TEACHING FIRST CEASEREAN SECTION

PANKAJ DESAI

SUMMARY

Difficulties encountered by postgraduate students of Obstetrics while performing their first caeserian sections are studied through this prospective study of seven years. The frequency of such difficulties & complications were compared with caeserean sections done by students who had already done many of these. It was found that the first timers find more difficulty in proper technique of antiseptic application, draping and positioning. They took a mean of three minutes more from induction to delivery of baby. They had difficulty in proper identification of visceral peritoneum and also had a tendency to put a half-hearted incision for opening the uterus. They encountered significant more difficulty in delivery of the baby. While closing the uterus, they broke the catgut more often. The teacher had to take extra hemostatic stitches more frequently and first timers also found more difficulty in abdominal closure. However, the postoperative outcome in both the groups was similar and good.

INTRODUCTION

Teaching practical operative skills is one of the most important responsibilities of a medical teacher. The foundation stone of a fine surgeon is laid in the operation theatres of medical college hospitals. Observations from learning of such skills under experimental conditions show that improvement in ability to detect differences and make fine discriminations increase with supervised experience. (Gibson - 1989). There is no denying of the fact that students must begin the practise of operative skills under the teacher's guidance (Mcarthy - 1982).

Before a postgraduate student is called upon to perform a caeserean section, he has assisted a number of these. Inspite of all this, they do face distinct difficulties

Dept. of Obst. & Gyn., Medical College & SSG Hospital, Baroda.

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when operating for the first time. The teacher who makes them do this surgery, if aware of these difficulties that are likely to occur, can be more cautious at those instances and help the student in learning the skill much better and with far greater ease. This is a study which documents the performance of postgraduate medical students in obstetrics when they perform their first caeserean section.

SUBJECTS & METHODS :

This a prospective controlled study of seven years. It was carried out in Unit III of the Dept. of Obst. & Gynec., Medical College and SSG Hospital, Baroda, from Jan.1987 to Dec. 1993.

During this study period, events related to those caeserean sections which were done for the first three times by postgraduate students of the unit were recorded. During a small pilot study period of six months preceeding the commencement of the study period, it was found that, the operative skills during the surgery done for first three times by a student remains the same. It was therefore decided to include first three caeserean sections. The pilot study is not included in this main study.

So as to serve as controls, same events studied for first caeserean sections were compared with those of caeserean sections done by postgraduates who were not doing the surgery for first time. These two groups were compared and results obtained therefrom were analysed and discussed.

RESULTS :

During the period of this study there were 2454 caeserean sections performed in our dept., of which 606 were performed in the III unit. Of 606, 340 were performed during the duty of the author. It is a rule in the Dept. that all caeserean sections are to be attended by the Asst. Professor on duty and this rule was strictly observed. Thus all 340 C.S. were attended to by the author himself. Of these 340, 273 were performed by the postgraduate students, of which 96 were performed for the first time. For these 96 caeserean sections, same number served as controls but were essentially those which were done by postgraduates who were not performing it for the first time.

Interestingly, hardly any of the difficulties or major errors encountered by the students performing C.S. for the first time exceeded 10 of instances.(Table I)

Application of antiseptics and draping the patient was done erroneously on 30% of instances by whom C.S. was being done for first time. However, of these hardly 3% of these errors were major ones as a result of which a reapplication of antiseptics or redraping with another set of operation drapes was required. Such major errors never occurred once. More caeserean sections were done by the student. By positioning of the surgeon it was assessed as to whether he could stand in a comfortable position correctly and close enough to the patient. In cases where the height of the student was less, as the pneumatic system of our table is not working, whether the student himself asked for an extra wooden plank to stand on was also considered in correct positioning. Interestingly on 8.33% occassions the first performers of the surgery forgot to arrange for suction apparatus or

Table I
Pre-operative

		First C.S. No.	%	Controls No.	%
*Error - In antiseptic application	Major	02	2.08	00	00.00
	Minor	26	27.08	18	18.75
*Error - In Draping	Major	03	3.13	00	00.00
	Minor	31	32.29	10	10.42
*Error - In Positioning of Surgeon		15	15.63	02	2.08
*Induction - Delivery interval (mean in mts.)			9.1		6.1

Table II
Intra-Operative

	First C.S. No.	%	Controls No.	%
* On opening of abdomen:				
Injury to uterus	06	6.25	02	2.08
Intestinal injury	01	1.04	00	0.00
Bladder injury	00	0.00	01	1.04
* Difficulty in identification of visceral peritoneum.	23	23.96	09	9.38
* Extension of incision	18	18.75	09	9.38
* Partial incision of uterus	34	35.42	08	8.34
* Injury to baby	03	3.13	01	1.04
* Difficulty in baby delivery	41	42.71	09	9.38

if they took, forgot to to check them. The same occurred in 3.13% instances in the seniors. It goes without saying that the attending teacher took care of the inadequacy if any.

A mean of 9.1 mts. were required by the first time surgeons which reduced to 6.1 mts. in controls. For last two years of the study period transverse abdominal incisions are being made for all caeserean sections in our unit with very few exceptions. For this, the first timers took 11.2 mts.(mean) to make the transverse incision and open the abdomen whereas the seniors took 8.9 mts. for the same. Thus, both groups took about 2 mts. more for opening the abdomen in transverse incision.(Table II)

In this table, the problem faced upto the delivery of the baby after opening the abdomen are tabulated. It was found that on 6.25% of occassions, the first timers inadvertently put the nick on the uterus while opening the abdomen. The same occurred on 2.08% of instances at seniors. Intestinal injury is extremely uncommon, while performing a caeserean section. This was the case where a previous caeserean section wound had disrupted and resuturing was done and probably adhesions to the wound occurred and an inadvertent intestinal injury occurred. During the study, no first timer opened up the bladder while opening the abdomen.

