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CASE REPORT

A case report on management of cervical insufficiency using Chhattisgarh balloon in second trimester cerclage for fetal membrane prolapse

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ABSTRACT

Many second trimester miscarriages and neonatal deaths are caused by cervical incompetence. In second trimester if the membranes prolapse in vagina due to cervical incompetence it can be technically very difficult for the clinician to push the membranes back in cervix and apply cerclage to prolong the pregnancy. We present a case of 30 year old primi gravida who came to emergency at 22 weeks of gestation with cervix dilated to 4 cms and membranes prolapsing till the vagina. After ruling out possibility of infection, decision for rescue cerclage was taken. The membranes were deposited back in the uterus with help of Chhattisgarh balloon and Mac Donald's stitch was applied. Patient could successfully carry her pregnancy till 35 weeks and baby did not need NICU admission. Chhattisgarh balloon can be a useful tool in low resource country like India where it can be easily prepared, inexpensive and less traumatic compared to other alternatives available as of now.

Keywords: Cervical incompetence, membrane prolapse, Chhattisgarh balloon, MacDonald's stitch.

Many second trimester miscarriages and neonatal deaths are caused by cervical incompetence. In second trimester if the membranes prolapse in vagina due to cervical incompetence it can be technically very difficult for the clinician to push the membranes back in cervix and apply cerclage to prolong the pregnancy. Emergency cervical cerclage can play a major role inimproving the neonatal outcomes[1].Chhattisgarh balloon was used to push membranes back into cervix followed by applying the MacDonald's Cerclage.

Case report

A 30 year old 22 weeks primigravida underwent usual anomaly scan where cervical opening (cervix opened and membranes prolapsing out) was reported and she was referred by her primary gynaecologist to our hospital. Patient presented in our hospital in emergency with the ultrasound report. On examination her vitals were found to be stable. Speculum examination showed bulging membranes in vagina and it was also noted that there was no rupture of membranes or leaking of amniotic fluid vaginally. A vaginal swab for culture and sensitivity was taken and a gentle bimanual vaginal (PV) examination was done where it was found that the Os was 4cm dilated and membranes

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were bulging till Os. In parallel patient's complete blood count (CBC) and C reactive protein (CRP) were sent for examination, lab report showed total count was 10,040/ cumm and CRP was normal. Urine was sent for microscopy and culture. After explaining to the patient about the possibility of preterm labour, rupture of membranes and poor outcome of pregnancy, decision for cervical cerclage was taken with patient's consent. Patient was put on Inj Cefuroxime 1.5gm i/v BD, Inj Proluton depot 500 mg intramuscular prior to cerclage procedure. Uterine tocolysis was given. To push the membranes back in uterus we used Chhattisgarh balloon, preparation steps as given by Nalini Mishra et al.[2]

Chhattisgarh balloon was prepared manually as follows –

1) Collected a Foley's catheter of size 20-22, a packed condom, scissors, two 20 ml syringes and 500 ml bottle of saline in a tray.
2) From the drainage tube of catheter, cut two rings of approximately 1-2 mm width.
3) Excised (not merely incise) the bulb of the catheter after inflating it with air.
4) Unfolded the condom over distal one third of the catheter.
5) Used these rings encircling twice only (like a rubber band in a ponytail) to secure the condom over catheter leaving 1.5 – 2 cm from both the ends of condom.
6) Excised tip of the Foley's catheter and condom which were washed with antiseptic solution.

The procedure was performed under general anaesthesia with the patient in lithotomy position. Urinary bladder was catheterized and emptied. Sims speculum was placed in the posterior vaginal wall first and then another narrow speculum was placed on the anterior vaginal wall. The anterior lip of cervix was held by sponge holder.

The balloon was prepared and inflated with 50ml of saline. The inflated condom was pushed inside the cervix to push the membranes inside the cervix and further inflated with around 100ml saline.

The Chhattisgarh balloon pushed the membranes up due to which the cervical margins were free to apply the Macdonald's cerclage. Mersilene tape (5mm) was used for the cerclage. The condom was deflated gradually and then taken out completely before tightening the cervical suture. The ultrasound was done in parallel to the procedure and showed membranes intact, post stitch distal cervix approximated to 1.5 cms.

The patient was continued on Cephalosporins (Cefuroxime) (5 days) and Tocolysis (15 days). Micronized Progesterone (300 mg daily x 15 days) was also added.

Patient was discharged on third post-operative day. She followed up regularly in OPD where the stitch was checked and found to be in position. Rest of her pregnancy was uneventful. She went into labour at 35 weeks and after removal of the stitches, she delivered a female baby weighing 2.7 kg vaginally. Baby did not require NICU admission.

Discussion

Cervical cerclage was first proposed by Shirodkar in 1955 and then his technique was simplified by McDonald's in 1957. Treatment options with advanced cervical dilatation are limited to either expectant management or placement of an emergency cervical cerclage. During cerclage the prolapsed membranes must be placed back in the uterine cavity before the procedure to avoid high risk of iatrogenic PPROM. This is accomplished least traumatically by placing the patient in the lithotomy position with a steep Trendelenburg tilt, combined with the administration of tocolytics [3]. Urinary catheterization can also help to reposition the membranes in the uterus. However, a full bladder tends to reduce exposure of the operative field and push the cervix higher up into the pelvis. Invasive methods for reducing the fetal membranes include directly pushing them back with a smooth surfaced device, such as a Foley's catheter balloon, or pushing with gauze mounted on a clamp or an inflated balloon of the type used for endoscopic preperitoneal dissection, or a metreurynteror minimetreu (a rubber balloon device) inside the cervical os.

Alternatively, transabdominal amniocentesis and amnioreduction under ultrasound guidance can be performed [4] in pregnant women with advanced bulging membranes. The patient was placed in the knee-chest position and a metreurynter with a bulb was inserted

and inflated with warm saline solution. After the membranes were pushed inside the uterine cavity modified McDonald's suture was placed in a case of 24 weeks twin gestation reported by Tsapanos et al.[5] where the prolongation of pregnancy was 14 weeks and the gestational age at the time of delivery 38 weeks was noted.

Conclusion

Cervical cerclage should be considered in patients with advanced cervical dilatation and bulging membranes in the second trimester. Despite overall poor prognosis in such cases successful outcomes may be obtained in selected cases. The Chhattisgarh balloon is a device which is easy to make, easy to use, cost effective and can be used in cases of secondtri mester prolapse of membranes to salvage the pregnancy.

Conflict of interest: None. **Disclaimer:** Nil.

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