

Prostaglandin Induced labor a risk factor for cervical tear

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Abstracts

Objective: To determine risk factors associated with cervical tear.

Method: Design: Retrospective analysis of obstetric variables in 116 women who had sustained cervical tear. **Setting:** Obstetric Department of Tribhuvan University Teaching Hospital, Kathmandu, Nepal. **Subjects:** This study identified 9662 vaginal deliveries over 42 months period from April 2003 to September 2006 from obstetric records. One hundred and sixteen cases who sustained cervical tear were selected and different variables were analyzed.

Results: Overall rate of cervical tear was 1.20% (n=116) of which 64.7% (n=75) occurred in primi and 35.3% (n=41) in multipara. It was associated with induced labor in 21.2% [with dinoprostone gel (cerviprime) 16.4% (n=17) and misoprostal in 4.8% (n=5) respectively]. Augmentation with oxytocin (syntocinon) had been done in 51.9% (n=54 cases). Mean age of parturient was 24.3 years and average birth weight of baby was 3.21kg. Cervical injury occurred more in post-dated delivery [35% (n=42)], compared to pre term delivery [6.9% (n=8)]. Average duration of second stage was 35.2 minutes. Episiotomy was given in 73 / 116 (66%) and not many of the cervical tear was associated with instrumental delivery: [forceps 0.96% (n=1) and ventouse 3.85% (n=4)]. There were 10 cases of postpartum haemorrhage.

Conclusion. From the view point of limited number of published studies on cervical tear pertaining to vaginal delivery where locally used prostaglandins have not been identified as a major risk factor in contrary to our study findings where every sixth case have been implicated, a cautious prelabour induction with forward anticipation of traumatic PPH as recognized here is worthwhile.

Key words: Cervical tear, dinoprostone gel (cerviprime) and misoprostal, induction of labour

Introduction

Cervical laceration and tear is one of the complications at vaginal delivery that could probably be provoked by local prostaglandins used for labor induction or from improper forceps applications seldom resulting in postpartum hemorrhage to the extent necessitating hysterectomy in few of the cases.¹⁻⁴ (fig 1)

It has also resulted as a complication from home delivery in Nepalese set up while racial and ethnicity has been found to be less influential factor.⁶⁻⁷

This study aims to find out whether cervical tear is related to vaginal prostaglandin as a risk factor.

Method.

A retrospective analysis of vaginal deliveries was done from April 2003 to September 2006 from labor room

records of TUTH over 42 months period and the total number vaginal delivery and those who sustained cervical tear were studied.

Results.

This study identified 9662 vaginal deliveries occurring during the span of 42 months, out of which one hundred sixteen cases with cervical tear were analyzed to implicate the different variables that could be confounding factors in the causation of cervical tear. 116 cervical tear represented 1.2% of all vaginal delivery. Mean age of parturient was 24.3 among which 64.7% (n=75) were primi and 35.3% (n=41) multipara [P2=29, P3=10, P4=2]. Of all the cases, there were two cases of twin pregnancy, the first one had both cephalic presentation and the second had second twin as non vertex (breech) presentation. Rests were all singleton pregnancy with cephalic presentation except for one breech.

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The gestational age was beyond 40 weeks in 42 cases one being post term in a multipara.(Table 1, 2) eight were preterm. Labor was induced at first with prostaglandin (23 cases) to begin with; dinoprostone (cerviprime) in 18 cases: (primi 11 and multi 7). Except one case of primigravida, who was found to deliver with cerviprime alone, rest all the case was supplemented by syntocinon (oxytocinon) and out of 5 cases of misoprostal 3 were supplemented by syntocinon. By and large, most of the women (20/23) induced with vaginal prostaglandin were soon followed

Most striking were 3 cases of precipitate labour (table 3) and one of them delivered on the bed and also acquired transverse cervical tear almost mimicking annular cervical detachment (fig 1, 2).⁸ Apart from this there were 5 other women who had unattended (or self assisted) delivery on the bed. While 6 women were admitted in second stage of labor, they were only cases that had no graphic recording of labor; besides this all the rest labor had been partographed. Of them 1 was a case of twin pregnancy with double vertex presentation. Another case was one who delivered on the bed.

Table 1: Factors determining cervical tear

Factors and cervical tear.	Primi (N=75)	MultigravidaN=41
Mean Age (24.3)		
Post dated pregnancies (42)		
>40 weeks (31)	25	16
≥ 42 weeks (1)		1
Induced labor (23)	16	7
Cerviprime	1	
Misopristol	2	
Cerviprime + Syntocinon	10	7
Misopristol + Syntocinon	3	-
Second stage in min		
Episiotomy (73)		
Instrumental delivery (5)		
Forcep 1	1	-
Ventouse 4	3	1
Mean weight of the baby	3.16	3.19
PPH (10)	7	3
Urinary retention	2	-
Hospital stay (range) in days	1-10	1-11

by syntocinon within the next 4/6-8 hours. Labour augmentation with syntocinon was required in 53 cases. Seventy-six cases required at least oxytocics and or prostaglandin.

