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Emergency peripartum hysterectomy

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Abstract

Background: Emergency peripartum hysterectomy is one of the most dramatic operative procedures in modern obstetrics. The reported incidence is 0.24 to 8.9 per 1000 deliveries. Previously uterine atony was the most common indication for emergency hysterectomy but the recent studies have shown a shift towards abnormal placentation.

Objectives: To evaluate the clinical indications and incidence of emergency peripartum hysterectomy.

Methods: We retrospectively analyzed the number of women who underwent emergency peripartum hysterectomy in the hospital from January 2016-2018. Post-operative maternal and foetal complication were also evaluated. The surgical procedures, type of anesthesia, and the subsequent treatment, complications of hysterectomy, amount of blood transfused, need for ICU stay and total days of hospitalization were noted.

Results: Emergency peripartum hysterectomy was performed in 131 women. The incidence of emergency peripartum hysterectomy was 2.89/1000 deliveries. Emergency peripartum hysterectomy was performed in 78.62% cases (103 women) after cesarean delivery and 21.37% cases (28 women) after vaginal delivery. Subtotal hysterectomy was performed in 75.57% cases (99 women) and total hysterectomy was performed in 24.43% cases (32 women). The main indication for performing emergency peripartum hysterectomy was placenta praevia with accreta in 67 women (51.14%), uterine rupture in 31 women (29.66%), uterine atony not responsive to conservative treatment in 20 women (51.26%) and broad ligament hematoma in 13 women (9.92%).

Conclusion: The indications of peripartum hysterectomy have changed especially in the setting of rising caesarean rate all over the world. The possibility of the morbid adherence of placenta in presence of previous LSCS should always be kept in mind.

Keywords: Emergency, peripartum hysterectomy

Introduction

Emergency peripartum hysterectomy is one of the most dramatic operative procedures in modern obstetrics. It is generally performed when all conservative methods to achieve hemostasis have failed. There is usually a need to perform the procedure expeditiously and if the procedure is unplanned in nature, the problems can be compounded further. The reported incidence is 0.24 to 8.9 per 1000 deliveries ^[1], ranging from 0.33 in Netherlands to 1.2 to 2.7 per 1000 in USA ^[2, 3]. Previously uterine atony was the most common indication for emergency hysterectomy but the recent studies have shown a shift towards abnormal placentation ^[4]. Emergency peripartum hysterectomy is associated with complications like massive blood transfusions, coagulopathy, febrile morbidity, re-exploration and injury to urinary tract. The anatomic proximity of reproductive tract and lower urinary tract predisposes it to iatrogenic trauma during obstetric and gynecological surgery. The bladder and the distal ureters are the most commonly involved organs ^[5].

Objectives

To evaluate the clinical indications and incidence of emergency peripartum hysterectomy.

Materials and Methods

This was a retrospective study carried out in the Department of Obstetrics and Gynecology, Lalla Ded hospital, an associative hospital of Government Medical College, Srinagar. This is a 750 bedded tertiary care hospital catering to the obstetric and gynecological needs of the whole of the populace of Kashmir valley. It is also a teaching hospital with both undergraduate and post graduate teaching program.

We retrospectively analyzed the number of women who underwent emergency peripartum hysterectomy in the hospital from January 2016-2018. Data was collected from the patient files. Mean maternal age, gravidity and parity, gestational age, type of delivery, risk factor, indication and outcome of the emergency peripartum hysterectomy were noted. Post-operative maternal and foetal complication were also evaluated. The surgical procedures, type of anesthesia, and the subsequent treatment, complications of hysterectomy, amount of blood transfused, need for ICU stay and total days of hospitalization were noted.

Results

During the two year period from January 2016 to December 2018, the total number of deliveries were 45260 of which

24090 (53.22%) were cesarean deliveries and 21170 (46.77%) were vaginal deliveries.

Emergency peripartum hysterectomy was performed in 131 women. The incidence of emergency peripartum hysterectomy was 2.89/1000 deliveries.