The loose fold of peritoneum which is easily lifted is so easily depicted theoretically. However, on the field 23.96% of first timers had difficulty in identifying it. Of course, the teacher helped in this identification promptly. Those 9 cases where the seniors found this difficulty were all cases of previous caeserean sections with the bladder being advanced or the peritoneum becoming densely adherent.

It is important to find that the first timers half heartedly put the first uterus opening incision. As a result the muscle fibres separated and noxious oozing occured. This happened in 35.42% of cases. When over confident with the strength with which the scalpel has to be used, the first timers injured the baby three times. However, all of these were minor injuries on the pinna or cheek and were promptly attended to.

Understandably, 42.17% first timers had difficulty in delivering the head of the baby which with practisce they nicely pick up as borne by the fact that only 9.38% seniors had this problem. (Table III)

Around 15% of first timers had difficulty in holding the angles of the catgut snapped. It was found that it is not only the excessive force but improper technique of application as well as tightening of the knot led to this problem. Just as the difficulty in delivering of head was overcome with practise, so was this difficulty as borne by the sharp decline of such a problem in the seniors.

A synchronised and skilful hand movement is important for proper surgical technique. Understandably this comes only with practise as could be seen in difference in the results of both the groups. Synchronised hand movements increase the risk of injury to the assistant as well, as was also found during the study.

When caeserean section was done for the first time, on 18 occassions there was an extension of the uterine incision and 11 of these had to be secured by the teacher. However when the seniors did a C.S. this

Table III
Intraoperative (B)

	First C.S. No.	%	Controls No.	%
* Difficulty in holding angels	18	18.75	03	3.13
* Difficulty in securing the angles	14	14.58	02	2.08
* Catgut break	24	25.00	07	7.29
* Difficulty in hand movements	47	48.96	07	7.29
* Extra hemostatic stitches required	31	32.29	18	18.75
* Securing Scar extension by teacher	11	11.46	03	3.13
* Problem in abd. closure	15	15.63	02	2.08

extension occurred only in 9 cases of which 3 had to be secured by the teacher. Others were taken by the students themselves successfully.

Identification of different layers and correctly suturing them were the difficulties encountered in abdominal wound closure and the difference between the two groups was again distinct but understandable. (Table IV)

Interestingly though there were distinct difference in the pre-and intraoperative steps of caeserean sections done by the first timers, post-operative outcome was similar in both the groups. By operative PPH, it was meant that error in surgical technique leading to PPH. Burst abdomen was when all layers of the abdomen gave away, whereas resuturing meant that of a wound where the peritoneum did not gape.

Table IV
Postoperative Morbidity

	First C.S. No.	%	Controls No.	%
Operative PPH	02	2.08	01	1.04
Burst abdomen	02	2.08	02	2.08
Resuturing	18	18.75	21	21.88
Incisional hernia		2.08	01	1.0402

DISCUSSION

Performing a surgery for the first time like any other skill acquisition process can be difficult. It is therefore of utmost importance that the teacher personally remains physically present and actively assists and teaches the skill to the student. This is borne out clearly in this study. It is a routine of our unit for the teacher to scrup up with the student till he becomes "exam. going" or completes his P.G. exam. The significant difference in difficulties encountered by the first timers and their seniors waxes eloquence of this fact. The entire process of learning and becoming skilful gets unveiled in the results of the study. Because medical teaching requires teaching a number of component skills, it is wise to understand that these are achievable in increments or stages (Kirk - 1978).

It should be understood that at every step, right from application of antiseptics to closing of the abdomen, till the last skin stitch, supervision becomes necessary. So as to prevent a subject bias, results of the surgeries taught by only one teacher are considered in the study. The fact that hardly any major problem occurred in more than 10% of instances once again highlights the subtle role the teachers play to prevent them when the students were still raw.

Lack of confidance, fear of first performance and such pressures are bound to be active as was borne by the results of students forgetting to take or check the suction apparatus or faulty positioning of the surgeon (in this case the student himself). An increased induction - delivery interval though understandable should be considered in the light of the fact that beyond 10 mts. of such an interval the APGAR score of the new born can get affected and the teacher has to be very cautious.

Half-hearted incision for opening the uterus is also dangerous because a brisk and significant oozing starts in such a situation and thus the teacher has to be attentive here once again. Also, an overconfident student can not only cut the uterus but at the same blow cut the baby's ear as well. The golden rule of optimum pressure on the scalpel requires to be taught and the student made to develop this so vital a skill which he will require to use at many steps in many surgeries, even subsequently.

Extra stitches of haemostasis were required much more when the first timers operated. This is also understandable by the lack of proper tissue identification and complete suturing of the cut tissue. This leds to the extra stitches to be taken by the teacher on the field itself.

Injury to the teacher by uncoordinated hand movements of the student is a small but a distinct possibility. Though complete figures about such injury were also available, they have not been included here.

All is well that ends well. A cautious teacher and a curious and interested student finally completed the surgery equally well as was borne out by the results of post operative outcome in both groups being equally good. The durationof surgery in first timers was also more. It has also been documented but the results not included here for reasons of brevity.

CONCLUSION :

When postgraduate students do their initial caeserean sections, they can err in antiseptic application as well as draping. They take a mean of three minutes more in opening the abdomen and delivering the baby. They can injure the uterus while opening the abdomen and can have difficulty in identifying the visceral peritoneum. They can put a half hearted incision on the uterus leading to brisk oozing. They can have problems in delivering the baby especially the head. They can break catguts during the surgery more readily and their uterine wound require extra hemostatic stitches more frequently. They can also find difficulty in closing the abdomen. However, post-operative outcome in both the groups remain nearly the same.

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