Second stage of labor was as fast as 2 min and as long as 142 min. This occurred within 5 minutes in 6 cases and more than one hour in 34. Mean duration of second stage of labor was 33.28 min for primi and 27.78 in multi. It is worth to be noted that 56/75 (74.6%) primi and 17/41 (41.46 %) multigravida were given episiotomy (total women given episiotomy being 73 /116 (66%). Despite the episiotomy given there were 5 cases of severe degrees of perineal tears in primi (Table2).

However not many of the cervical tear were associated with instrumental delivery: [forceps 0.96% (n=1) and ventouse 3.85% (n=4)].

There were 10 cases of PPH [primi (7), multi (3)]; the blood loss varying from 500ml -900ml (8) and 1 -2 L (2). Blood transfusion 1-4 units were given in 6 cases. In a case the haemoglobin dropped to 3 gm% because of the traumatic PPH. The other birth complications noted was severe degrees of perineal tears third degree (4) and a case of fourth degree tear (table 2).

Two of the total 5 cases of the instrumental delivery (forceps 4, ventouse 1) were also associated with 3rd and 4th degree of perineal tear.

There were 4 cases that had extended hospital stay beyond 7 days, for anemia, urinary tract infection and some waiting for the opening of the bowel functions.

Table 2: Severe degree of perineal tear associated with cervical tear.

Degree of perineal tear	Case No.	Age	GA	Labor		Sec stage (in min)	Instrumental del	Blood loss (ml)	B wt (gms)	Hosp stay
				Induced	augmented					
3 rd	1	38	38 ⁺⁵	Cerviprime & synto	synto	105	ventouse	500	2800	5
	2	35	40 ⁺¹		synto	46	x	250	3100	3
	3	24	40		Synto	46	x	200	4100	4
	4	24	39 ⁺⁴		140	Forceps	200	3600	5	
4 th	1	18	38 ⁺⁶		synto	22		100	2750	3

All the women were primigravidas who were delivered after episiotomy.

Table 3: Precipitate labour

Details	Number of cases		
	1	2	3
Age	20	30	21
Parity	1	3	1
Period of gestation.	38	40 ⁺⁶	37
Augmentation of labour with syntocinon	”	”	-
Second stage in min	3	5	36
Episiotomy	”	-	-
Bed delivery	Yes	No	Yes
Blood loss	150	100	300
Birth weight	3000	3500	3000
Hospital stay in days	8	1	1

NB. All had cephalic presentation and delivered within short active phase.

Majority of the women, 85 [50Primi, 35 Multi] were discharged within the first 2 days; 19 within 3-6 days [15 primi and 4 multi].

There was no mortality amongst all these 116 cases of essentially longitudinal cervical tears, except for the one transverse cervical tear described above. Sometimes delivery were taken in alternate position (squatting) in their respective bed of the 6 bedded prelabour room without a separating screen amidst all other labouring women in active phase of labor /or undergoing induction who had to be transferred to the labor room for the repair of the cervical tear whenever required.

Discussions

Cervical tear with the incidence of 1.2% of vaginal delivery is met as one of the undesired complications of labor and one of the root causes of post partum hemorrhage which complicated 8% of cases, unfortunately leading to severe anemia in a case where hemoglobin dropped down to 3gms %. It is seen that

most cervical tears are in the lateral aspect of the cervix except for one case that sustained a posterior transverse semicircular cervical tear almost mimicking annular cervical detachment.^{8, 9} Two such cases were reported one where a baby was born from the posterior aspect of undilated cervix.⁶

All most all of them except for a single case of breech had cephalic presentation.

Early bearing down could be anticipated as one of the confounding factor but this part has not been well appreciated.

Very short (d” 15 min= 23) and too long duration (e” 2h =2) of second stage of labor was also contributory causes.

