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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/19938

DOI URL: <http://dx.doi.org/10.21474/IJAR01/19938>



RESEARCH ARTICLE

COMBATting CERVICAL DYSTOCIA: A RARE CASE REPORT

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Manuscript Info

Manuscript History

Received: 15 September 2024

Final Accepted: 26 October 2024

Published: November 2024

Key words:-

Parturition, Nulliparous, Labor,
Hyaluronidase, Induction, Neonatal
Health

Abstract

Cervical dystocia refers to a difficult or abnormal labor condition in which the cervix fails to dilate adequately or at the normal pace during childbirth. This condition can lead to prolonged labor and may be associated with fetal distress, maternal complications, and an increased risk of cesarean delivery. Cervical dystocia can arise due to various factors such as maternal pelvic anomalies, excessive uterine muscle tone, malposition of the fetus, or previous cervical injury. Clinical assessment and careful monitoring of labor progress are crucial for identifying cervical dystocia early. Management typically involves medical interventions such as oxytocin administration to enhance contractions, manual dilation, or operative delivery when necessary. In some cases, cesarean section may be required for the safety of both mother and child. Early identification and timely intervention are vital to minimizing complications associated with cervical dystocia, ensuring better maternal and neonatal outcomes. This condition emphasizes the need for individualized obstetric care based on the specific factors contributing to the dystocia.

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Introduction:-

“Labor dystocia” (difficult or obstructed labor) encompasses a variety of concepts, ranging from “abnormally” slow dilation of the cervix or descent of the fetus during active labor to entrapment of the fetal shoulders after delivery of the head (“shoulder dystocia,” an obstetric emergency). For the purposes of this systematic review, we assume that “labor dystocia” refers to “abnormal” labor progression during the latent (up to 4-6 cm dilation) or active phases (from 4-6 cm until full dilation) of the first stage of labor, or during the second stage (from complete cervical dilation until delivery of the baby) (1, 2).

Cervical dystocia -external os fails to dilate in spite of the normal behavior of the uterine contractions (3).

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Normal parturition at term is associated with accumulation of neutrophils in the stroma of the cervical connective tissue. These cells appear to be the chief source of the collagenase that is detectable in the cervix during parturition and that plays a key role in cervical dilation through the degradation of structural proteins in the extracellular matrix.

Hyaluronan is known to increase dramatically at 2–3 cm of dilation in both its absolute concentration and the proportion of the total glycosaminoglycan content of the cervix it represents (4).

Hyaluronan is known to cause Endogenous stimulation of interleukin-1 and interleukin-8 concentrations which cause extravasation and degranulation of neutrophils (5).



USG(OBST) at 6 weeks 2 DAYS POG



USG (OBST) AT 12 WEEKS POG

Case report:

A 27-year-old primigravida with POG 42 weeks 4 Days presented to the emergency with severe oligohydramnios with severe fetal bradycardia with IUGR in the baby. She never used hormonal therapy and had no past medical or surgical history.

On examination, patient was slightly pale; PR was 92/min and BP 120/70 mm hg. Cardiovascular and respiratory examination was unremarkable. Her P/A examination was uterus of size approx. 32 weeks, cephalic, relaxed; FHR

was 80 bpm with no accelerations. On P/V examination, os was 1 cm, with posteriorly placed cervix, 30% effaced, vertex at station-1, pelvis adequate, membranes present.

