

# Extraperitoneal caesarean section

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The extraperitoneal caesarean section has never been popular among large numbers of obstetricians. The main reasons behind their objections appear to be the technical difficulties encountered, the resulting high frequency of injuries to the bladder and ureter, the fact that it is time-consuming, and finally that the increasing use and demonstrated effectiveness of antibiotics have rendered it obsolete or unnecessary.

Since Frank, Latzko, Sellheim, and recently Waters, Marr, Ellis et al., and Tsuji et al., efforts have been concentrated on the safety, ease and speed of separating the anterior peritoneal fold from the dome of the bladder, exposing the entire lower segment of the uterus. A technique modifying Latzko's unilateral paravesical approach has succeeded in minimising the incidence of injuries and has reduced the time element to a total of 25 to 40 minutes. The average time, in the last 170 consecutive extraperitoneal caesarean sections for delivering the foetus has been five to ten minutes.

## SURGICAL TECHNIQUE

1. A Foley catheter is inserted into the bladder to keep it empty. There is no need to hydrate the patients with intravenous infusion of fluids to facilitate the dissection, nor is it necessary to fill the bladder with water or by injection of dyes to make it easy to identify the peritoneum and bladder.
2. The patients are given spinal anaesthesia. This relaxes the abdominal wall, allowing adequate time for the operation with no bad effects on the foetus.
3. A low medial longitudinal incision is made in the abdomen. The rectus sheath is incised.
4. The right hand is inserted under the rectus to completely separate the muscles from the peritoneum.
5. The anterior peritoneal fold should not be freed from the upper bladder surface. The left paravesical fossa is exposed with the aid of two Bissel retractors.
6. With a dry gauze sponge on each index finger, the operator opens the left paravesical space by blunt dissection to expose about 1 to 2 cm of the lower uterine segment. The level of dissection should be inferior enough so that the peritoneum is not entered. The lateral peritoneal fold then appears as a greyish-white transparent apron.

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7. With a gauze in the left hand, the peritoneal fold is pushed upward and using the right hand in a similar way, the bladder is gently retracted medially. In this manner, the posterior surface of the bladder can easily be separated from the lower segment of the uterus.
8. Thick bands of tissue seem to hold the peritoneal fold to the bladder. These are the obliterated hypogastric arteries. The obliterated vessel is isolated, ligated and cut and the peritoneal fold is carefully separated from the bladder by gentle blunt dissection with gauze. It is important not to use force, knife or scissors.
9. The bladder is separated and elevated from its lower segment bed. A lower blade of the Balfour retractor displaces the bladder under the symphysis, thus exposing the lower uterine segment.
10. In the cases of placenta previa, the engorged veins lie across the lower segment and it is necessary to tie and cut these to reduce blood loss.
11. The midpoint of the lower segment is located and a 2 cm transverse incision is made. The membranes are ruptured and the amniotic fluid is taken for culture, if desired. Sutures are inserted in the middle of both edges to act as guides in the repair. The transverse incision is extended by lateral pressure with the fingers.
12. After all the retractors are removed, the occiput is located and the vertex is rotated to an occiput-anterior position. The head is delivered by short forceps. No difficulties are encountered in delivering any of the abnormal foetal positions.
13. The oxytocic is given by the anaesthetist and the placenta and membranes are delivered manually. The uterus is closed with a double layer suture by No. 1 chromic catgut. After all bleeding has been controlled and the peritoneal flap is replaced, a cigarette drain tube is inserted in the left paravesical space. The fascia and skin are closed as usual.

The Foley catheter is left in place until the next day and the drain is removed 24 hours or more later. It is necessary to change the dressings every six hours. The patient is allowed to get up, walk, and eat anything she likes the next day.

## MATERIAL AND RESULTS COMPARED WITH LOW CERVICAL CAESAREAN SECTION

During the period of 1965 to 1970 a total of 593 caesarean sections were done at the Mackay Memorial Hospital, Taipei. Extraperitoneal caesarean section was performed in 170 cases, namely 28.7 per cent of all abdominal deliveries. The incidence of extraperitoneal caesarean section is arranged in Table I by year.

There were 125 primiparas (73.5 per cent) and 45 multiparas (26.5 per cent) in the extraperitoneal caesarean section group. On the other hand, only 128 cases, (35.8 per cent) in the intraperitoneal section group were primiparas.