A cohort studies found Filipino (OR = 1.32, 95% CI 1.10-1.57) and other Asian (OR = 1.23, 95% CI 1.08-1.41) women to be at slightly increased risk of vaginal laceration with no significant differences seen for cervical laceration in primigravidas, contrary to the present study.⁷



Fig1a: annular cervical detachment

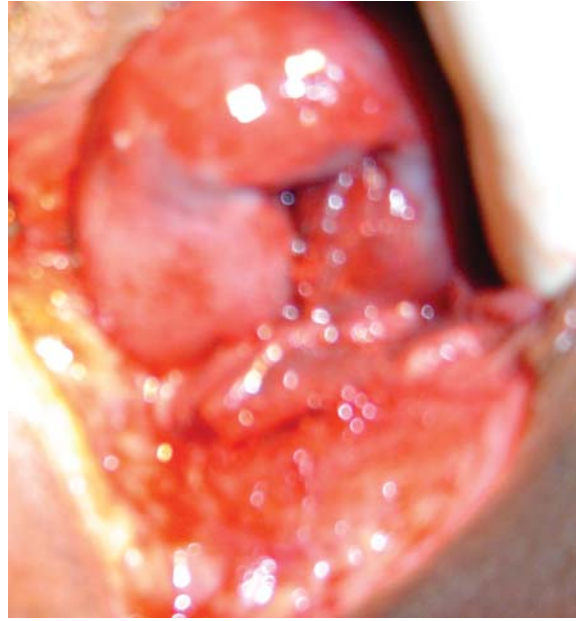


Fig1b: annular cervical detachment after repair

Instrumental delivery was met in very small number that is 5 cases. Even the baby's average birth weight was 3.21kg (range 19 00- 4500) and 5 cases had baby's weight equal to or more than 4000gms inclusive of this baby's birth weight more than 3500gms were recorded in total 29 case.

Two primiparas in the post delivery period were found to have urinary retention. With blood transfusion in all the cases of PPH the rapid recovery was soon followed by agreeable duration of hospital stay. Cervical injury occurred more in post-dated delivery 35% (n=41), compared to pre term delivery [6.9% (n=8)].

What we would like to express in this paper is that cervical tear is an important factor in causing PPH as per observation in 8% cases. It is very difficult to predict which cases are likely to be complicated by cervical tear as any amount of fetal weight at any gestation could result in such consequences. Whenever this complication was associated with severe degrees of perineal tear a definite addition to the morbidity was met as explained in table 2, but PPH was only seen in one case.

It is seen to occur more in primigavida as compared to multigravidas. As a matter fact, induced labor was also seen as a confounding factor as this complication was seen in 19.8% cases.

Precipitate labor has also been incorporated to larger doses of vaginal misopristol which our study does not define. ¹⁰Whereas none of the three cases of precipitate labor in our study had their labor induced by both cerviprime (dinoprostone intracervical gel) and misopristol. Conversely the analyses of the labor induced by vaginal prostaglandin, misopristol showed the cervical tear in appreciable numbers. We do not know whether this is due to the cerviprime gel itself or

other factors, since most of the published study has not come up with the correlation of local prostaglandins and cervical tear being more inclined precisely onto either the failure or success of prelabor induction with these prostanoids rather than the complication produced. ¹¹ Even the two of the MD Gyn/Obst criteria fulfillment requirement thesis (unpublished current study in our hospital in the year 2002- 2006) as a part of prelabour induction with misopristol, one comparing cerviprime gel, the other with multi dose regimen of misopristol orally and vaginally has not acknowledged the importance of cervical tear as a variable. Indirectly 2 cases sustained cervical tear one after oral and the other after vaginal, one of them with ventouse delivery that has been mentioned already in results section. However with the growing number of cervical tear sustained which was discussed in departmental morning meeting daily a driving necessity for consideration of this factor was imperative.

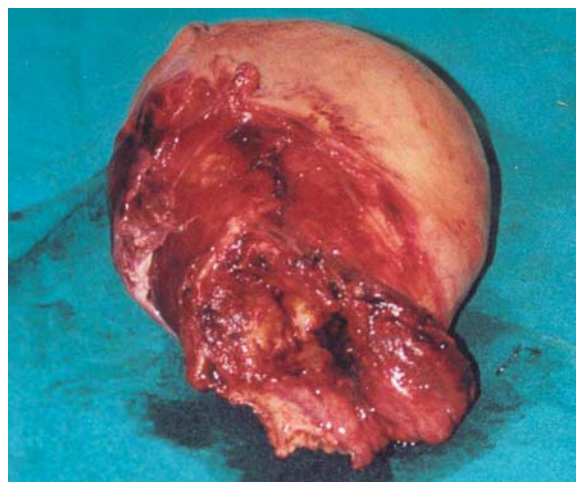


Fig2: cervical tear extension

Conclusions.

From the view point of limited number of published studies on cervical tear pertaining to vaginal delivery where locally used prostaglandins have not been identified as a major risk factor in contrary to our study findings where every sixth case have been implicated, a cautious prelabour induction with forward anticipation of traumatic PPH as recognized here is worthwhile.

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