

Preventing Complications by "Shoulders First" Method of Delivery in cases of Obstructed Labour

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Summary

Prolonged obstructed labour is potentially one of the most injurious conditions to manage in obstetrics. Delivery of the deeply impacted presenting part is a matter of dexterity. In this paper we have reviewed Patwardhan's method of delivering such a baby at a caesarean section comparing the fetomaternal outcome with cases where this method was not used. Eighty consecutive cases of obstructed labour in which "Patwardhan's" method of baby delivery was used, were compared with 44 cases where this method was not used. Babies were significantly less asphyxiated. In the group where this method of delivery was not used 24 (54.5%) had excess bleeding from 28 extensions. There was no bladder injury nor any of the cases required a hysterectomy due to bad extensions of the uterine incision in the study group. This figure was 4.54% each in the control group. There was one case of fracture humerus in the study group. We are convinced that this method of baby delivery in obstructed labour is safe and easy.

Introduction

Prolonged obstructed labour is potentially one of the most injurious conditions to manage in obstetrics. It can produce injuries to multiple organ systems (Arrowsmith et al 1996). Delivery of the deeply impacted presenting part is a matter of dexterity and understanding of the process. Most of the times the incision on the lower segment that is already stretched readily extends causing excessive hemorrhage and even injury to the surrounding structures including the urinary bladder. It can even lead to serious maternal morbidity and can even add to mortality (Vork et al, 1997).

In this paper we have reviewed Patwardhan's (Patwardhan and Motashaw, 1957) method of delivering such a baby at caesarean section comparing the fetomaternal outcome with cases where this method was not used.

Subjects & Methods

This study was carried out in the department of Obstetrics and Gynecology, Medical College and S.S.G. Hospital, Baroda. In Patwardhan's (Patwardhan and Motashaw, 1957) method of delivery of the baby in cases of obstructed labour which we have followed the incision on the lower segment is made at the level of the anterior shoulder. Traditionally, lower uterine transverse incision is placed at the level of biparietal diameter. But in a deeply impacted head this may not be possible. In this method the uterine incision is placed higher at the level of the anterior shoulder which is now delivered along with the anterior arm by hooking a finger in the elbow if required. When the back is anterior the posterior shoulder is rotated forwards & is similarly delivered along with the arm. The trunk, breech and the lower limbs are now delivered by traction on the arms coupled with fundal pressure. The head is now lifted out of the

pelvis by traction on the legs & thus easily delivered. When the back is posterior, after delivering the anterior shoulder, two fingers are introduced into the uterus & a foot is sought. By traction on the foot coupled with fundal pressure, the breech is delivered followed by the trunk. The head is delivered by traction on the legs. Cases of transverse lie where delivery was by breech first are of course not included in this analysis.

The obstetric outcome including extension of the incision, injury to the surrounding structures, excessive bleeding and the like were noted. Fetal asphyxia at birth was also compared.

Those cases where there was also an obstructed labour and Patwardhan's (Patwardhan and Motashaw, 1957) method was not used served as controls. Here delivery was by the impacted presenting part (most of the times head). Complications and problems in both these groups were compared. For statistical analysis, the standard chi square method was used. This was counter checked on SPSS computer software.

Results

Eighty consecutive cases of obstructed labour

in which Patwardhan's (Patwardhan and Motashaw, 1957) method of delivery was used, were compared with 44 cases where this method was not used. As regards the age groups of the subjects, there was no difference in the two groups. 48.75% (39/80) subjects in indexed cases and 50% (22/44) in controls were between 20 to 25 years of age. Teenage mothers were 11.25% (9/80) in indexed group and 11.4% (5/44) in controls - with no significant difference ($P>0.5$). 67.5% cases in indexed group and 65.9% in controls were emergency cases with no antenatal care.

As shown in table I there was no distinct difference in the parity, maternal height or duration of pregnancy in the two groups. This strengthens the matching of cases with controls.

The basic purpose of separately displaying hemoglobin status of the subjects before surgery is pertinent (Table II). As the difference in hemoglobin status of both groups was not significant ($P>0.5$) the need for blood transfusions intra or post operatively should more or less be equal. However if any of the groups required significantly higher blood transfusions, it means the method of delivery was traumatizing causing excessive hemorrhage and hence a need for blood

Table I
Obstetric Features

	Cases		Controls	
	No.	%	No.	%
Obstetric History				
Primi Para	32	40	16	36.4
Multi Para	44	55	23	52.3
Ground multipara	04	05	05	11.4
Maternal height				
<145cms	19	23.8	12	27.3
145-150cms	41	51.3	21	47.7
>150cms	20	25.0	11	25.00
Duration of Pregnancy				
<37 weeks	10	12.5	04	09.1
37-40 weeks	68	85.0	38	86.4
>40 weeks	02	02.5	02	04.5

Table II
Preoperative Hb Status

	Cases		Controls	
	No.	%	No.	%
>10gms%	06	7.5	03	06.8
8-10gms%	47	58.8	27	61.4
6-8gm%	21	26.3	12	27.3
<6gms%	06	07.5	02	04.5

transfusion.

As shown in table III there was no significant difference in presentations in both the groups ($P>0.1$). Thus if any of the two methods of delivery had increased complications, presentation was not a confounding factor therein. Even the difference in weight of the babies born in both the groups was not significant. This also ruled out one more confounding factor. This means if any of the methods had more complications, it was not due to weight of the child.

However when fetal asphyxia was compared

there was a statistically significant difference ($P<0.001$). Babies in the group where "shoulder first" method was used were significantly less asphyxiated.

Table IV gives intra-operative features. Conditions that cause extensions of the incision and allied injuries were similar in both the groups. However, actual extension occurred only in 1 case (1.25%) where shoulder first method was used. The same was in 28 cases (63.5%) when this method was not used (in the control group).

