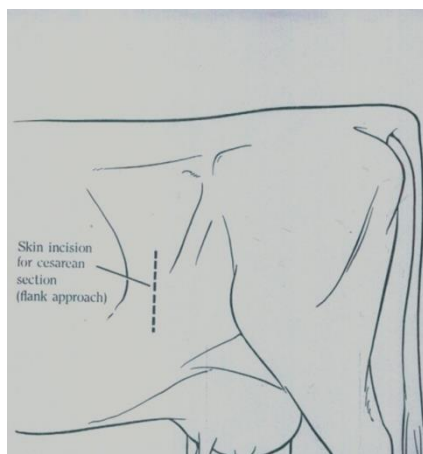
- Easily reach to the gravid uterus

B- Disadvantages

- It is difficult to control & hold the small intestine.
- It is easily infected.

4- Abdominal floor:

It occurs in cows in recumbent position; the incision extends for 30-35 cm in front of the udder.

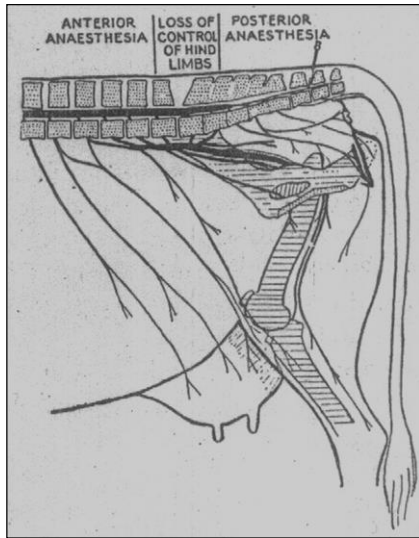


• **Anaesthesia:**

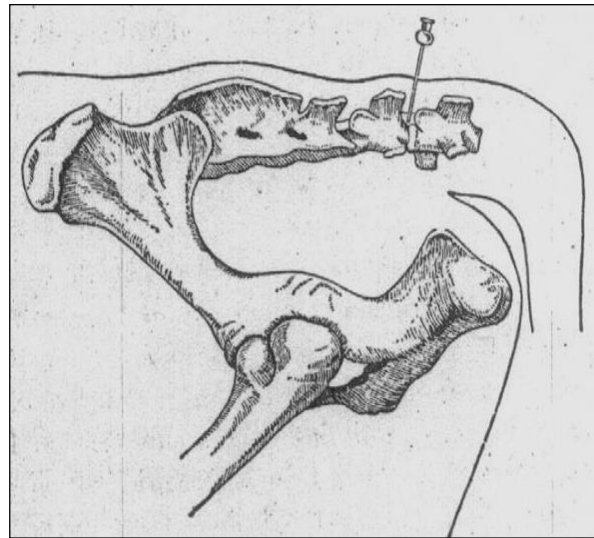
A- Epidural anaesthesia:

It is not essential but it is useful to prevent straining and tail movements during surgery, dose 5-8 ml of 2% procaine HCL or lignocaine HCL is given epidurally into the first or second inter coccygeal space.

➤ N.B; Large dose may cause recumbency of the animals.



Epidural anaesthesia in the cow illustrating the distribution of the spinal nerves.



Epidural anaesthesia in the cow illustrating the site of injection.

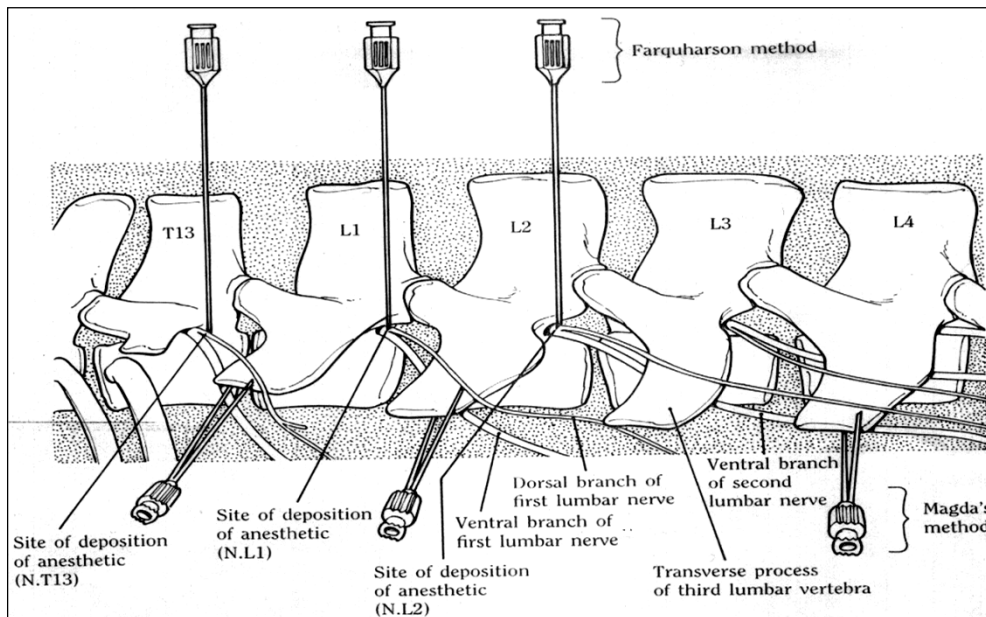
B- Local infiltration:

