

IS IT NECESSARY TO CATHETERIZE BEFORE CAESARIAN SECTION

Shabeen Naz Masood, Rabia Qadir, Seema Mumtaz*, Yasir Masood**

Sobhraj Maternity Hospital Karachi, *Hamdard University Hospital Karachi, **Ziauddin Medical University Karachi

ABSTRACT

Objectives: To compare the intra- and postoperative complications with or without urethral catheterization in caesarian sections in terms of accidental cystotomy, urinary retention and urinary tract infection.

Methodology: This study was conducted at Fatima Bai Hospital for one and half year period from June 2007 to December 2008. One hundred and twenty consecutive patients underwent caesarian section were enrolled and randomly assigned into Group A (with catheterization) and Group B (without catheterization). Main outcome measures were accidental bladder injury peroperatively (i.e. accidental cystotomy), urinary retention and urinary tract infection (>10 leucocytes on). Urine Detailed Report The SPSS version 11 was used to analyze data. Student t-test and chi2 test was used where appropriate. The significance level was set at p value < 0.05.

Results: Total 60 patients with Mean±SD age of 31.45±8.38 years included in group A while 60 patients with Mean±SD age of 29.83±8.53 years were included in group B. Accidental cystotomy was not noticed in both groups. Urinary catheterization when carried out preoperatively, had significantly higher rates of urinary tract infection (28.3%) as compared to women in whom preoperative catheterization was not performed (11.7%; p=0.022). Same trend was observed in terms of urinary retention in both groups (p=0.047).

Conclusion: Practice of routine catheterization prior to Cesarean section needs to be reviewed skeptically as it is likely to increase the risk of urinary tract infections and retention in women postoperatively

Keywords: Urethral catheterization, urinary retention, urinary tract infection, Caesarian section.

INTRODUCTION

Urethral catheterization is routinely performed procedure before Caesarian section¹. The purpose of catheterization is that an empty bladder facilitates proper exposure of lower uterine segment. In addition, there is less chance of damage to urinary bladder during surgery than one that is distended^{2,3}. Urethral catheterization is not without complication both in short and long term^{4,5}. However, a recent study reports that caesarian section can be safely and easily accomplished without catheterization⁶.

Urinary tract infection is a significant problem following urethral catheterization in caesarian section. This is more common when there is a practice of catheterization in the ward prior to Cesarean section in less hygienic circumstances. The reported incidence of urinary tract infection is 16.3%⁷. Moreover, the

condition can sometimes become lethal as result of pyelonephritis and urosepsis⁸. Previously, it was thought that catheterization before caesarian section prevents postpartum urinary retention and its sequelae⁹. But with growing experience and advancement in knowledge, numerous other causes like prolonged second stage of labour, and spinal or epidural anesthesia, were identified as causes of urinary retention¹⁰.

The aim of this study to compare the intra- and postoperative complications with or without urethral catheterization in caesarian section in terms of intra-operative bladder injury, postoperative urinary retention and urinary tract infection.

METHODOLOGY

This clinical trial was conducted at Fatimabai Hospital over one and half year period from July 2007 to December 2008. Pregnant patients who underwent caesarian section and gave written informed consent for participating in this study were included. Women who had pre-existing urinary tract infection and diabetes mellitus, and those who

Correspondence: Dr Shabeen Naz masood, U-19 Hassan Apartments Extension, Hasan Square, Block 13-D, gulshan-e-Iqbal Karachi
Email: shabeen9az@gmail.com

Received: 23 Jun 2009; Accepted: 24 March 2010

had emergency caesarian section as a result of obstructed labour and antepartum hemorrhage, fulminating pre eclampsia and other serious Obstetric or Medical co- morbidities were excluded from the study.

A total of 120 consecutive patients, fulfilling the inclusion criteria, were enrolled in this study. They were allocated randomly into one of two groups (A and B) via a computer generated list by the designated staff members of research team. All women were encouraged to void before being taken to operating theatre table. In Group A (n=60), women were routinely catheterized. The catheter was removed approximately 12 hours after surgery whereas, in group B (n=60), caesarian section was carried out without urethral catheterization.

Caesarian sections were performed under spinal anesthesia. Procedure was instituted in the standard manner via modified Pfannenstiel incision by consultant. (Since all operative deliveries are conducted by the consultants in this hospital) Typically, the loose peritoneal fold overlying the upper margin of the bladder was separated from the underlying myometrium with blunt or sharp dissection techniques. In all cases, transverse lower uterine segment incision was executed. During and after the operation, 1-2 liters of N/S or Ringer lactate solution was infused. In the recovery room patients were monitored closely.