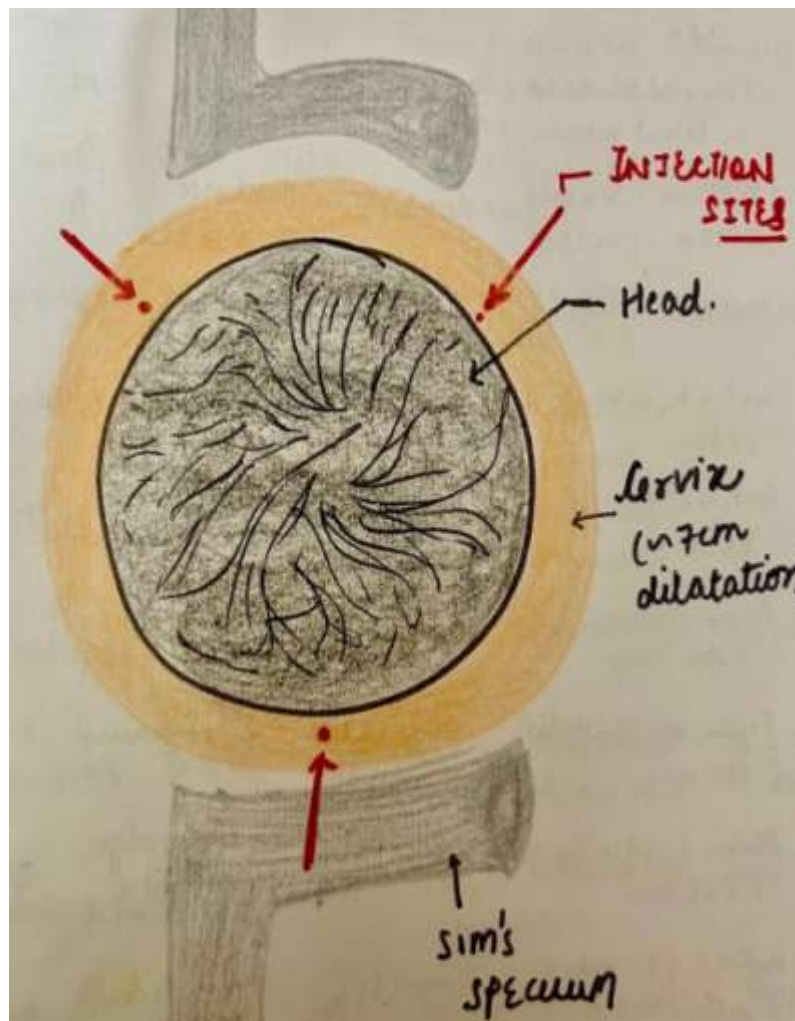
Blood group was O positive, Hb was 8.1, TLC- 12.7, PLT COUNT 130, ALT 17, AST 34, PT/INR 11.8/0.87.

TORCH:IGG positive for CMV, IGM NEGATIVE

USG(OBST)- S/O SLIUF with 6 weeks 2 days GA with bradycardia. USG(OBST)- SLIUF, CEPHALIC, 32 WEEKS 2 DAYS GA, SEVERE OLIGOHYDRAMNIOS (AFI 3) with fetal bradycardia; absent diastolic flow in the umbilical artery, left sided pleural effusion and collapse of lung underlying parenchyma, moderate to gross ascitis; pericardial effusion, absent diastolic flow in umbilical artery, deep grey nuclei appear highly echogenic.

Poor fetal prognosis explained to patient and the couple decided for induction of labor to avoid caesarean section for a fetus with possible anomalies.

Patient went into active labor with good contractions after induction with 1 dose of cerviprime gel and oxytocin augmentation. Fetal heart was lost at 5 cms dilatation. Patient went into cervical dystocia at 7 cms dilatation which was non responsive to agents such as valethamate bromide, tramadol, hyoscinebutylbromide and drotaverine. After the patient had been at 7 cms for 9 hours we stopped all attempts and gave her hydration drip and allowed her to rest for another 4 hours after which we gave her 3 doses of Inj.hyaluronidase at 1 o'clock, 6 o'clock and 11 o'clock positions on the cervix with insulin needle. Within half an hour the patient progressed to full dilatation. Due to maternal fatigue we did ventouse extraction to cut short second stage of Labor for her. Vaginal Delivery of IUD baby was hence achieved.



Instillation sites of inj.hyaluronidase at approx..7 cm dilated cervix



Doppler (OBST) S/O Iugr At Term.





USG (OBST) AT 33 WEEKS POG

Discussion:-

Hyaluronidase was very commonly used in the 1950s for induction of labor but its use has since declined with the advent of various prostaglandins and intracervicalfoley's catheter.

In this case we had no difficulty in getting the patient to active labor but cervical dystocia at 7 cms dilatation left us with very limited options.

Lower segment caesarean section was the method that we wished to avoid for a dead fetus hence we tried various pharmaceutical agents as mentioned above. The cervix best responded to hyaluronidase injections which was an easy and effective method.

The studies that have been published on use of Hyaluronidase in obstetrics mainly discuss its role in induction of labor.

In a study the use of hyaluronidase reduced the average duration of induction from 36 h (placebo) to 12 h (HAase) for the nulliparae and from 21 h (placebo) to 7 h (HAase) for the multiparae (5).