As shown in table V in the group where this

Table-III
Fetal Features

	Cases		Controls	
	No.	%	No.	%
Presentation				
Vertex	62	77.5	39	88.6
Transverse	14	17.5	04	09.1
Breech	04	05.0	00	02.3
Others	00	00	00	00
Chi-Square 13376, $P>1$-Not Significant				
Fetal Weight				
<2kgms.	07	8.75	01	02.3
2-2.5kgms	33	41.25	19	43.2
2.6-30kgms	30	37.5	18	40.1
>3kgms	10	12.5	06	13.6
Asphyxia				
Nil	68	85.0	25	58.8
Mild & Mod.	02	2.5	08	18.2
Severe	02	2.5	05	11.4
Chi square Value=12.024 - $P<0.001$-Significant				
Still births	08	10.0	06	13.6

Table IV
Intra Operative Features

	Cases		Controls	
	No.	%	No.	%
Lower Segment				
Stretched	05	6.25	02	4.54
Threatened Rupture	07	8.75	02	4.54
Normal	72	90.0	40	90.9
Extension	01	1.25	28	63.6

Table V
Intra Operative Complications

	Cases		Controls	
	No.	%	No.	%
Excess bleeding	00	00	24	54.34
Bladder Injury	00	00	02	4.54
Hysterectomy	00	00	02	4.54
Fracture Hum.	01	1.25	00	00.00
Blood Transfusions	13	16.25	31	70.45

method of delivery was not used 24 (54.5%) had excess bleeding from 28 extensions. There was a need to transfuse blood in only 16.25% cases in the indexed group. This figure was 70.45% in the control group. In table II it has been shown that the anemic status of mothers in both these groups was not significantly different, pre-operatively. Thus, it was the intra-operative bleeding which warranted a need for blood transfusions much more in the control group. There was no bladder injury nor any of the cases required a hysterectomy due to bad extensions of the uterine incision. This figure was 4.54% in the control group. One case of fracture humerus of the fetus amongst the indexed cases was perfectly preventable had the pull been applied on the joints and not on the shaft of the bone.

Discussion

Trauma and complications therefrom in obstructed labour are a real problem. In fact attempts by obstetricians to prevent or minimize these in the developing world have been appreciated in the west (Wall, 1999). It is also suggested that by looking at the obstetric complications in situations where unrelieved obstructed labour is most obvious, safe methods to deliver the baby even in caesarean section require to be reviewed (Wiznitzer, 1995). Like most of the developing countries obstructed labour is here to stay with us. Two continents - Asia and Africa are by and large similar in this (Wall, 1998). Arrowsmith et al (1996) have described an "Obstructed Labour Injury Complex". Herein maximum contribution comes from a "field injury" to broad morbid area in obstructed labour. There is a small but distinct contribution to this by the surgical interventions as well.

Carefully matching the cases was very pertinent to draw any conclusions regarding the safety of this method and we have tried to do it as scientifically as possible. Short stature (Moller et al 1997, Desai and Trivedi 1989) is an important factor that can produce obstructed labour. Similarly parity, teenage pregnancy, fetal weight and presentation can also be confounding variables (Hilton & Ward, 1998). These have all been properly matched to draw valid conclusions.

Though stillbirth rate was similar, all 14 cases (8 in cases and 6 in controls) were those who came with absent fetal heart sounds. But a significantly low incidence of fetal asphyxia ($P < 0.001$) in subjects where this method was used has indeed quizzed us. There may have been a contribution of smoothness in baby delivery without any major trauma to it. However the exact cause is difficult to pinpoint.

With a near similar intra-operative picture before

the incision on the uterus is made and then after a significantly low incidence of extension of the incision is a very important advantage with this method of delivery. Extensions of uterine incisions are uncontrolled, traumatizing, injurious and scary. In this method this was significantly reduced. As a natural consequence, traumatic bleeding due to extensions was also less. Thus the blood transfusions required in these mothers were for treatment of anemia and not for intra-operative blood loss. None of the cases required a hysterectomy for bleeding or extension. Also none of the cases had bladder injury. Attempt to force the hand in the pelvis while trying to deliver the baby by the head which is impacted and jammed causes uncontrolled injury to the surrounding tissues. With force, the obstetrician can enter the pelvis, but in the bargain the edematous and fragile lower segment and the bladder gives way to his forceful hand. Injuries and extensions are realized after such a baby delivers. But there was no such injury in cases where "Shoulder first" technique was used.

Injury to shaft of humerus in one baby is unfortunate and perfectly preventable. Avoiding the shaft of the bone and giving a gentle pull at the elbow joint easily prevents such an injury.

Looking at such convincing results we are convinced that his method of baby delivery in obstructed labour is safe and easy. It can be learnt easily by practice.

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References

1. Arrowsmith S, Hamlin E.C., Wall L.L.: *Obst. & Gyn. Surv.* 51; 568, 1996.
2. Desai P, Trivedi L.B: *Jr. of Ind. Med. Assoc.* 86, 152, 1989
3. Hilton P., Ward A: *Int. J. Urogynecol. J. Pelvic Health* 1990; 1998.
4. Patwardhan BD and Motashaw ND: *J Obstet Gynaec Ind* 8: 1; 1957.
5. Vork F.C, Kyanamina S, Van Roosralen J: *Acta Obst. & Gyn. Scand.*: 76: 646; 1997.
6. Wall L.L: *Jr. Women's Health*: 8: 149; 1999
7. Wall L.L: *Stud. Fam. Plann*: 29: 341; 1998
8. Wiznitzer A, *Curr. Opin. Obst. Gyn.*: 7, 486, 1995