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Revisiting Destructive Operations To Prevent Second Stage Caesarean Section In Covid Times: A Case Series

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INTRODUCTION

It is Destructive operation refers to a procedure to diminish the bulk of the foetus for facilitating delivery through the birth canal. In modern obstetrics, destructive operations have become rare. With the outbreak of novel corona virus, it was observed that due to increase in decision to delivery time, (consequent to unprecedented COVID protocols, delays due to donning of PPE and availability of operation theatre), some of the caesarean sections (CS) resulted in stillbirths.

Caesarean section has a higher risk of complications than a vaginal birth. A caesarean section in second stage of labour is associated with increased risk of bladder injury, extension of uterine incision leading to broad ligament hematoma, increased risk of PPH, sepsis, longer hospital stay and perinatal asphyxia. [1,2]. When done on a dead foetus, it not only adds to the surgical morbidity but also leaves a scarred uterus with increased risk of complications in the subsequent pregnancies. In situations, where the fetus is already dead, destructive procedures like craniotomy or decapitation can be carried out to deliver the baby in appropriately selected cases.

Smt Sucheta Kriplani Hospital is a tertiary care health facility with approximately 13,000 deliveries annually. During Covid Pandemic, the number of deliveries decreased by 40-50%. It was observed that from May 2020 to June 2020, eight second stage CS were done for second stage arrest, and three of these 8 CS (37.5%) were done on a dead baby, although the baby was alive at the time of decision. We decided to counsel the pregnant women and her partners about the probability of unavoidable delay in decision to delivery in spite of our best efforts due to COVID protocols and offer them an option of destructive operation in case the operating team was unable to locate the fetal heart by Doppler/ ultrasound on the operation table. We share our experience of this intervention during COVID pandemic as a case series.

METHODOLOGY

ForThis is a retrospective consecutive case series analysis at a single tertiary care centre over a duration of seven months from July 2020 to Jan 2021. All women who were planned for CS in view of second stage arrest but had

intrapartum foetal demise and no contraindication for vaginal delivery were assessed for their eligibility for destructive operation by the Consultant. Informed consent was taken in all cases. The operations included 4 craniotomies and 1 decapitation. The procedure was done in the operation theatre observing all aseptic precautions by an experienced obstetrician. No anaesthesia was required. Women were followed up in the ward for 48-72 hours of delivery and more if required. This case series has been reported in line with the PROCESS Guideline[3].

CASE I

Twenty year, un-booked, primigravida at 8 months' pregnancy with severe anaemia and thrombocytopenia, was referred from a maternity home with acute foetal distress with non-descent of head since 3 hours. On examination, her vitals were stable. On per-abdomen examination, fundal height corresponded to 36-week gestation, cephalic presentation, 2/5th palpable, moderate contractions were present, and foetal heart sounds (FHS) ranging between 80-100 beats per minute (bpm). On per-vaginal examination, cervix was fully dilated, fully effaced, deflexed head at -1 station with grade 1 moulding and caput ++. Decision for CS was taken in view of acute foetal distress. While shifting to operation theatre, intrauterine demise (IUD) of foetus occurred. Decision for craniotomy was taken after discussing with woman and her partner. Informed consent was taken. Under general anaesthesia, with the help of sharp pointed Mayo's scissors, most dependent part was perforated. Brain matter was evacuated with a no. 10 suction cannula attached to a suction machine with a tubing followed by an easy spontaneous vaginal delivery. (Figure 1) A baby girl weighing 2 kg with no gross abnormality was born. Third stage was managed actively and was uneventful. Baby's scalp was then stitched with 2 interrupted stitches. Patient was given intravenous (IV) antibiotics for 48 hours followed by oral antibiotics for 5 days. She received 3 units of packed cell volume and 8 units of platelets in view of her severe anaemia and thrombocytopenia. Her COVID report came out to be positive and was discharged after 10 days (as per Covid isolation policy) in a satisfactory condition.