Women of both groups were given a single dose of injection of third generation antibiotic 1 G intravenously at the time of induction of anesthesia. Postoperative analgesia included 100 mgs of diclofenic sodium suppository. Patients were advised nil by mouth for 06 hours after surgery. All participants were instructed to void upon feeling of the urge rather than according to the time limit. All women were investigated on 3rd post operative day for urinary tract infection by Midstream sample (MSU) of urine detailed report (Urine D/R). They were instructed to thoroughly wash the perineum before collection the MSU sample.

Outcome of interest included intraoperative injury to bladder (i.e. accidental

cystotomy) and postoperative complications. Postoperative complications were categorized into urinary retention and urinary tract infection. Urinary retention was defined as failure to pass urine with palpable tender urinary bladder that necessitated catheterization. Urinary tract infection was diagnosed when >10 leucocytes were detected on midstream urine D/R.

Statistical analyses were performed using statistical package SPSS for Windows program (Version 11, 2002, SPSS Inc., Chicago, IL, USA). Quantitative data were expressed as mean \pm SD (standard deviation) and analyzed with unpaired student t test. Frequencies and percentages were utilized to express categorical data and evaluated with chi square test. The significance level was set at p value < 0.05.

RESULTS

Between June 2007 to December 2008, 120 consecutive patients were selected and assigned into group A (n=60) and group B (n=60). Mean + SD age was 31.45+8.38 years in group A while 29.83+8.53 years in group B with a range between 16-45 years. Table-I indicates patient's demographic, mean operating time and mean length of hospital stay. No significant difference was observed among these variables.

Intraoperative accidental cystotomy was not found in both groups. However, there was significant difference observed between both groups with regard to urinary tract infection (p=0.022) [Table-II]. Seventeen (28.3%) women, in whom urethral catheterization was performed preoperatively, developed urinary tract infection whereas seven (11.7%) patients without catheterization experienced infection of their urinary tract. All were managed sufficiently by antibiotics therapy.

Of sixty patients in group A, two (3.3%) required re-catheterization after removal of their indwelling foleys 12 hours after surgery, while 08 (13.3%) patients of group B needed catheterization. Statistically, significant difference was observed in this regard also (p=0.047) (Table-2).

DISCUSSION

The results of current study showed that statistical significant difference exist in urinary

tract infection and postoperative urinary retention but not in operating time, length of hospital stay and intraoperative bladder injury.

This study revealed higher rates of urinary tract infection in whom preoperative catheterization was performed ($p=0.039$). Urethral catheterization has long been recognized to be the primary cause of lower urinary tract infection. Parkin et al¹¹, highlighted this issue in their review article. Kingdom et al¹², have drawn attention to the high incidence of urinary tract infection in gynecological procedures in relation to the postoperative catheterization, and antibiotic prophylaxis has been recommended. Similarly, significant bacteriuria was observed (53.5%) by Schiotez in his series that was related to catheterization⁷. All these facts lead to early removal of catheter but associated with increase rate of re-catheterization as previously mentioned by Alessandri and colleagues in their series¹³. In this study, no technical difficulties were encountered to demonstrate lower uterine segment and no bladder injury was noted. Bartzzen et al¹⁴, noticed in their retrospective series that use of catheter was unnecessary to obtain adequate exposure during caesarian section. They also mentioned that if women had voided satisfactory before operation, drainage was rarely required to achieve proper exposure.

The mean operating time was not significant in this study ($p=0.522$). This indicates that avoidance of catheterization does not affect the ease of surgery. Schwartz et al.¹⁵ mentioned the significant association between maternal urinary tract infection and duration of hospital stay. Contrary to their series, this study did not show significant difference between length of hospital stay between both groups ($p=0.350$).

The other aspect of this study was rate of postoperative urinary retention in non-catheterized group (13.3%) as compared to catheterize group (3.3%). Hence, significant association was observed between both groups in term of postoperative urinary retention ($p=0.047$). Tangtrakul et al¹, reported a urinary

retention rate of 39.2% in their study and concluded the continued postoperative drainage via indwelling catheter. In this study, two (3.3%) patients of catheterization group developed retention after removal of their foleys which is nearly comparable to the study conducted by Ghoreishi¹⁶. The overall low rate of postoperative urinary retention may probably be due to of good postoperative analgesia and encouragement of early ambulation that facilitated voiding. Furthermore, women initiated voiding only upon feeling of urge to void rather than accordingly to time schedule.