It is performed in the operation site; the required dose is 80-100 ml of procaine HCL.

C- Para vertebral anaesthesia:

It is performed by blocking the spinal nerves T₁₃ – L₃. These nerves are found just behind the last rib and the first 3 lumbar vertebrae.

The required dose is about 20 ml procaine HCL injected over each nerve by 5-7 cm depth.



Paravertebral nerve block.

• Prognosis:

- If the operation occurs within the 6 -18 hours from the onset of labor and the cow is in good condition and the foetus is still a live or recently dead, the mortality rate less than 10 %.
- If the operation occurs after 18-36 hours after the onset of the second stage of labor and the foetus generally dead and slightly emphysematous & the cow in poor condition, the mortality rate about 10-30%.
- The most common causes of maternal death are shock secondary to exhaustion, toxemia and excessive manipulation of the abdominal viscera as in case of uterine torsion.
- Most of maternal deaths occur from 1 -8 days after the operation.
- From 60 -80 % of cows having caesarean section should be fertile & conceive subsequently.
- The failure of conception may be due to
 - Peritoneal adhesion
 - Sever endometrial damage secondary to septic metritis.

• **Technique of the operation:**

1. Preparation of the surgical site; the hair is clipped or shaved from an area of the left flank extending laterally from the last rib to the tuber coxae & dorsoventrally from the spines of the vertebrae down to the lowest parts of the flank (this is prepared before anaesthesia) then application of tincture iodine on all of the operation site after shaving.
2. Local infiltration anaesthesia is applied on flank region.
3. The skin of the flank region and the muscles are incised with sharp scalpel while the peritoneum is perforated with bowl scissor.
4. The two arms are inserted into the abdominal cavity the foetus is grasped through the uterine wall. The gravid horn is pulled through the abdominal incision.
5. The uterus is incised along its greater curvature and precaution must be taken to avoid injury of the uterine caruncles, so the incision is better carried with bowl scissor.
6. The foetal membranes are incised and the foetus is removed through the uterine incision by gentle traction to avoid uneven rupture of the uterus, the uterus is examined for presence of another foetus.
7. The foetal membranes may be left intact in case of a live foetus, while in case of dead foetus, uterine inertia & closed cervix foetal membranes are removed manually.
8. Administration of intra uterine antibiotic tablets then the uterine incision is closed by double row of continuous suture with catgut No 2 - 3 then local antibiotic ointment or powder on the uterine wound then return the uterus to its normal position in to the abdominal cavity.
9. It is better to begin & end the suture 2 -3 cm beyond the extremities of the incision.
10. Peritoneum and abdominal wall are closed; abdominal muscles are sutured with catgut No 4 - 5 by continuous or interrupted mattress suture.

The skin is sutured by mattress interrupted suture using silk No. 5, and then antibiotic powder is applied on the skin wound and protects it by gauze.

● **Post operative care:**

1- Large doses of antibiotics are given for at least 3 days.

It is by intra muscular administration of 3-6 million i.u penicillin, and 3-5 gm streptomycin.

2- Intra uterine 1 – 2 gm Terramycin tablets for two successive days if possible.

3- I / M injection of oxytocin 50 – 80 i.u for uterine involution.

4- Supportive treatment as daily I / V injection of glucose 5% about 1 – 2 liters.

5- Cow should be kept in a quiet place and away from contact with other animals for two weeks after the operation.

● **Complications of bovine caesarean section:**

1- Peritonitis:

It occurs due to contamination of the peritoneum from the uterine contents, when the signs of peritonitis develop cow becomes dull and pyretic; mucous membranes are dirty and have toxic appearance. Cows show signs of pain and guarding when the abdomen is palpated. Peritoneal tape reveals profuse hyper cellular fluid & pus present in flank.