CASE II

Twenty-five year, Primigravida at 38 weeks of pregnancy with Gestational Diabetes Mellitus (controlled on diet) and severe preeclampsia (on Oral Labetalol 200 mg thrice a day), presented with IUD in active labour. On admission, her vitals were stable. On per abdomen examination, height of uterus corresponded to 34-week gestation, cephalic presentation, 3/5thpalpable, moderate contractions were present, FHS was absent. On per vaginal examination, cervix was 5 cm dilated, 60% effaced, membranes intact and vertex at -2 station. Labour progressed spontaneously but after full dilatation of cervix, there was arrest of descent at +1 station for 3 hours. Decision for craniotomy was taken after informed consent. Under general anaesthesia, the parietal bone was perforated with a sharp tipped heavy scissors and brain matter evacuated spontaneously with the compression on the head during contractions. Spontaneous delivery occurred after 5 minutes. Baby weight was 2.9 kg with no obvious gross congenital anomaly. Active management of third stage of labour was done. Genital tract was explored for any evidence of trauma. Patient was given IV antibiotics for 48 hours followed by oral antibiotics for 3 days. She was discharged in satisfactory condition after 5 days after optimisation of her blood sugar and blood pressure levels.

CASE III

Nineteen years old, Primigravida at 36-week 1-day pregnancy, un-booked, presented with IUD in active labour. On examination, height of uterus corresponded to 36-week gestation, head was deeply engaged, 0/5th palpable, moderate contractions were present and FHS was absent. On per vaginal examination, cervix was fully dilated, fully effaced, liquor was thick meconium stained, vertex was at +1 station, pelvis was adequate. Craniotomy was performed in view of arrest of descent of head in second stage of labour under general anesthesia as shown in

(Figure 1). Vaginal delivery followed. There was mild atonic postpartum hemorrhage which was managed conservatively by uterine massage and oxytocics. Baby was 2.7 kg, with no gross congenital anomaly. She was given oral Cap Amoxicillin (500mg) thrice a day for 2 days and discharged after 48 hours in satisfactory condition.

Figure 1 Drainage of brain matter from fetal brain through suction tubings

CASE IV

Twenty four-year primigravida at 37 weeks of pregnancy presented with diamniotic dichorionic twin pregnancy (with 1st twin IUD) in early labour. On examination, she was stable and having good uterine contractions. Per vaginal examination suggested that cervix was 3 cm dilated, 40% effaced, membranes intact, vertex at -3 station, pelvis adequate. Labour was allowed to progress spontaneously. After crowning, head of the first baby (IUD) delivered, but shoulder dystocia occurred. On examination, it was found that anterior shoulder of first twin was stuck above the head of 2nd twin which had also entered the pelvis along with first twin. Second twin could not be pushed upwards as shoulders of first twin were impacted above second twin's head. After informed consent, 1st twin was decapitated and trunk pushed up. Vertex of 2nd twin was at +2 station now. Vacuum was applied. 2nd twin was delivered followed by delivery of trunk of 1st twin. Placenta was delivered and checked for completeness. Cervix and vagina were explored and found intact. Baby's head was stitched back to the trunk. Patient was given oral antibiotics for 72 hours and discharged after 3 days in satisfactory condition.

CASE V

Thirty-year-old G3P2L2, presented at 37 weeks of pregnancy with hydrocephalus with term pre-mature rupture of membranes in early labour. On Ultrasound (USG), gross dilatation of ventricular system involving 3rd ventricles was present with rim of cerebral parenchyma at periphery. Poor prognosis of fetus explained to parents. Cephalocentesis was done abdominally under USG guidance and 1-liter cerebrospinal fluid was drained. Pre-procedure Bi-Parietal Diameter (BPD) was 14cm, post procedure BPD 9.4cm. Patient was allowed for spontaneous progress of labour. After 8 hours, on per vaginal examination, cervix was fully effaced and dilated, vertex was at -2 station, membranes were absent, pelvis was normal in shape and size. After 2 hours, the vertex was at the same station and decision for craniotomy taken and done under regional anesthesia followed by vaginal delivery. On

exploration, a cervical tear was found at 9 o clock position which was repaired. The weight of the baby was 2.6 kg with no gross congenital anomaly as shown in (Figure 2). Patient was discharged after giving oral antibiotics for 48 hours on day 2 post-delivery in stable condition.

Figure 2 Dead baby with gross hydrocephalus delivered vaginally following craniotomy

RESULTS

As compared to a rate of 37.5% (3/8) stillbirths in second stage CS during 2 months from May 2020 to June 2020, in the next 7 months from July 2020 to January 2021, after the intervention of destructive operations was decided upon, a total of 31 operative procedures were performed for second stage arrest; 26 second stage CS and 5 destructive operations. There was only one still birth on CS (1/26) 3.8% instead of potential (6/31) 19.6% in case destructive operations were not performed. Average operative time was 30 minutes for destructive operation with a mean hospital stay of 4.4 days (105.6 hours). Only 1 patient required multiple transfusions due to pre-existing

DISCUSSION

The destructive operations are designed to diminish the bulk of the foetus to facilitate easy delivery through the birth canal. In craniotomy, a perforation is made on fetal head, to evacuate its contents whereas decapitation involves severing fetal head from the trunk followed by extraction of separately per vaginum. [4] These procedures require few instruments which are routinely available, have a short learning curve, easy to perform and associated with lesser operative morbidity, and shorter hospital stay.