CONCLUSION

Urethral catheterization prior to elective caesarian section seems to be an unnecessary procedure because this may increase the risk of urinary tract infection. Furthermore, caesarian section could be carried out safely without urethral catheter on women who are facilitated to empty the bladder prior to shifting her to operating table.

REFERENCES

1. Tangtrakul S, Taechaiya S, Suthutvoravut S, Linasmita V. Post-caesarian section urinary tract infection: a comparison between intermittent and indwelling catheterization. *J Med Assoc Thai* 1994;77:244-8.
2. Yossepowitch O, Baniel J, Livne PM. Urological injuries during cesarean section: intraoperative diagnosis and management. *J Urol* 2004;172:196-9.
3. Sadia Z, Khan AM, Naheed F. Comparison of maternal morbidity and mortality between emergency and elective lower segment cesarean section. *Ann King Edward Med Coll* 2003;9:90-1.
4. Thomas AZ, Giri SK, Meagher D, Creagh T. Avoidable iatrogenic complications of urethral catheterization and inadequate intern training in a tertiary-care teaching hospital. *BJU Int* 2009.
5. Kim MK, Park K. Unusual complication of urethral catheterization: a case report. *J Korean Med Sci* 2008;23(1):161-2.
6. Senanayake H. Elective cesarean section without urethral catheterization. *J Obstet Gynaecol Res* 2005;31:32-7.
7. Schiotez HA. Postoperative bacteriuria and urinary tract infections in gynecological patients. *Tidsskr Nor Laegeforen* 1996;116:246-8.
8. Turi AH, Hanif S, Fasih Q, Shaikh MA. Proportion of complications in patients practicing clean intermittent self-catheterization (CISC) vs indwelling catheter. *J Pak Med Assoc* 2006;56:401-4.
9. Saultz JW, Toffler WL, Shackles JY. Postpartum urinary retention. *J Am Board Fam Pract* 1991;4:341-4.
10. Groutz A, Gordon D, Wolman I, Jaffa A, Kupfermanc MJ, Lessing JB. Persistent postpartum urinary retention in contemporary obstetric practice. Definition, prevalence and clinical implications. *J Reprod Med* 2001;46:44-8.
11. Parkin J, Keeley FX. Indwelling catheter-associated urinary tract infections. *Br J Community Nurs* 2003;8:166-7.
12. Kingdom JC, Kitchener HC, MacLean AB. Post-operative urinary tract infection in Gynaecology: Implications for an antibiotic prophylaxis policy. *Am J Obstet Gynaecol* 1990;76:636-8.

13. Alessandri F, Mistrangelo E, Lijoi D, Ferrero S, Ragni N. A prospective, randomized trial comparing immediate versus delayed catheter removal following hysterectomy. *Acta Obstet Gynecol Scand* 2006;85:716-20.
14. Bartzen PJ, Hafferty FW. Pelvic laparotomy without an indwelling catheter. A retrospective review of 949 cases. *Am J Obstet Gynecol* 1987;156:1426-32.
15. Schwartz MA, Wang CC, Eckert LO, Critchlow CW. Risk factors for urinary tract infection in the postpartum period. *Am J Obstet Gynecol* 1999;181:547-53.
16. Ghoreishi J. Indwelling urinary catheters in cesarean delivery. *Int J Gynaecol Obstet* 2003;83:267-70.

Table-1: Age, Operating time and Length of Hospital stay of Both Groups, n= 60 in each group

	Group A (With catheterization) (n=60)	Group B (Without catheterization) (n=60)	p-value*
Age (in years)	31.45 \pm 8.38	29.83 \pm 8.53	0.297
Operating time (in minutes)	28.02 \pm 3.68	28.42 \pm 3.11	0.522
Length of hospital stay (in days)	3.70 \pm 0.98	3.87 \pm 0.96	0.350

*Unpaired student *t* test.

Table-2: Postoperative complications observed in both groups, (n=60 in each group)

	Group A (With catheterization) n (%)	Group B (Without catheterization) n (%)	p-value*
Urinary tract infection	17(28.3)	07(11.7)	0.022
Urinary retention	02(3.3)**	08(13.3)	0.047
Accidental cystotomy	Nil	Nil	-

*Chi-square test; **After removal of catheter; NS- Not Significant