

Caesarean Section - From Standard Pfannenstiel Incision Lower Segment Technique to Misgav Ladach Method - A Prospective Study.

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Caesarean Section is the commonest obstetric operation today. The standard technique of lower segment caesarean section has been under modification from time to time.

The Misgav Ladach method adopting Joel Cohen Technique of opening the abdomen, preferring manual manipulations minimizing the use of instruments, suturing the uterus in one layer and leaving the peritoneal layers unsutured is a simple and concise technique (stark, 1996). It required less operative time and renders better post-operative recovery by early ambulation, reduced febrile morbidity, less pain and better healing.

The present study is the continuation of our previous study of single layer closure of uterine incision in Caesarean section. We have now completely switched over to the Misgav Ladach Method. Results of the technique are compared with the standard method and the previous study.

Materials and Method

This study includes 94 patients who underwent LSCS by the Misgav Ladach method at Smriti Nursing Home, Saharanpur, from November 1, 1996 to May 30, 1997. This study II-Group was compared with well matched 109 cases of the Standard Technique and 96 cases of single layer uterine closure done at the same place from January 1, to December 31, 1995 and January 1, to October 31, 1996 respectively (control and study I Group.)

In the present study abdomen was opened by Joel-cohen incision about 3 cms below an imaginary line drawn be-

tween the ischial spines. The incision is made deeper in the centre and rectus sheath incised here. This incision is extended on both sides underneath the fat tissue and blood vessels. The rectus sheath is stretched caudally and cranially using index fingers and recti retracted laterally by manual manipulation. The parietal peritoneum is opened by using both index fingers and stretching the peritoneum until a small hole is formed and then stretching it in a caudal - cranial direction, opening it transversely. Visceral peritoneum is incised transversely and bladder gently pushed down. A small transverse incision is made in the lower uterine segment and adequately widened manually. The two edges of lower uterine segment are properly visualised and stitched in single continuous layer. Uterus is then replaced back. Omentum is drawn down over the uterus. Rectus sheath is then stitched by continuous stitch leaving both visceral and parietal peritonii unsutured. Skin is closed either by widely placed silk stitches or by subcuticular stitch.

Observations

Total 104 patients underwent caesarean section from November 1, 1996 to May 30, 1997. Ninety four cases were opened by transverse skin incision (Joel Cohen) and Misgav Ladach Technique was followed. Ten cases were opened by vertical skin incision and were excluded from the study. Patients in control and study I group comprised of 109 and 96 cases respectively in whom abdomen was opened by Pfannenstiel incision (Table-I).

Table - 1
Abdominal Skin Incision in Three Groups

| | Control Group | Study I Group | Study II Group |
|------------|---------------|---------------|----------------|
| Transverse | 109 | 96 | 94 |
| Vertical | 18 | 17 | 10 |
| TOTAL | 127 | 113 | 104 |

Age and parity distribution was well matched in three groups (Table 2). Seventy two cases were emergency caesarean operation in the study II group while 22 were elective. Seventyfour were first time LSCS while 20 were repeat sections. The comparison with study I group and control group is given in Table II.

Indications of Caesarean Section in the three groups are shown in Table- III.

In all the 94 cases in study II group uterus was closed in single

Table - II

| | Control Group | Study I Group | Study II Group |
|-----------------|----------------------------|----------------------------|----------------------------|
| Age | 18-39 Yrs. Mean 25 Yrs. | 18-32 Yrs. Mean 26 Yrs. | 18-35 Yrs. Mean 26 Yrs. |
| Parity | G1-G5 | G1-G6 | G1-G4 |
| Emergency LSCS | 85 (78%) | 72 (75%) | 72 (76.6%) |
| Elective LSCS | 24 (22%) | 24 (25%) | 22 (23.4%) |
| First Time LSCS | 83 (76.2%) | 72 (75%) | 74 (78.7%) |
| Repeat LSCS | 26 (23.8%) | 24 (25%) | 20 (21.3%) |

