

# Obstetrical Trauma to the Genital Tract Following Vaginal Delivery

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## ABSTRACT

**Objective:** To determine the frequency, types and complications of genital tract trauma during child birth.

**Study Design:** Case series.

**Place and Duration of Study:** Department of Obstetrics and Gynaecology, Unit I, Liaquat University of Medical and Health Sciences, Jamshoro, from June 2006 to May 2010.

**Methodology:** All women who sustained genital tract trauma during delivery at the study centre and those referred from periphery with the same condition within 40 days of delivery were enrolled in the study. Exclusion criteria were women who sustained genital tract injury with caesarean section and genital tract trauma due to accident. Studied variables included age of women, parity, place of labour, type of trauma received and its immediate complications. The data was expressed in terms of descriptive statistics.

**Results:** Out of a total 9216 cases admitted in maternity ward during the study period, 467 cases (5.06%) had sustained genital tract trauma. The most frequent obstetrical trauma seen in primiparous referral cases were vaginal tears in 16 cases (25.39%) and perineal tears in 12 cases (19.04%). Multiparous women were 196 (41.97%) and cervical tears were the most frequent obstetrical trauma in them (n=52, 26.53%). Grand multiparous women were 208 having cervical tears (44.4%) and uterine rupture in 77 cases (37.01%) each. Most frequent early morbidities were postpartum haemorrhage (n= 352, 75.37%), hypovolemic shock (n= 220, 47.10%) and infection (n=158, 33.83%). The mortality rate was 16.05%.

**Conclusion:** Genital tract trauma is a common complication of vaginal birth mostly seen in grand multipara, leading to haemorrhage, shock and infection.

**Key words:** Genital tract trauma. Morbidity. Mortality. Obstetrical trauma. Vaginal delivery.

## INTRODUCTION

Obstetrical trauma following vaginal delivery has been reported since ancient time,<sup>1</sup> with a wide variability.<sup>2</sup> In the United States approximately 3 million women give birth vaginally each year and most of them experience trauma to the genital tract from episiotomy, spontaneous obstetric lacerations or both.<sup>3,4</sup>

With the advancement in the field of obstetrics, the incidence of severe perineal injury is decreased in developed countries but adversities associated with parturition remain high especially in underdeveloped countries with little racial / ethnic differences.<sup>5</sup> The different short-term and long-term morbidities which our women are suffering are in the form of perineal injuries of 3<sup>rd</sup> degree and 4<sup>th</sup> degree, cervical tears, uterine rupture, bladder injury, vesico-vaginal fistula, and recto-vaginal fistula. The progressive decline in peri-natal and maternal mortality rates has focused increasing attention on maternal intrapartum morbidity including obstetric anal sphincter injury.<sup>6</sup> Various risk factors reported by the systemic review of 14 studies

influencing genital tract injuries are multiparity, nulliparity, cephalo-pelvic disproportion, malposition, labour induction, manipulation by unskilled birth attendants, prolonged labour, episiotomy, assisted vaginal delivery and instrumental delivery.<sup>7</sup>

An obstetric survey report from the United Kingdom showed that 31% women concerning primarily about the perineal damage opted elective caesarean section.<sup>8</sup> Although, the caesarean section obviate perineal trauma but it is associated with increased morbidity and mortality.<sup>9</sup>

The present study was conducted to evaluate the obstetrical injuries following vaginal delivery with regard to their frequencies, types, severity and complications.

## METHODOLOGY

This study was conducted from June 2006 to May 2010 at the Obstetrics and Gynaecology Department, Unit-I of Liaquat University of Medical and Health Sciences, Jamshoro. During the study period all the women who delivered vaginally and sustained genital tract trauma were inducted in the study. This included all the women who sustained genital tract trauma during delivery in this hospital and all those women who were referred from outside with genital tract trauma either from local maternity homes, rural health centres and delivery at home within 40 days. While those women who delivered by caesarean section and received injury as well as

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women who got genital tract trauma due to accident were excluded. The case records of all these women were evaluated thoroughly regarding their mode of onset of labour (spontaneous or induced), labour duration, type of labour (spontaneous or assisted), any antenatal record, symptoms, general status and clinical findings on pelvic examination including any tear, haematoma and lacerations. All preliminary investigations like blood complete picture, blood grouping and cross-matching, serum electrolytes, hepatitis profile and coagulation profile was done on all the subjects on arrival. Treatment options included emergency resuscitative measures and emergency obstetric maneuvers like conservative surgical procedures including repair of tears, repair of perineum, extensive surgical measures like laparotomy, uterine repair or removal.

The data was maintained on pre-designed proforma mentioning variables like demographic details including age, parity, address, labour characteristics including place of labour, mode of onset of labour (spontaneous or induced), labour duration, mode of labour (spontaneous or assisted), type and severity of obstetrical injuries sustained like vulval haematoma, broad ligament haematoma and vaginal, cervical, perineal, para-urethral tears. Complications, following immediately after the injuries, like postpartum haemorrhage, shock, infections and later on recto-vaginal and vesico-vaginal fistulae were also recorded. The variables and the relevant statistics have been expressed in frequencies

and percentages for categorical variables and mean with standard deviation for continuous variables. Data was analyzed on Statistical Package for Social Sciences (SPSS) version 17.

