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Case Report

Role of slow decompression, injection carbetocin and Samarth Ram cannula for preventing postpartum haemorrhage in a patient of acute severe polyhydramnios

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ABSTRACT

We presented a case of a 30-year-old woman G3P1L1A1 who was diagnosed with severe polyhydramnios at 29 weeks of gestation. The patient was managed conservatively with amnioreduction. However, after one week of conservative management showed a further increase in the AFI (54-55 cm) with severe breathlessness and abdominal pain. A decision to terminate pregnancy was taken in view of failed conservative management. Emergency LSCS done under general anaesthesia. Amniotomy was done by slow uterine decompression. Simultaneously injection carbetocin 100 mcg IV bolus over 1 minute given. Postpartum haemorrhage was prevented by using Samarth Ram cannula. Further recovery was uneventful and patient discharged on day 3 of surgery.

Keywords: Polyhydramnios, PPH, SR cannula, Slow decompression

INTRODUCTION

Polyhydramnios is the main cause for uterine atony & postpartum haemorrhage (PPH) as well as intrapartum morbidity and mortality. Rapid decompression following PROM or therapeutic amnioreduction can cause placental abruption. For prevention of PPH slow decompression is performed. Single injection of carbetocin appears to be more effective than a continuous infusion of oxytocin for prevention of PPH. Atonic uterus is made to contract, and retract, by creating negative pressure inside the uterine cavity, with a specially designed Samarth Ram (SR) cannulas to stop atonic bleeding and for prevention of PPH.

CASE REPORT

A 30-year-old female admitted to ICU with diagnosis of G3P1L1A1 with 31 weeks 3 days of gestation with previous LSCS with acute severe polyhydramnios. She came with complaints of breathlessness for one week with heaviness with mild pain in abdomen in the past 3-4 days.

She underwent LSCS 13 months back. In this pregnancy anomaly scan was normal with mild polyhydramnios (single deepest pocket-8.17 cm). Screening for GDM was negative. She developed severe hydramnios at 29 weeks for which amnioreduction of 3.2 l was done for breathlessness. Amniotic fluid was sent for genetic study with normal fetal karyotype. She was symptom free for 1 week but admitted with above complaints.

On admission, patient was tachypnoeic, pulse-100 /min, BP-110/70 mmHg, RR-26 /min, SpO_2 90-92% on room air. Uterus was grossly distended with AFI of 56. Propped up position with oxygen support given. Decision was taken to terminate the pregnancy in view of failed conservative management.

Emergency LSCS was done under general anaesthesia. Amniotomy was done by giving 0.5 cm nick and slow uterine decompression. Simultaneously injection carbetocin 100 mcg IV bolus over 1 minute given. 10 liter of clear amniotic fluid was drained. A live preterm female baby extracted by vertex. Placenta and membranes separated spontaneously and removed completely. Uterus was flabby with huge uterine cavity. No immediate excessive bleeding noted. Prophylactic SR cannula inserted for prevention of PPH. Uterine closure done by double layer with Vicryl no.1. Negative pressure of 650 mmHg created. Uterus was contracted retracted. Abdomen closed in layers. Post operatively uterus was well contracted and retracted, vitals were stable with no evidence of active bleeding. SR cannula was removed after 6 hours. Further recovery was uneventful and Patient discharged on day 3 of surgery. Baby was put on O_2 hood. Baby had polyuria after birth and further evaluation suggested Bartter syndrome.

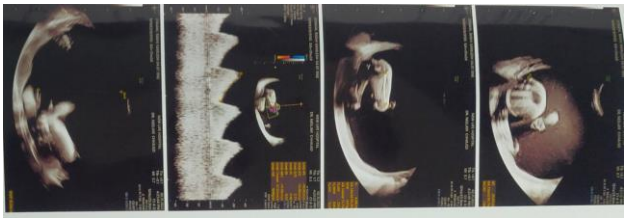

Figure 1: AFI: 54-55 cm (SDP-18.29 cm) with normal Doppler analysis at 31 weeks of gestation.

