

Misgav Ladach Cesarean Section vs Pfannenstiel Cesarean Section

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OBJECTIVE - To assess the advantages of Misgav Ladach cesarean section in comparison with routine Pfannenstiel cesarean section. **METHODS** - Randomized controlled study was done over 15 months on 200 elective and emergency caesarean sections. **RESULTS** - The duration of surgery, blood loss and post-operative pain were significantly less in the Misgav Ladach group ($P < .001$). **CONCLUSION** - Misgav Ladach technique of cesarean section has many advantages and should be used routinely.

Key word : cesarean section, Misgav Ladach, Pfannenstiel

Introduction

Every surgical procedure is composed of hundreds of movements, each movement has its purpose, meaning and history. It is important to examine every step in any operation to evaluate its necessity and its efficacy in achieving its purpose, with a view to find better alternatives. The simplest and most appropriate surgical methods, causing the least possible damage to the tissues, should be constantly sought.

There is a continuing search for satisfactory techniques of cesarean section. The technique should be safe, be of short duration, be simple, have low cost, carry less post-operative morbidity, and mortality, and give a strong scar.

Timonen et al¹ found that in Pfannenstiel cesarean section, lag time from incision to delivery was 8-10 minutes. On the other hand, Misgav Ladach cesarean section offers the benefit of the incision to delivery interval being 4 minutes or less¹. Hence it should be used in fetal distress, which is the most common indication for cesarean section². Sharp instruments are minimally used and hence injury to tissues is less and blood loss minimal. The uterus is sutured in a single layer, which further reduces the duration and cost of the surgery. Lastly, post-operative pain which is of concern for the patient and the obstetrician, is reduced in the Misgav Ladach technique.

In view of the advantages claimed for the above technique, the present study was undertaken to assess its efficacy, safety, duration, blood loss, need for

suture material and post-operative stay, and to compare it with Pfannenstiel cesarean section in women undergoing primary cesarean section.

Material and Methods

All the women posted for elective or emergency primary cesarean section were included in this study. Some of the common indications were fetal distress, cephalopelvic disproportion, failure to progress, breech presentation, transverse lie and failed induction. Informed consent was taken. They were randomly allocated to two groups with 100 women in each group. Group I Pfannenstiel incision and Group - II Misgav Ladach. The differences in the two procedures are given in Table I.

Exclusion criteria - Women with previous cesarean section, obstructed labor, previous abdominal surgery, bleeding disorders, twin pregnancy, placenta previa, abruptio placenta and ruptured uterus were not included in the study.

All the cesarean sections in the study were performed under spinal or general anesthesia, by one of the four senior consultants. The allocated method of surgery was decided by random numbers drawn by the floor nurse just before surgery. The floor nurse measured the operation time, while the blood loss was jointly estimated by the surgeon and the nurses from the suction bottle, gauzes and packs used. The scrub nurse counted the number of suture material used.

Normal pre- and postoperative care for cesarean section were adhered to during the study period and were similar in both the groups. Intravenous fluids were given for 12 hours, after which oral fluids were started according to the tolerance of the women who were allowed to move out of the bed at any time after 12 hours of operation. For elective cases, 1 gm of

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cephalexin was given 6 hourly for a total of three doses. For emergency cases, cephalexin 500 mg was given 6 hourly for a total of five days. This is the protocol for prophylactic antibiotics at our institution.

Injection pehtidine 50 mg with phenergan 25mg or inj. fortwin 30 mg with phenergan 25 mg. was given 8 hourly for all the patients for 24 hours after the operation; later it was given only to those who required it. After 24 hours some patients also received tablets of 100 mg nimesulide or combiflam (ibuprofen 400 mg paracetamol and 375 mg) depending upon the pain score .

Results

Table II gives the demographic data of the two groups. All women were at term and both groups had more number of primigravidas.

Table III shows the duration of operation in the two groups; even though four consultants were operating with interpersonal variations, there was a very high significant decrease in duration of surgery in Group II. The shortest duration of surgery was 14 minutes 26 seconds in Group I and 10 minutes 45 seconds in

Group - II ($p < 0.001$). There was a statistically significant decrease in blood loss in Group II as compared to that in Group I. ($p = 0.001$). Almost 50% of the patients in Group II had a blood loss < 250 mL as compared to 10% in Group I (Table III). There were two patients in each group with blood loss of more than 1000 mL and two had blood transfusion in Group I and one in Group II. The patients in Group I had a mean blood loss that was more than double that of Group II. This is statistically highly significant ($P < 0.001$) (Table II).

Group I had double layer closure of the uterus and Group II single layer closure, which is the reason for statistically significant ($P < 0.001$) more suture material used in Group II (Table III). There is a continuing follow up of these women till subsequent pregnancy to see the difference in obstetric outcome including operative intervention. The results will be reviewed later.

Post-operatively, assessment of pain was done using visual analogue scale on 2, 3, 4, 5 and 6th day. It was found that the pain was significantly less ($P < 0.001$) in Group II compared to that in Group I (Table V). This was reflected by the decreased use of analgesics in Group II.