**TABLE I**

Incidence of Extraperitoneal Section

Year	Total Number of Caesarean Section	Number of Extraperitoneal Section	%
1965	57	14	24.5
1966	64	25	39.0
1967	81	21	25.9
1968	100	35	35.0
1969	160	35	21.8
1970	131	40	30.6
Total	593	170	28.7%

**TABLE II**

Parity of Low Cervical and Extraperitoneal Section

Parity	Low segment section Number	%	Extraperitoneal section Number	%
1	128	35.8	125	73.5
2	113	31.6	19	11.2
3	54	15.1	14	8.2
4	28	7.8	10	5.9
Over 4	35	9.7	2	1.2
Total	358	100%	170	100%

Extraperitoneal caesarean section was performed once only in 160 cases, in two successive operations in eight cases, and in three successive operations in two cases. In many cases, it is not easy to separate the peritoneum from the rectus muscle without tearing it after the first operation.

**CONDITION OF THE MEMBRANES AT OPERATION**

Initially, extraperitoneal caesarean section was only done in patients with membranes ruptured for more than 12 hours or possibly in infected cases; but, after a while the operation was performed on any patient who needed a caesarean section. This is the reason why the ruptured cases only account for 38.8 per cent of all the extraperitoneal caesarean section cases.

The operating time of the extraperitoneal caesarean section was compared with that of the low segment caesarean section and the classical caesarean section. In five cases (2.94 per cent), it took less than 25 minutes, in 23 cases (13.54 per cent), it required 26 to 30 minutes, and in 59 cases (34.70 per cent), 31 to 40 minutes. Extraperitoneal caesarean sections were performed within 25 to 40 minutes in 51.18 per cent of all cases. In comparison only 14.84 per cent of low segment section and 9.26 per cent of classic section groups were performed within the same period of time. In many cases the foetus is delivered within 10 minutes by our extraperitoneal section technique.

**TABLE III**

Condition of Membrane at Operation

	Intraperitoneal section		Extraperitoneal section		Total	
	No.	%	No.	%	No.	%
Intact	286	67.61	104	61.17	390	65.77
Ruptured	137	32.39	66	38.83	203	34.23
Total	423	100%	170	100%	593	100%

**TABLE IV**

Operating Time

Minutes	Low segment C-section		Classical C-section		Extraperitoneal C-section	
	Number	%	Number	%	Number	%
Less than 25'	0	0	2	3	5	2.94
26' - 30'	15	4.18	0	0	23	13.54
31' - 40'	38	10.64	3	5.56	59	34.70
41' - 50'	114	31.84	16	29.63	39	22.94
51' - 60'	103	28.77	16	29.63	24	14.12
61' - 90'	73	20.39	15	27.78	20	11.76
91' - 120'	12	3.35	1	1.85	0	0
Over 120'	3	0.83	1	1.85	0	0
	358	100%	54	100%	170	100%

Indications for the extraperitoneal caesarean section are detailed as follows - cephalopelvic disproportion proved by x-ray pelvimetry and trial of labour of at least 12 hours were the indications in 93 cases (54.70 per cent). Other indications for extraperitoneal C-section were - malpresentation including primipara breech 18 cases, placenta previa - 13 cases, amnionitis - 20 cases, uterine dysfunction, four cases, foetal distress, five cases, prolonged labour, four cases, maternal distress, three cases, toxæmia of pregnancy, two cases, prolapse of cord, two cases, elderly primipara with difficult labour, one case, and abruptio placenta in two.

Morbidity, as defined by the committee on Maternal Welfare, occurred in 75 cases (44.1 per cent), of the extraperitoneal section cases and in 174 cases of intraperitoneal section cases (41.1 per cent). There were 45 cases (26.5 per cent) in which no special reason for fever was stated: 16 were due to endometritis, eight to wound infection, four to urinary tract infection, and one to parametritis.

If the "not stated" cases for fever are excluded, the morbidity of extraperitoneal section was only 30 cases (17.65 per cent). Comparing this with the morbidity of intraperitoneal section, 56 cases (13.24 per cent), almost no difference is created, even though conditions before the operation were worse in the extraperitoneal section case group.

