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Supravesical Transverse Cesarean Section, A Safer and Easier Approach

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ABSTRACT

Objective To recommend supravesical transverse cesarean section (STCS), a safe method of cesarean section with transverse uterine incision at about 1.5 centimeters superior to the vesico-uterine fold without dissection of the urinary bladder and to compare it with the conventional low transverse cesarean section (LTCS).

Design A retrospective case-control study.

Setting Bangkok Pattaya Hospital, Private Hospital.

Subjects Two hundred and eighty three cases of STCS were compare to 477 cases of LTCS.

Main outcome measures Major complication related to the uterine incision, time from incision to delivery of the baby, length of hospital stay, evidence of adhesion and/or impending uterine rupture at subsequent repeated STCS's.

Results There was significantly less major complication from STCS (0 out of 283 cases) compare to LTCS (7 out of 477 cases with three cases of cesarean hysterectomy for uncontrollable bleeding). Significantly less time to delivery the baby, shorter hospital stay and no evidence of increase adhesions or impending uterine rupture in repeated STCS.

Conclusion By eliminating the dissection and pushing down of the urinary bladder, The supravesical transverse cesarean section is less traumatic, easier to perform with fewer short term and no increased long term complications.

Key words : cesarean section, low transverse, operative delivery

The low segment or low transverse cervical cesarean section (LTCS), introduced by Kerr in 1926, remains the most commonly employed type of cesarean section today.[1] It may have different names, but basically, the uterine incision is below the original vesicoterine demacation witch separate the mid-segment from the low-segment of the uterus. It means that one has to cut the

peritoneal fold and, by sharp or blunt dissection, pushes the urinary bladder down for several centimeters in order to cut into the uterus, as described by all modern obstetrics textbooks.[1-4]

The author has always question the necessity of traumatizing the bladder in an LTCS, so for the past 16 years, has been performing cesarean sections with transverse uterine incision about 1.5 centimeters superior to the vesico-uterine fold with no bladder dissection, i.e. the STCS. A total of more than one thousand STCS was done without any major complication and negligible minor complications.

The theoretical advantages of placing the uterine incision in the thicker portion of the uterus, away from the urinary bladder and the cervix, are as follows :

1. less chance of tearing of the incision and causing injury to the uterine vessels,

2. no bladder laceration or bleeding from bladder bed, less post-operative bladder problems and no chance of vesico-uterine fistula[5,6]

3. no contamination from or injury to the vagina[7] and impossible to suture the cervical os to the lower uterine segment as can happen with LTCS,

4. less dissections mean less trauma plus shorter operative and anesthesia time, translate into short hospital stay and less cost to the patient.

The two questions about its possible disadvantages are :

1. Dose the new incision cause more adhesion ?

2. Is it strong enough for subsequent pregnancies and delivery ?

The purpose of this study is to try addressing all of the above.

Materials and Methods

Out of 1001 cases of STCS performed by the author form June 1982 to March 1998, only 283 cases from April 1994 to March 1998 were included as case study. The control consist of 477 cases of LTCS performed by 6 others full-time and part-time obstetricians at the same private hospital setting during the same period of time. Data were collected from labor and delivery, nursery and operating rooms log books and representative samples of the patient records were reviewed.

Analysis of daty and statistics calculation were done by using computer softwere (SPSS 7.5 for Windows). The results were expressed as mean ± standard deviation. Chi-square and paired sample t-test were used where appropriated.

Briefly, the STCS procedure starts out the same as any cesarean section. After the peritoneal cavity is entered, a bladder retractor is introduced in to help expose the supravesical area. At a point about 1.5 centimeters above the bladder line, a short transverse incision on the serosa is carried throuth to the uterine cavity and extended with fingers for the delivery of the baby and the placenta. Prophylactic antibiotic is given. One layer closure of the uterine incision with no closure of the peritoneum and the rests are routine.