Table III

| Indication | Control Group | Study I Group | Study II Group |
|-------------------|---------------|---------------|----------------|
| C.P.D. | 35 | 33 | 32 |
| Foetal Distress | 18 | 18 | 16 |
| Cervical Dystocia | 12 | 10 | 11 |
| Placenta Previa | 14 | 9 | 10 |
| Failed Induction | 8 | 6 | 7 |
| Abnormal Lie | 14 | 12 | 13 |
| Miscellaneous | 8 | 8 | 5 |

continuous layer using vicryl No.1-0 and both visceral

and parietal peritonii were left unsutured. In study I group 92 cases had single layer uterine closure using No. 1 chromic catgut while in four cases uterus was stitched in two layers. Visceral peritoneum was closed in 88 cases and was left open in 8. Parietal peritoneum was left unsutured only in 4 cases in study I group. In all the 109 cases in the control group uterus was closed in two layers and both visceral and parietal peritonii were closed (Table-IV).

Table - IV

| | Control Group | Study I Group | Study II Group |
|----------------------|---------------|---------------|----------------|
| Uterine Incision | | 92 (95.8%) | 94 |
| Closed in One Layer | | | |
| Uterine Incision | 109 | 4 (4.2%) | |
| Closed in Two Layers | | | |
| Visceral Peritoneum | 109 | 8 (8.3%) | |
| Stitched | | | |
| Visceral Peritoneum | | 88 (91.7%) | 94 |
| Unstitched | | | |
| Parietal Peritoneum | 109 | 92 (95.8%) | |
| Stitched | | | |
| Parietal Peritoneum | | 4 (4.2%) | 94 |
| Unstitched | | | |

Table-V shows operative time in all the groups. Time taken from skin incision to delivery of the baby was 2-4 min. (Mean 3 min.) in the study II group. In study-I and control group this time was 2-6 min. (Mean 4 min). Closure took 8-12 min (Mean 10 min.) in study II and the total time taken in completing the procedure was 12-18 min. (Mean 15 min.). Mean closure time in study-I group was 12 min. (Mean 15 min.). if parietal peritoneum was closed and 10 min. if it was left open. Total mean time was 18 minutes (parietal peritoneum closed) and 17 min (P.P. unsutured) in this group. Comparison with controls is given in the Table V.

Table - V
Time Taken in Operation

| | Control Group | Study I Group | Study II Group |
|---|------------------------------|--|-----------------------------|
| Time Taken Skin | 2-6 Min | 2-6 Min | 2-4 Min. |
| Incision upto | (Mean 4 Min.) | (Mean 4 Min.) | (Mean 3 Min.) |
| Delivery of baby. | | | |
| Closure : | | | |
| A- Parietal Peritoneum sutured | | A-11-16 Min (Mean 12 Min.) | |
| | 25-32 Min (Mean 28 Min.) | | 8-12 Min (Mean 10 Min.) |
| B- Parietal Peritoneum unsutured | | B- 8-12 Min. (Mean 10 Min.) | |
| Total Time taken in completing the Procedure. | 28-40 Min. (Mean 34 Min.) | | 12-18 Min (Mean 15 Min.) |
| A- Parietal Peritoneum sutured | | A- 15-20 Min (Mean 18 Min.) | |
| B- Parietal peritoneum unsutured | | B- 14-20 Min Mean (3 Min. more if (17 Min.) Subcuticular stitch is given). | |

A mean of 4 skin stitches were given in study-II group in 30% of the cases and in the rest 70% subcuticular stitches were given while 7 skin stitches were given in the control group at the induction of anaesthesia in study-II group. Amoxycillin (500 mg. T.D.S.) for 3 and 5 days was given respectively in the study-I group and control groups.