CS at full cervical dilatation with an impacted foetal head can be technically difficult and require surgical expertise. It is associated with increased risk of complications and prolonged hospital stay. In women, where the foetus is not alive, destructive operations can be a good alternative to second stage CS in properly selected patients.

The commonest and simplest destructive operation performed is craniotomy. It is indicated in arrest of descent in second stage due to Cephalopelvic disproportion, asynclitism, or arrest of aftercoming head of breech. Others are decapitation (for interlocking of head of twins or impacted transverse lie with hand prolapse) and cleidotomy (for shoulder dystocia and evisceration for a dead hydropic baby).

Most important prerequisite for these procedures is a confirmed dead baby. Others essential prerequisites include an informed written consent for the procedure and need for CS if it fails, fully dilated cervix, no signs of imminent uterine rupture and adequate pelvis. Hydration and antibiotics are administered as indicated and the procedure can be performed in the operating room under strict aseptic conditions or in the labour room especially if the head is deeply engaged and impacted. Preparations for CS should be done beforehand. Blood should be kept ready as atonic PPH may occur due to prolonged labour in these cases. Decision regarding the duration of a self-retaining catheter in place to reduce the risk of fistula formation can be individualized, based on the level and duration of impaction of head. Body of the new-born should be cleaned, wounds sutured, and wrapped before handing over to the family.

With the rising rates of CS and related morbidity and mortality, there appears a definite place of destructive operations as an alternative for second stage CS on a dead baby especially in COVID times and in developing countries. Requisite training needs to be imparted to residents from low- and middle-income countries. There have been case series reported from India in the past mainly from rural setups.

The incidence rate of destructive operations has been 0.094-0.26%[5,6]. In a study by Arora et al, the mothers were all under 40 years old. The operations included 27 craniotomies, 2 decapitations, 3 eviscerations, and 1 cleidotomy. Reasons for destructive operations were hydrocephalus (25%), obstructed labour (19%), arrest of aftercoming head (7%) and cord prolapse (5%)[5].

Another study conducted over 25 years had cases with 202 craniotomies (87.8%), 13 decapitations (5.7%), 8 eviscerations (3.6%) & 7 cleidotomies (2.9%)[6]. Incidence of destructive operations in our hospital was 0.20%(of all deliveries). All women were under 30 years and our operations included 4 craniotomies and 1 decapitation. All four craniotomies were done for obstructed labour with still birth and decapitation was performed for interlocking head of twins.

Individualization of each case of obstructed labour by the healthcare provider is imperative and delivery by the safest route should be considered from the available options. In developing countries like India obstructed labour with dead foetus and severe infection is a sad reality, and destructive operations are an essential part of obstetric practice. In many situations they should be a preferred option to caesarean delivery which needs much better facilities and greater morbidity.

Gupta and Chitra (1994) from our own hospital compared 56 destructive operations for women arriving late in obstructed labor with a dead fetus done between 1985 and 1991 with 27 CS done in 1989 and 1990 for similar indications. They found that destructive operations had no maternal death, few complications, and short hospital stay while in CS done during the study period, there was one maternal death, long hospital stay, need for blood transfusion, and more complications [7].

However, this case series in context of COVID pandemic has a different context and relevance. This led to lesser burden on the health facility which was dealing with paucity of beds in Covid times as women undergoing destructive operations lesser hospital stay, lesser antibiotics and lesser morbidity.

CONCLUSION

Pandemics have the maximum adverse impact on the most vulnerable. Pregnant women in the developing countries were hit the hardest due to the 3 delays; delay in deciding to seek help, delay in reaching the facility and delay in receiving care with resultant increase in stillbirths[8]. These included stillbirths at CS. Judicious use of destructive operations has a role in prevention of increased mortality and morbidity associated with second stage CS. Destructive operation can be considered in place of abdominal delivery with lesser burden on health facility and better obstetric future of the patient.

DECLARATIONS

Informed Consent

Patient and relative's consent was obtained prior to the procedure and documented in the case record

Conflicts Of Interest

none

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none

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