The mean age of the women evaluated was 35.16 years (range 24-43 years). The mean gravidity was 4.14 (range 2-6). The mean gestational age at which emergency peripartum hysterectomy was performed was 36±2 weeks. Emergency peripartum hysterectomy was performed in 78.62% cases (103 women) after cesarean delivery and 21.37% cases (28 women) after vaginal delivery. There was history of previous curettage in 25.19% cases (33 women), previous one LSCS in 22.13% cases (29 women), two LSCS in 56.48% cases (74 women) and previous three LSCS in 6.87% cases (9 women).

Table 1.

Mean age (weeks)		35	24-43 (Range)
Gestational age (weeks)		4.14±2	36±2
Previous history	Previous abortion	19	14.50%
	Previous LSCS 1	29	22.13%
	Previous LSCS 2	74	56.48%
	Previous LSCS 3	9	6.87%
Indication for Hysterectomy	Placenta previa with accreta	67	51.14%
	Uterine atony	31	23.66%
	Rupture uterus	20	15.26%
	Broad ligament hematoma	13	9.92%
Type of urological injury	Bladder injury	12	9.16%
	Concomitant ureteric injury	2	1.52%

Subtotal hysterectomy was performed in 75.57% cases (99 women) and total hysterectomy was performed in 24.43% cases (32 women). Bilateral ovaries were preserved in all women except 2.29% cases (3 women) who underwent unilateral oophorectomy also because the broad ligament hematoma was extending proximally along the lateral pelvic wall. The main indication for performing emergency peripartum hysterectomy was placenta praevia with accreta in 67 women (51.14%), uterine rupture in 31 women

(29.66%), uterine atony not responsive to conservative treatment in 20 women (15.26%) and broad ligament hematoma in 13 women (9.92%). Among these 131 women 14 (10.68%) suffered urological injury. Bladder was inadvertently opened in 12 cases (9.16%) and concomitant ureteric injury occurred in 2 women (1.52%). Among the women with bladder injuries 11 (91.66%) occurred during surgery for placenta praevia accreta and 1 (8.33%) occurred in woman with rupture of uterus.

Table 2.

Urological Injury		No.
Type of surgery	Placenta previa accrete	1 bladder 2 ureteric
	Uterine rupture	1
Site of injury	Bladder dome	8
	Posterior wall not involving trigone	3
	Posterior wall involving trigone	1
	Ureter: Lower 1/3 of ureter	2
Detection of injuries	Bladder	Intraop 12 Postop 0
	Ureteric	Intraop 1 Postop 1

Among the 2 women who had ureteric injuries, both women had placenta praevia accreta. The bladder was injured at the dome in 8 women (66.66%), posterior wall not involving the trigone in 3 women (25%) and trigone in 1 woman (8.33%). The ureters in both the women were injured in the lower 1/3rd part at the site of entry into the bladder. The repair was performed in association with urologist especially where ureteric injuries were present. All the 12 bladder injuries

were detected intra operatively, while in one woman with concomitant ureteric injury, the injury was detected in the post-operative period on day 2 of surgery when the woman developed flank pain and oliguria and the USG showed hydroureteronephrosis.

In the women with bladder injury primary repair with 2.0 vicryl was performed in two layers and bladder drainage to provide rest to the bladder was used in all patients.

Table 3.

Repair of Urological Injuries		
Bladder	Primary repair with 2°O Vicryl with continuous bladder drainage	11
	Primary repair after ureteric stenting	1
Ureteric	Ureterostomy with primary repair of bladder with subsequent neobladder and reimplantation of ureter	1
	Re-exploration and ureteric reimplantation	1

In the women with concomitant ureteric injury (severing of the ureter) the bladder was repaired and unilateral ureterostomy was performed immediately. Subsequently the augmentation of the bladder and reimplantation of ureter was performed.

In the other woman with concomitant ureteric injury (ligation of the ureter) after post-operative diagnosis, relaparotomy was performed and the ureter was reimplanted. The other complications that the women faced were ICU admissions for >24 hours in 23 women (17.51%), massive blood transfusions (> 5 pints) in 35 women (26.71%), re exploration with internal iliac artery ligation in 3 women (2.29%), DIC in 2 women (1.52%), fever /sepsis in 13 women (9.92%), prolonged hospital stay for > 1 week in 15 women (7.6%). Two women (1.52%) died of massive hemorrhage and subsequent DIC.