### RESULTS

The demographic characteristics and frequency of genital tract trauma are summarized in Table I. Majority of cases sustained injuries were seen in age 21 years and above (n=256, 54.81%), higher parity and peripheral referrals (n=396, 84.79%). Commonest type of obstetrical injuries found in referred primiparous women were vaginal tear in 16 cases (25.39%) and perineal tears in 12 cases (19.04%). The frequent obstetrical injuries in referred multiparous (Para 1-3) women were cervical tears (n=52, 26.53%), vaginal tears (n=26, 13.26%) cases and para-urethral tears in 25 cases (12.75%). Referred grand multiparous women suffered the highest from uterine rupture (n=77, 37.01%) and cervical tears (Table II). Complications following obstetrical injuries were postpartum haemorrhage in 352 (75.37%), hypovolemic shock in 220 (47.10%) and infection in 158 (33.83%). The mortality rate was 16.05% (Table III).

### DISCUSSION

High frequency of genital tract trauma and its consequences result in a damaging child birth experience with adverse effect on the health of mother. The same is reported by the study at University of New Mexico.<sup>10</sup>

In this study, the frequency of genital tract trauma was 5.06% and the most frequent genital tract trauma was observed in women aged between 21-30 years. Anderson found that adolescent mothers were having

**Table I:** Demographic characteristics and obstetrical injuries (n=467).

Demographic factors	Obstetrical injuries	
	Frequency	Percentage
Age group		
a: Upto 20 years	41	8.77%
b: Between 21-30 years	256	54.81%
c: 31 and above years	170	36.40%
Parity status		
a: Primiparous	63	13.5%
b: Multiparous (Para 1-3)	196	41.9%
c: Grand multiparous (para 4 and above)	208	44.4%
Place of labour		
a: Institutional	71	15.20%
b: Referral cases	396	84.79%

**Table III:** Maternal morbidity and mortality in obstetrical injuries (n = 467).

Morbidity and mortality	No. of cases	Percentage (%)
Postpartum haemorrhage	352	75.37%
Shock	220	47.10%
Infection	158	33.83%
Vesico-vaginal fistula	13	2.78%
Recto vaginal fistula	3	0.64%
Death	75	16.05%

**Table II:** Type of obstetrical injuries in relation to parity and place of labour (n = 467).

Parity n (%)	Place of labour	Types of obstetrical injuries						
		Vaginal tear	Cervical tear	Perineal tear	Vulval haematoma	Broad ligament haematoma	Para urethral tear	Uterine rupture
Primigravida 63 (13.5%)	a. Institutional	09 (14.28%)	02 (3.17%)	08 (12.69%)	03 (4.76%)	0	01 (1.58%)	00
	b. Referral	16 (25.39%)	05 (7.93%)	12 (19.04%)	04 (6.34%)	0	03 (4.67%)	00
Para 1-3 (Multiparous) 196 (41.97%)	a. Institutional	07 (3.57%)	13 (6.63%)	1 (0.51%)	01 (0.51%)	0	17 (8.67%)	00
	b. Referral	26 (13.26%)	52 (26.53%)	23 (11.73%)	14 (7.14%)	12 (6.12%)	25 (12.75%)	05 (2.55%)
Grand multipara (para 4 and above) 208 (44.4%)	a. Institutional	00	04 (1.92%)	01 (0.48%)	00	2 (0.96%)	00	02 (0.96%)
	b. Referral	11 (5.28%)	77 (37.01%)	13 (6.25%)	00	21(10.09%)	00	77 (37.01%)

the highest rate of birth trauma (8.77%).<sup>11</sup> This difference could be due to the different age groups, referral cases with different mode of onset of labour, and labour technique resulting in genital tract trauma. Proper delivery technique and vigilant monitoring help a lot in reduction of obstetric trauma.<sup>12</sup> This study showed the highest frequencies of genital tract trauma in grand multiparous (para 4 and above) and multiparous women and in the assisted labour cases. Other studies show most child bearing women sustain significant trauma with higher rates consistently noted in the first vaginal birth and with instrumental delivery.<sup>13,14</sup> This vast difference could be due to the different characteristics of referral cases like wrong decision about induction of labour, and birth attended by unskilled personnel. Uterine rupture was observed as the most frequent obstetrical injury in the multiparous and the grand multiparous women consistent with other studies.<sup>15-17</sup>

In this study, vulval haematoma was seen commonly in referred primiparous women and broad ligament haematoma in referred grandmultiparous women. These women had collapsed and went into shock; the same is reported by Sultan *et al.*<sup>18</sup>

Maternal morbidity and mortality associated with obstetrical injuries were postpartum haemorrhage in 75.37% cases, hypovolemic shock in 47.10% cases and infection in 33.83% cases. Despite all emergency management and postnatal and postoperative intensive care, 75 women (16.05%) died due to irreversible shock after massive haemorrhage, complications of anaesthesia and septicemia. With 3<sup>rd</sup> and 4<sup>th</sup> degree perineal tear, 3 cases (0.64%) developed rectovaginal fistula. These were the cases who had traumatic delivery outside the hospital and came late along with superimposed infection. Same is reported by Glazener *et al.*<sup>19</sup> Out of 37 cases (7.92%) of bladder injuries 13 cases (2.78%) developed vesico-vaginal fistula after repair. A higher rate of bladder injury was seen in this study due to increased number of neglected referral cases of ruptured uterus with bladder injury as compared to 0.13% seen by Gungorduk *et al.*<sup>20</sup> Failure rate could be due to infection or distortion of normal anatomy due to previous caesarean section. These cases of major obstetrical injuries could be treated better if these women had elective caesarean section.

## CONCLUSION

The frequency and associated morbidity and mortality is high with vaginal birth genital tract trauma. Skilled birth attendants and vigilant labour monitoring help in reduction of genital trauma in vaginal births.

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