There were 12 cases in which the peritoneum was opened (7.06 per cent), and in all cases, the opening was repaired and the operation continued. The bladder was opened inadvertently in two cases (1.18 per cent) both by surgeons doing the operation for the first time. These were easily repaired and catheter drainage was instituted for two weeks. No complications resulted



**TABLE V**

**Puerperal Morbidity**

	Intraperitoneal C-section		Extraperitoneal C-section	
	Cases	%	Cases	%
Total No. of C-section	423	100	170	100
1. Not stated	118 (3)	27.89	45 (3)	26.47
2. Endometritic	22 (10)	5.20	16 (7)	9.41
3. Wound infection	12 (3)	2.84	8 (3)	4.71
4. Urinary tract infection	12 (5)	2.84	4 (3)	2.35
5. Parametritis	2 (1)	0.47	1 (1)	0.59
6. Upper resp trest inf.	3	0.71	0	0
7. Peritonitis	2 (1)	0.47	0	0
8. Other	3	0.71	1	0.59
9. Total cases of puerperal morbidity	174	41.13%	75	44.11%

The number in the parenthesis indicates the number of cases with fever before the operation.

**TABLE VI**

**Puerperal Morbidity Excluding "Not Stated" Cases**

	Intraperitoneal C-section	Extraperitoneal C-section	Total
Case of C-section	423	170	593
Case of morbidity	56	30	86
%	13.24	17.65	14.5

**TABLE VII**

**Postoperative Afebrile Complications**

	Low segment C-section	Extraperitoneal C-section
Wound disruption	4	0
Wound infection	8	5
Urinary tract infection	2	1
Intestinal obstruction	3	0

There were no cases of intestinal complications in the extraperitoneal section cases.

from these accidents. There were no instances of exposure or damage to the ureter.

In the case of patients who remained in the hospital more than 10 days, 8.23 per cent had no complications while 35.9 per cent had complications. This is almost identical to that of the low cervical section series. Most of the patients were discharged on the seventh day after the operation.

**SUMMARY AND CONCLUSIONS**

During the period of 1965 to 1970, a total of 593 caesarean sections were performed of which 170 (28.72 per cent) were of the extraperitoneal type. The technique and details of extraperitoneal caesarean section, as done at Mackay Memorial Hospital, are described. A comparison of this group with that of 358

**TABLE VIII**  
**Complication during Operation**

	Intraperitoneal C-section		Extraperitoneal C-section	
Injury of intestine	0	0 %	0	0 %
Injury of bladder	1	0.24%	2	1.18%
Injury of ureter	1	0.24%	0	0 %
Peritoneal tear	0	0 %	12	7.06%
Injury of uterine artery	1	0.24%	0	0 %
Extension of uterine incision	2	0.47%	0	0 %
Uterine Hematoma	2	0.47%	1	0.6 %
Spinal shock	1	0.24%	0	0 %

**TABLE IX**  
**Length of Hospitalisation**

Complication	Intraperitoneal section		Extraperitoneal section	
	-	+	-	+
Day				
Within 10	219	124	85	50
Over 10	14	55	7	28
	6.01%	30.72%	8.23%	35.9%
Total	233	179	92	78

Intraperitoneal section cases excluded Porro's operation (11 cases).

cases of low segment section was done and the following were examined: operating time, puerperal morbidity, operative complications, postoperative afebrile complications and length of hospital stay.

The technique proved to be simple and safe. The average time for delivering the foetus is five to 10 minutes, and 75 per cent of all the extraperitoneal sections are performed within 50 minutes. There are almost no differences in complications compared with the intraperitoneal cases even though the preoperative conditions were worse in the extraperitoneal group.

The post-operative care was simple and easy because intraperitoneal complications such as peritonitis ileus or post operative adhesions did not occur.

The extraperitoneal caesarean section is useful not only for patients with complications but also for the properly managed patient who needs a caesarean section.

**REFERENCES**

- Ellis, J. et al. *Amer. J. Obstet. Gynec.* 82: 695: 1961.
- Frank, F. Die suprasymphysare Entbindung und ihr Verhältnis, zu den anderen Operationen bei engen Becken. *Zbl. Gynak.* 81: 46. 1907.
- Latzko, W. *Wien. Klin. Wschr.* 21: 737-1033. 1908.
- Marr, J.P. *Surg. Gynec. Obstet.* 107: 377. 1958.
- Sellheim *Zbl. Gynak.*, Nr. 5, 1908.
- Tsuji, A. et al. *Treatm. Obstet. Gynec.* 16: 3. 1968.
- Waters, J.E. *Amer. J. Obstet. Gynec.* 39: 423. 1940.