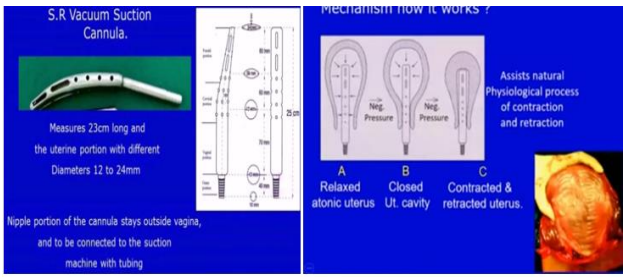

Figure 2: SR vaccum suction cannula (structure and mechanism of action).

DISCUSSION

The etiologic factors of polyhydramnios are varied and may include maternal and fetal conditions. Polyhydramnios remains idiopathic in most cases (60%). Due to severe maternal discomfort, amnioreduction can be performed in most of the cases. The SDP technique was better in identifying a normal amniotic fluid volume between the 5th and 95th centile (95 vs. 85% detection rate). The AFI technique was advantageous in identifying cases with amniotic fluid volume above the 95th centile (39 vs. 23%).[1,2]

Symptoms may arise from pressure exerted within the overdistended uterus and upon adjacent organs. When distention is excessive, the mother may suffer breathing difficulty and orthopnoea to such a degree that she may be able to breathe comfortably only when upright.[3] Maternal complications associated with severe hydramnios include placental abruption, uterine dysfunction during labour, and postpartum haemorrhage. Placental abruption is fortunately infrequent. It may result from the rapid decompression following PROM or therapeutic amnioreduction. Idiopathic polyhydramnios may be associated with a higher rate of postpartum hemorrhage, cesarean delivery, and respiratory distress than a normal pregnancy.[3] For prevention of PPH slow decompression is performed.

Also, a single injection of carbetocin appears to be more effective than a continuous infusion of oxytocin for prevention of PPH, with a similar hemodynamic profile and minor antidiuretic effect. Long-acting synthetic oxytocin analogue carbetocin has a half-life of 40 minutes (around 4-10 times longer than oxytocin) and uterine contractions occur in less than two minutes after intravenous administration of optimal dosage of 100 µg. One advantage of carbetocin is its tolerance to heat and does not require cold-chain transport and storage that is needed for oxytocin use.[4] Intravenous carbetocin is more effective than intravenous oxytocin for the prevention of atonic PPH among singleton pregnancies with at least one risk factor for PPH.[5]

Atonic uterus is made to contract, and retract, by creating negative pressure inside the uterine cavity, with a specially designed SR cannulas to stop atonic bleeding. A negative pressure of 650 mmHg should be created and maintained 10-15 minutes, and then machine should be put off. This procedure, should be repeated every hour for 3 hours. After 3 hours, the cannula should be kept in the same position without removal, and one should watch for bleeding. In case of recurrence of bleeding, negative pressure should be applied by just switching on the machine. Usually the cannula should be removed after 6-8 hours. In case of high risk women, cannula can be kept inside uterus, as long as the bleeding expected, even up to 24 hours. Whenever recurrence of bleeding, just put on the machine. After the completion of the procedure, the cannula cannot be removed easily, as the soft cervical tissues get sucked in to the perforations of cervical portion of the cannula and become adherent. We have to release the negative pressure from cervical portion by gently sweeping up between cervix and cannula with the help of index finger.

Advantages of SR cannula

This is a simple, cost effective, lifesaving and fertility saving technique. This is a physical method, does not depend on biological factors for its action. Suction cannula system can be organized within 2 minutes. Bleeding stops within 2-3 minutes. Blood loss during caesarean section and normal delivery can be brought down to less than 150-200 ml. Even staff nurses can be trained and the bleeding can be stopped without any

delay. Highly cost effective, autoclavable and reusable instrument. Helps to reduce maternal mortality due to atonic PPH in low resource settings.[6,7]

CONCLUSION

Acute severe polyhydramnios can cause various complications, including PPH. We report this case to highlight different modalities which can be used for the prevention of PPH in a case of acute severe polyhydramnios.

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