Discussion

Emergency peripartum hysterectomy has remained the life-saving procedure in the face of life threatening intra partum/post-partum bleeding. The incidence of emergency peripartum hysterectomy in our study was 2.89/1000 deliveries which is slightly higher than the 2.6/1000 previously reported from the same hospital [6]. However the indication for emergency hysterectomy has undergone a change in our institute. While the major reason for peripartum hysterectomy reported from the same hospital in 2001 and 2002 was rupture uterus (30%) followed by placenta praevia (21%) and uterine atony (21%). In our study the major reason for hysterectomy has become placenta praevia accreta (51.12%), uterine atony (23.66%) and rupture uterus (2%). This may indicate a change in referral patterns to our tertiary care hospital from the peripheral hospital and a similar change in the indication of emergency peripartum hysterectomy [7, 8].

The patients who underwent emergency peripartum hysterectomy- a majority 78.62% had previous uterine surgery while only 225 women with previous vaginal delivery underwent emergency peripartum hysterectomy. This may reflect the reported increase in abnormal placentation which is reported in women with previous cesarean section/uterine surgeries [9]. Abnormal placentation has been known to be a major high risk factor for emergency peripartum hysterectomy [10].

Traditionally during an emergency peripartum hysterectomy; subtotal hysterectomy is performed with sparing of both the ovaries. However, total hysterectomy is performed when the bleeding is predominantly from the lower segment. The anatomic proximity of the reproductive tract and lower urinary tract predisposes them to iatrogenic injury, with the bladder and distal ureters being the most commonly affected organs. The bladder is retroperitoneal with its base on the lower uterine segment and cervix while trigone lies over the vagina. Bladder is most frequently injured during obstetric procedures with an incidence of 61% during obstetric procedures [11], 1.8% during caesarean section and 1.5% during gynecological surgeries [12].

The reported rate for bladder injury during obstetric hysterectomy is 1.71% [13] and the risk increases with multiple caesarean section deliveries [14]. The rate of bladder injury is between 11.65% which is similar to 12.7% that reported by Temizkan O *et al.* (2017) [15]. Jones B *et al.* [16] reported a higher rate of bladder injury (19.1%). Injury to bladder (16.1%) and ureteric injury (1.6% has been reported in women undergoing emergency peripartum hysterectomy in Al-Taha hospital of Kuwait [17]. The incidence of bladder injury and ureteric injury in this study is similar to our study.

The repair of these injuries was performed in association with a urologist, especially in the women with the ureteric injuries. Primary repair of the urological injuries has been considered easier, more successful and more advantageous for the surgeon from the legal point of view [18].

Among the other complications of emergency peripartum hysterectomy need for ICU admission (17.5%) and massive blood transfusion (26.71%) were the commonest. Similar need for blood transfusion has been reported by Briery CM *et al.* [19] Engelsen IB *et al.* [20] and Selo-ofeme DO *et al.* [21] Re-exploration in view of continuous hemorrhage has been reported in 6.82% cases by Tahir S *et al.* [22] which is higher compared to that in our study. Febrile morbidity, sepsis and DIC have been reported in almost all women who have to undergo this complicated and prolonged procedure. The maternal mortality reported varies from center to center from 0-12.5% [23]. In our study the mortality rate has been 1.52%. This may reflect better results due to early institution of multidisciplinary approach in our center.

Conclusion

The indications of peripartum hysterectomy have changed especially in the setting of rising caesarean rate all over the world. The possibility of the morbid adherence of placenta in presence of previous LSCS should always be kept in mind. Therefore risk assessment and timely referral of patient to tertiary care is extremely important. In view of possibility of associated complications like prolonged hypotension, need for blood transfusions, urological injuries etc. a multidisciplinary primary team approach is better for the patients.

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