The response for treatment is poor; occasionally the cow is able to localize peritonitis around her uterus.

2- Subcutaneous emphysema:

This is developed within 24 hours after surgery if the peritoneal wound has not been effectively sealed.

Treatment is not necessary and spontaneous resolution occurs or after course of antibiotics.

3-Metritis:

It is occur after retention of the foetal membranes. Cow is suffering from pyrexia, anorexia and has a foul smelling vaginal discharge.

4- Infertility:

The causes of infertility include chronic metritis, salpingitis with subsequent blockage of the oviduct and adhesions involving the ovaries.

Removal of blood from the surface of the uterus and the surrounding tissues during the operation is an important prophylactic action.

Post natal check of the cow after calving with 3 weeks is advisable.

5 - Mastitis:

The main cause is E.coli. & the treatment is by giving I/V antibiotics (oxytetracycline) and administration of anti-inflammatory with local application of antibiotics intra mammary.

Caesarean section in mare

- **Indications:**

It is occur in the following conditions:

1. Fractured pelvis in mare.
2. Malpresentation which cannot be corrected manually as in transverse presentation and when the foal in dog sitting position.
3. In case of foetal monster that cannot be delivered per vagina.

- **Anaesthesia:**

General anaesthesia is essential. I / V administration of Chloral hydrate narcosis 10%, dose 5 gm / 50 kg b.wt.

- **Surgical technique:**

1. Skin incision & opening the abdomen, a mid line incision is made from a point just caudal to the umbilicus, extending approximately 30 cm back towards the udder.
2. Holding a foetal part within the uterus, the uterus is opened ventrally in its greater curvature over a foetal extremity.
3. The foetus is carefully removed from the uterus; the umbilical cord should not be ruptured for 5 minutes after establishment of the foetal respiration.
4. If the foal is dead the placenta can be easily removed before the uterine closure. If the placenta is tightly attached it is left.
5. Before uterine closure the edges of the uterine wound are sewn to compress the layers of the uterine wall to reduce the risk of haemorrhage. The uterus is then closed with a layer of inversion sutures.
6. Closure of the abdomen

- **Post operative complications:**

1- Ventral oedema.

This occurs and disappears spontaneously within few days.

2- Retention of the placenta.

Retention follows caesarean section in mare. If the placenta is retained for 6 hours after delivery, I / M administration of 10 – 40 i.u oxytocin or I / V administration of 10 – 20 i.u oxytocin.

If the placenta is retained for 12 hours manual removal should be performed.

3- Peritonitis:

It occurs when the foal is dead, mare is dull & toxemic showing signs of colic with presence of abnormal fluid on the peritoneal tape.

Treatment is performed with large doses of antibiotics in addition to anti-tetanic serum which is given by I / V, I / M and subcutaneous injection.

4- Adhesions:

May be developed as postoperative complications & if it involves the ovaries infertility occurs.

Caesarean section in ewe

- **Indications:**

As in cow in case of the following conditions:

- 1- Incomplete or non dilatation of the cervix or hypoplasia of the cervix or hypoplasia of the cervix or vagina.
- 2- Foetal maldisposition which cannot be corrected by maldisposition.
- 3- In case of pregnancy toxemia.

- **Site of operation:**

Caesarean section of ewe occur in left flank while the ewe in right lateral recumbency.

- **Pre operation of the surgical site:**

The wool is clipped from the whole of the left sub lumbar fossa. After clipping of the wool the site of the operation is irrigated with tincture iodine.

- **Anaesthesia:**

Local anaesthesia is mainly used & the local anaesthetic is given either by local infiltration or paravertebral techniques.

About 60 ml 2 % procaine HCL or lignocaine HCL is required.

- **Surgical technique:**

1. Securing of the ewe by tying her legs together and the ewe is placed in lateral recumbency on her right side. See Fig.(B-11).
2. Skin incision and opening the flank, this incision is for 15 cm in its length in the left sub lumbar fossa, the incision is below the transverse process of lumbar vertebrae by about 10 cm.
3. The muscle layers is turned with forceps and divided with scissors. The uterus is lying behind and below the rumen
4. Using scalpel or scissor an incision is made to open the uterus over the foetal extremity & on the greater curvature of the gravid horn.
5. The foetus should be carefully removed followed by removal of the placenta before closure of the uterine incision.
6. The obstetrician must insure that no further lambs are left inside the uterus.
7. The uterine wound is repaired with single continuous layer of inverting suture.

- ***Post operative complications:***

It is relatively uncommon in ewe.