Results

The patients characteristics for both groups were typical of private care, clean and low risk patients. There were no significant differrence in all the parameters which include age, parity, baby birth weight and the rate of repeated cesarean section (Table 1).

Table 1. Patients Characteristics

Parameter	Case study	Control	p-value
Age	28.5 ±	29.0 ±	0.421*
Parity	0.64 ± 0.74	0.65 ± 0.73	0.926*
Baby birth weight (grams)	2968.2 ± 458.6	3041.7 ± 418.5	0.236*
Repeat cesarean Section	22.4%	23.2%	NS**

* = no significant differrent (paired-samples t-tests)

** Chi-square

Table 2. Comparison of Time to Delivery and Length of Hospital Stay Between Supravesical and Low Transverse Cesarean Section

	N	STCS	LTCS	p. value
Time from Incision to Delivery. (minutes)	100	2.75 + 1.37 (1-6)	5.22 + 1.61 (2-9)	< 0.005*
Number of Nights stay in Hospital	100	2.67 + 1.00 (1-6)	3.48 + 1.16 (2-8)	< 0.005*

* Statistically significant differrent (paired-samples t-tests)

Table 3. Comparison for Degree of Difficulty in Previous STCS and LTCCS (post operative adhesion)

	N	Previous STCS	Previous LTCS	p. value
Time from incision to delivery. (minutes)	30	3.0 ± 1.17 (1-6)	2.56 ± 1.14 (1-5)	0.141*
Total operative time (minutes)	30	25.27 ± 5.48 (15-40)	27.17 ± 6.33 (15-40)	0.146*

* Non significant differrent (paired-samples t-tests)

1. Major complications

There was no major complication related to the uterine incision in the STCS group, compared to 7 cases in the control group, (3 cases of casarean hysterectomy due to uncontrollable bleedings, 2 cases of severe bladder bed bleedings with ligation of the ureters during re-explorations and two cases of bladder lacerations due to adhesions from previous LTCS. The different was statistically significant ($p < 0.05$) (Chi-square test)

2. Time from Incision to Delivery and Hospital Stay (Table 2).

Randomly selected 100 cases of primary csarean section under general anesthesia from each group were compared as to the time in minute from the start of the skin incision to the delivery of the baby and length of hospital stay. There was significant less time to deliver the baby in the STCS group (shortest time of one minute) compared to the LTCS. The hospital stay also was shorter for the STCS group with many new mother able to go home the next day.

3. Post operative adhesion and impending rupture (Table 3).

To eliminate inter-physician technical differences, the author's own 30 cases of STCS in previous STCS were compared with 30 cases of STCS in previous LTCS as to the time from incision to delivery of the baby and total operative time. There were no sugnificant different in both parameters, which indicated no evidence of increase difficulty of pelvic adhesion from the site of the new incision. There were no evidence of impending rupture of the new incision even with more than one previous STCS's

Discussion

The uterine muscle has been known to heal remarkably well leaving almost no scar during the subsequent cesarean sections.[8-10] Recent studies indicated that even in previous low vertical cesarean section, a VBAC is very safe,[11] so after an STCS it should be at least as safe (Clinical study is on going).

Aside from less trauma and ease of performing, the STCS is also beneficial in that it help shorten the time it take to deliver the baby since every minuts saved is important both for the mother and the baby.[2] Pelvic adhesion after STCS is also minimum because it is the same as an LTCS with uterine incision closed in one layer[13] and both the visceral and parietal peritoneums left open.[14,15]

The author has been following the same philosophical principle of surgical minimalism as Dr. S. J. Joel-Cohen and Dr. Michael Stark of the Misgav Ladach General Hospital in Jerusalem[16-18] and admires them for their continuing effort to improve the cesarean section to be as close to a natural birth as possible. The supravesical transverse uterine incision should further minimize the trauma and shorten the time to do a cesarean section. So now, if needed, any obstetrician can safely deliver the baby in 1 minute, finish the cesarean section in 10 minutes and send the new mother with her baby home in 1 day, a 1-10-1 cesarean section.

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