International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2019; 3(5): 43-45
Received: 21-07-2019
Accepted: 25-08-2019

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Caesarean delivery by Misgave ladach technique versus conventional technique: A randomized controlled trial

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DOI: https://doi.org/10.33545/gynae.2019.v3.i5a.329

Abstract
Objective: This study was designed to compare the Misgave Ladach technique versus conventional technique of caesarian deliveries.
Method: This was a prospective study conducted on 160 women undergoing a primary LSCS for various indications. Patients were randomly divided in to two groups of 80 each; group A underwent LSCS by Misgave Ladach technique and group B by conventional method. A per–operative and short term post-operative outcome of both groups were compared.
Result: Maternal age, parity, gestational age and indication for caesarean deliveries were similar across groups The operating time, incision delivery interval and post-op pain was significantly reduced in group underwent LSCS by Misgave Ladach method in compare to group who underwent LSCS by conventional technique.
Conclusion: Misgave Ladach method may provide a faster technique and cost effective method of LSCS.

Keywords: Misgave ladach, caesarean delivery, LSCS, conventional, incision

Introduction
Caesarian section is the most common surgery performed in obstetrics; thus any useful refinement in the operative technique is likely to yield substantial benefit [1]. In the USA one out of every three women pregnant with viable fetus delivers by mean of cesarean operation [2]. Caesarean section associated with lesser risk to fetus regarding labour hypoxia and intra- cranial hemorrhage then in other type of delivery [3]. Conventional technique using pfannensteil incision over the abdominal wall and semilunar incision over the lower segment was popularized by Munroker by 1960s which is still practiced today [4]. Although one of the most commonly practiced operation a consensus on the most appropriate technique has not yet been reached, mostly because well designed studies and solid evidence have been sparse. Misgave ladach technique is expected to be safe simple and of short duration, carry less post op morbidity and mortality [5].
Misgave ladach technique was originally developed by Dr. Michael Stark at the Misgave Ladach hospital in Israel.In this technique after incising the skin the abdominal wall layers are seprated bluntly. The uterus is also streached manually and closed in single layer while abdomen is closed in two layers [6].
The aim of present study is to compare the intra operative and post operative outcomes between the conventional technique and Misgave Ladach technique of caesarian delivery.

Material and Methods
This was a prospective study conducted at department of obstetric and gynaecology Era lucknow medical college and hospital from Aug. 2008 –sep. 2010. All the 160 subject enrolled in the study were devided in to two groups of 80 patient each. All were undergoing emergency or elective primary caesarian section for various reasons. Group A or study group underwent LSCS by Misgave Ladach technique using Joel Choen incision and group B or controol group by conventional method using pfannsteil incision. Women with previous caesarian section, obstructed labour, previous abdominal surgery and rupture uterus were not included.

Steps of misgave ladach method [7]
1. A straight skin incision is given 3cm below the line joining the ant. Superior illiac spine, extremly superficial cuts only the cutis.

2. A nick is given in the mid 3-4 cm up to ant. Rectus sheath which is cut transversly up to that much length. It is then extended by streaching the upper and lower edge of the cut rectus sheath in cranio- caudal direction.
3. The belly of the rectus muscle is pulled away from mideline to respected side.
4. The parital peritonium is opened bluntly as high as possible by nibbling with the index finger.
5. Uterovescicle pouch is opened with scissors and bladder pushed down.
6. Lower uterine segment is opened by giving a nick with scalpal and extended latrally on each side applying traction with fingers.
7. Uterus is repaired in single layer.
8. Visceral and parital peritonium is left to heal on itself.
9. After closing rectus sheath with vicryl no.1, skin is repaired with intrupted mattress suture.

Steps of conventional method-(7, 8)

1. Abdomen is opened by pfennsteil inscision.
2. Rectus sheath and peritonium is cut transversly by sharp disscetion sepratly.
3. Uterovescicle pouch is opened by scisser and bladder is pushed down.
4. A small nick is given on lower segment and extended bilatraly with scissors.
5. Uterus is closed in double layer
6. Visceral and parital peritonium is repaired.
7. After closing the rectus sheath. Skin is repaired by mattress suture.

Results

The mean age of the studied population was 25.75+-2.76 years (Range: 20-35 years), the mean gestational age at caesarean section was 38.82+-1.2 weeks (35.12-42 weeks) and the mean parity was 1 (Range 0-4). There were no significant difference between the misgave ladach and conventional technique group regarding mean age (25.75+-2.76 years versus 26.42+-3.25, respectively), mean parity (1+-1.5 versus 1+-1.3, respectively) and mean gestational age(38.82+-1.2 versus 38.72 +-1.4 respectively) (p>0.5; chi square test); Table 1.

The secondary outcomes such as total operative time, incision to delivery and delivery to closure time were significantly shorter in the study group (22.42+-2.35, 2.86+_1.13, and 17.56+-2.12 minutes respectively) compared to the control group (32.69+_2.89, 3.78+-1.23 and 24.60+-2.52 minutes respectively). Time for return to bowel function (4.62+-0.70 versus 6.26+-0.84 hours) and time to ambulation (7.23+-1.23 versus 9.52 +-1.47) significantly less in study group as compared to control group Table 2.

No significant difference was seen as regards blood loss between the two groupTable3.