The patients in the study-II group were given oral fluids within 2-8 hours (Means 3 hrs). They were sitting in bed within 4-10 hours (Mean 6 hrs.) and were ambulatory on the very first day. Only one or two shots of analgesics were needed. Two cases had post-operative pyrexia inspite of prolonged antibiotic therapy. Both these cases were daihandled, un-booked cases having PROM of more than 3 days. One of them had paralytic ileus and responded to conservative treatment. Comparison with control and study-I group is given in Table-VII

Table - VI
Post-Operative Recovery

| | Control Group | Study I Group | Study II Group |
|-------------------|--------------------------------|-------------------------|-----------------------------------|
| Skin Stitches | 5-9 (Mean 7) | 3-7 (Mean 4) | 3-7 in 30% (Mean 4)cases |
| | | | Subcuticular stitch in 70% |
| Suture Material | 2 (Catgut) (Occasionally 3) | 1 (Catgut) | 1 (Vicryl) |
| Antibiotics Given | Amoxycillin x 5 days | Amoxycillin x 3 days | Cefotaxine (1gm) single shot |

Table - VII
Post-Operative Recovery

| | Control Group | Study I Group | Study II Group |
|-----------------|------------------------------|--|----------------------------|
| Orally Allowed | 6-12 Hrs. (Mean 10 hrs) | 2-12 Hrs. (Mean 4 hrs) | 2-8 Hrs. (Mean 3 hrs.) |
| Sitting in Bed | 12-24 Hrs. (Mean 15 hrs.) | 4-10 Hrs. (Mean 6 hrs.) | 4-10 Hrs. (Mean 6 hrs.) |
| Ambulatory | 2 nd day | 1 st or 2 nd day | 1 st day |
| Analgesic Shots | 3-4 shots | 1-2 shots | 1-2 shots |
| Postoperative | | | |
| Pyrexia | 18 cases (16.5%) | 6 (8.7%) | 2 (2.1%) |

Abdominal dressing was changed on third post-operative day as a routine. Ninety three patients in study-I group had healthy wound while one had induration. In study-I group 90 patients had healthy wound while 6 had serous or purulent discharge, induration or haematoma formation. The numbers in control group were 100 and 9 respectively. Ninety-two study-II group patients had perfect union on stitch removal while 2 had discharge, induration or superficial group. Study-I group and control group comprised similarly of 89 and 7 and 96 and 13 cases respectively (Table-VIII).

Discussion

Caesarean operation mainly evolved to save a maternal life is increasingly becoming the procedure of choice in high risk situations. The technique of caesarean operation has been modified from time to time.

Table - VIII
Condition of Wound

| | Control Group | Study I Group | Study II Group |
|---|---------------|---------------|----------------|
| <u>On third day</u> | | | |
| Healthy | 100 (91.8%) | 90 (93.8%) | 93 (98.9%) |
| Serous or purulent discharge/ Haematoma/ Induration | 9 (9.3%) | 6 (6.2%) | 1 (1.1%) |
| <u>On stitch Removal</u> | | | |
| Perfect Union | 96 (88.1%) | 89 (92.7%) | 92 (97.9%) |
| Discharge /Induration Superficial Gaping | 13 (11.9%) | 7 (7.3%) | 2 (2.1%) |

The Misgav Ladach method is a simple and speedy, yet safe technique. Because of the low placement of skin incision where rectus sheath moves freely over the

muscles, there is no need to separate it from muscles as is done in the Pfannestiel incision. Tissues are separated along connective tissue fault lines, thus healing more completely and rapidly. Unnecessary steps such as suturing the peritoneal layers are omitted. Rapid and complete healing is ensured with less long and short term complications. Women delivered by this technique regained control and recovered rapidly and were better able to breast feed and care for their new born.

Conclusion

Misgav Ladach technique is a simple, speedy and safe technique of caesarean operation and should be followed as a routine.

References

1. Stark, M. Asian Journal of Obst. & Gyn. 1: 72, 1996.