The study did not detect a significant difference between the two groups with respect to the percentage of side-effects (cramps). Also, no significant differences were detected with respect to the first, fifth and tenth minute Apgar scores (5).

Another recent review included four randomized controlled trials (RCT) that randomized a total of 642 pregnant women and two interventional non-RCTs that included a total of 2824 pregnant women. The data from two RCTs suggested that the incidence of perineal trauma was significantly lower in the intervention (perineal hyaluronidase injection in stage two of labor) than the control group (no intervention). However, both groups did not differ significantly in the incidence of first- and second-degree tears.

In one interventional non-RCT, the administration of intracervical hyaluronidase was associated with a statistically significant acceleration and shortening of labor by approximately 1.95 hours after the injection of intracervical hyaluronidase (6).

None of the studies so far have discussed the role of hyaluronidase for isolated cervical dystocia. There have been a few animal studies where hyaluronidase used in cervical dystocia prevented operative intervention (7).

Hence this opens up a debate as to how useful hyaluronidase can be in such cases as the one presented here. Possible side effects and long term sequelae of the same needs further research.

Table 1:- List of studies conducted on effect of Inj. Hyaluronidase on cervical dilatation:

Author	Number of Cases	Study Design	Injection Site/ Administration Mode	HA Dose	Results
Colacioppo <i>et al.</i> [5]	160 (80 in the experimental and 80 in the placebo group)	RCT	Posterior region of the perineum	20,000 turbidity-reducing units (5 mL)	No difference in the incidence of perineal trauma between both groups No difference in the incidence of first-, second-, third-, or fourth-degree tears between both groups No difference in the incidence of episiotomy between both groups
Spallicci <i>et al.</i> [6]	168 (83 in the experimental group and 85 in the placebo group)	RCT	Cervix	20,000 UI of lyophilized HA (5 mL)	Significant decrease in the average duration of labor in the experimental group
O'Leary <i>et al.</i> [8]	100 (50 each in the experimental and control groups)	RCT (2-arm design with randomized selection)	Perineal body, hymen, and any previous episiotomy scars	5 - 10 mL HA (contained 750 - 1550 turbidity-reducing units of HA)	Lower incidence of perineal trauma in the experimental group No difference in the incidence of episiotomy between the groups No difference in the incidence of first- and second-degree perineal trauma between both groups No side effects
Scarabotto and Riesco [9]	139 (71 in the intervention and 68 in the control group)	RCT	Posterior region of the perineum	5 mL HA (20,000 turbidity-reducing unit)	Significant differences in the frequency of perineal trauma (39.4% in the intervention group vs 76.5% in controls) Significant differences in the degree of spontaneous laceration (0.0% in the intervention group vs 82.4% in controls) Significant differences in the frequency of lacerations in the posterior perineum (54.2% in the intervention group vs 84.3% in controls)

					84.3% in controls) No difference in the incidence of episiotomy between the groups No side effects
Gupta et al. [10]	75 (50 in the experimental and 25 in the control group)	Interventional	Cervix	20,000 UI lyophilized HA	Labor was accelerated and shortened by an average of 1.95 hours in the experimental group Cervical dilation rate was increased in the experimental group No effect on uterine contractions in both groups No cervical tears in both groups
Kimbell [11]	2749 (2002 in the experimental and 747 in the control group)	Interventional	Intramuscular	0.5 mg EM alone (n = 198), 0.25 mg EM + HA 1 mg (n = 254), and 0.5 mg EM + HA 1 mg (n = 1748)	Post-partum hemorrhage rate decreased in the experimental group (0.9% vs 6.4% in controls) Manual placenta removal rate was not appreciably influenced (1.6 % in controls vs 1.1% for cases) Blood loss was lower in the experimental group Stage III labor was shortened in the experimental group

Table 1. Characteristics of the included studies.

Abbreviations: EM, ergometrine; HA, hyaluronidase; RCT, randomized controlled trial.

Conclusion:-

Labor dystocia encompasses a range of issues in childbirth, including slow cervical dilation, difficulty in fetal descent, and shoulder dystocia. Early identification and appropriate management are crucial in addressing these challenges, especially in difficult circumstances. Patient education plays a vital role in preparing for labor and avoiding potential complications that can affect both maternal and fetal health.

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