Table I. Differences between the two techniques

Steps	Group I (Pfannenstiel) n=100)	Group II (Misgav Ladach) n=100
Type of skin incision	Pfannenstiel	Joel Cohen
Subcutaneous tissue	Cut with scissors	Digital separation
Rectus sheath	Cut with scissor	Separated by fingers and retracted
Rectus muscle	Cut and separated from the rectus	Opened by stretching
Peritoneum	Cut with scissors	Digital separation
Uterine incision	Cut with scissors	Digital separation
Uterus sutured in	Two layers	One layer with continuous locking
Muscle sutured	No	No
Skin sutured with black silk	7 - 8 stitches	3 stitches

Rectus sheath was sutured with Proline No.1 in both the groups.

Table II. Demographic data

	GROUP I (Pfannenstiel) n=100	GROUP II (Misgav Ladach) n=100
Average age (years)	24.93	24.98
Primigravidas	69	78
Multigravidas	31	22
Average gestetional age (weeks)	39.15	38.84
Weight of the baby (gms)	3020	3039
Mean Apgar score at 1 min.	8.3	8.5
Mean Apgar score at 5 min.	9.6	9.6

Table III. Sutures used (chromic catgut) and duration of surgery)

NO.OF SUTURES USED	GROUP - I (Pfannenstiel) n=100	GROUP - II (Misgav Ladach) n=100	X ² test
Only one sutures used	11	93	P < 0.001
Two sutures used	85	7	
More than 2 of sutures used	4	0	
Mean duration of operation (min.)	29.5435 ± 9.0807	19.9175 ± 3.7895	P < 0.001

Table IV. Blood loss (mL)

BLOOD LOSS (mL)	GROUP I (Pfannensteil) n=100	GROUP II (Misgav Ladach) n=100
< 250	10	48
250 - 499	52	40
500 - 749	28	7
750 - 999	8	3
> 1000	2	2
Mean	455.6 ± 202.7	294.2 ± 200

Table. IV Pain Score on 2nd, 4th and 6th day

Pain Score	Day - 2		Day - 4		Day - 6	
	Group - I	Group - II	Group - I	Group - II	Group - I	Group - II
0 (No Pain)	0	5	4	5	37	65
1	0	0	3	40	51	32
2	1	4	33	21	10	3
3	0	16	19	20	2	0
4	1	6	13	10	0	0
5	5	56	21	3	0	0
6	3	6	3	0	0	0
7	24	7	4	1	0	0
8	26	2	0	0	0	0
9	33	0	0	0	0	0
10 (Max. pain)	7	2	0	0	0	0
X ² Test	P = 0.0001		P = 0.0001		P = 0.0005	

Discussion

Every department in obstetrics has to evaluate the means of reducing the time for cesarean section. It is important especially in cases of fetal distress and in reduction of duration of anesthesia. The reduction of more than 30% in the time need is especially important in such cases. A shorter time for cesarean section reduces the time for delivery of the fetus and the rate of infection. The originator of the Misgav - Ladach method of cesarean section at General Hospital in Jerusalem compared it to a Pfannenstiel cesarean section⁴. Women with previous cesarean section were included in the study and 50% to 70% were operated under epidural anesthesia. The main findings were a slight reduction in operating time, reduced incidence of post-operative febrile morbidity and fewer adhesions at subsequent cesarean section. In the present study the mean operative duration for Group I was 29 minutes 31 seconds and in Group II 19 minutes 55 seconds (Table III). This difference is statistically significant $P < 0.001$.

The amount of blood loss was decreased due to decreased use of the knife and the technique

protecting the vessels. In the present study, mean blood loss in Misgav Ladach technique was 294.2 ± 200 mL compared to Pfannenstiel group in which it was 455.6 ± 202.7 mL. (P value < 0.001). The reduced operation time may also influence the amount of bleeding. Reduction in blood loss by the Misgav Ladach procedure has been previously shown by Darj and Nordstram⁵, who in a randomized study comprising 50 elective cesarean sections, reported the average bleeding with Misgav Ladach procedure to be 448 mL. and that with Pfannenstiel procedure 608 mL.

In the Misgav Ladach cesarean section, fewer suture materials are used, fewer instruments are needed and duration of operation is shorter. This gives the staff time for other tasks besides offering economic benefits. A reduction of febrile morbidity and antibiotics used as found by Stark and Finkel⁶ was not reproduced in our study. The present study did not show any statistically significant difference in the intra-operative and post-operative complications. This may be due to our use of routine prophylactic antibiotics.

The staff were instructed to care for the patients of both the groups without deviating from normal routines. They usually helped the women out of bed on the next morning. Mobilization was earlier with the Misgav Ladach cesarean section. The women often drank water after 12 hours. Women after Misgav Ladach cesarean section needed less help and were able to bend and touch their toes within 48 hours. . From the second day onwards, oral analgesics were used as needed and it was found that less analgesics were required in Group II.

In our study no negative effects of the Misgav Ladach technique were noted. We suggest that Misgav Ladach technique be used in all centers. It is suitable for both emergency and elective operations. The reduction in pain and the speed of recovery enable the mother to look after the newborn baby earlier and help develop maternal bonding.

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