Table 4 demonstrate that use of suture was significantly less in study group as compared to control group (p<0.001). In study group, significantly less pain was seen (p<0.001) as compared to control group Table 5.Wound infection was seen in 6 cases (7.5%) of study and 10(12.5%) cases of control group while wound dehiscence was seen in 2 case (2.5%) of study and 4 cases (5%) of control group which was found insignificant statistically Table 6.

Discussion

Caesarian section is a very commonly performed operation in obstetrics. Rise in number of CS performed to the rise in range of indications, increase number of preterm delivery and legal disputes [2]. However no method can replace Lower segment caesarian section as a means of abdominal delivery of the fetus when indicated. Therefore any modification in the technique which reduces operating time, blood loss and post –op complication would be welcomed [1].

The operating time for skin incision to delivery of the baby was 2.86+_1.13 minute Versus 3.78+-1.23minute by Misgave ladhec technique and conventional technique respectively similarly found in study by Mahmud [7]. As incision to delivery interval is reduced, this technique can be used in cases of fetal distress [8].

The mean operating time in the misgave ladach group was found to be22.42+-2.35minute. As compared to32.69+_2.89 minute in the conventional group. Decreasing in operating time is associated with decrease in duration of anesthesia [5, 8]. As the total length of suture used is reduced, the method becomes cost effective [5-8]. The mean blood loss in our study was580+-72.12 ml in misgave group versus602.00+- 80.81 ml in conventional group. There is no statistically significant reduction of blood loss by misgave ladech method [7, 8]. In our study the reduction of pain was significant by Misgave Ladach technique similarly febrile morbidity was found lesser in misgav method then compared to traditional method by Hudie I *et al.* [9, 10]. Non closure of visceral and parital peritoneum is associated with reduction in operating time and is more cost effective also shown in many studies [1, 5, 7, 8]. Overall statistically no difference was found in study by Hudie [10].

However in three years (sept 2011-sept 2014) follow up of Coronis Trial for blunt verses sharp abdominal entry there was no evidence of difference in risk of abdominal hernia [11]. There was no evidence of difference in death and morbidity, no evidence of difference in relation to adhesions or infertility in future [11].

Table 1: Mean age, parity and gestational age of the two studied group.

Variables	Study Group	Control group	P value
Age (years) Mean+-SD (range	25.75+-2.76(20-35)	26.42+-3.25(20-35)	0.72
Parity Mean+-SD (range)	1+-1.5(0-4)	1+1.3(0-4)	0.81
Gestational age (weeks) Mean+-SD (range)	38.82+-1.2(38-41)	38.72 +-1.4 (38.6- 40.5)	0.75

Table 2: The secondary outcome in the two studied groups

	Study group	Control group	P value
Total optrative time(minutes) mean+-SD (range)	22.42+-2.35(20-30)	32.69+_2.89(25-38)	<0.001
Incision-to delivery time (minutes) mean+-SD (range)	2.86+_1.13(2-5)	3.78+-1.23(2-9)	<0.001
Delivery to closure time(minutes) mean+-SD (range)	17.56+-2.12(12-24)	24.60+-2.52(20-32)	<0.001
Time to ambulation(hours) mean+-SD (range)	7.23+-1.23(5-10)	9.52 +-1.47(7-13)	<0.001
Return to bowel function(hours) mean+-SD (range)22	4.62+-0.70(4-6.4)	6.26+-0.84(5-7.8)	<0.001

Table 3: Blood loss (ml) in studied groups

Blood loss	Study (n=80)		Control (80)		Statistical significance	
	range	Mean+- SD	range	Mean+- SD	"t"	"p"
In suction machine	250-520	350.75+-65.78	350-550	425.65 +- 68.72	1.823	0.069
In mop	150-250	186+_18.25	150-250	181.23+- 22.43	-0.984	0.312
Total	400-720	580+-72.12	550- 750	602.00+- 80.81	1.142	0.214

Table 4: Pain Score in studied groups

Study(no.=80)		Control (no.= 80)		Statistical significance	
Range	Mean +-SD	range	Mean +-SD	"t"	"p"
3-5	3.80 +-0.54	4-6	4.52+-0.73	3.129	<0.001

Table 5: Type of suture material used (in cm)

Type of suture material	Study group(no.80)		Control(no.80)		Statistical significance	
	range	Mean+-SD	Range	Mean+-SD	"t"	"p"
Catgut	70-90	82.00 +-6.12	150-180	152.90+-6.61	45.481	<0.001
Vicryl	70-90	75.60+-7.82	64-90	84.13+-6.50	-4.238	<0.001
Total length	140-180	165.12+-12.31	210-260	220.40 +-12.21	22.123	<0.001

Table 6: Postoperative condition of abdominal wound in studied group

Post op-condition of abdominal wound	Study(no. 80)		Control(no.=80)		Statistical significance	
	No.	%	No.	%	X2	P
Discharge from stich line	6	7.5	4	5	0.211	0.622
Wound infection	6	7.5	10	12.5	0.546	0.432
Wound dehiscence	2	2.5	4	5	0.342	0.53

Conclusion

Misgave Ladach technique is an efficient time and cost effective method. However pre and post operative parameters depend upon a number of factors like aseptic technique, surgeon's experience hospital protocol of post-operative care etc. A large and long duration of study specially in reference to next pregnancy consequences required for final conclusion.

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