

## LOWER SEGMENT CAESAREAN SECTION WITH PARTICULAR REFERENCE TO THE THIRD STAGE

BY

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With the introduction of antibiotics, haemorrhage has now become the principal cause of maternal morbidity and mortality. Gordon, analysing maternal mortality in Brooklyn, found blood loss to be responsible in the majority of cases. Various workers like Tysoe and Lowenstein correlating blood loss and blood volume before and after childbirth, showed that blood loss from active circulation is greater than is commonly supposed. Rapid progress in the development of aseptic technique, chemotherapy and banked blood have made the operation of caesarean section comparatively safe. Its scope of application has widened tremendously.

The incidence of abdominal section, as reported by various authors in the United States, varies from 1.5%

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to 8.28%, the average being about 3.5%. The recent trend has been to discard the extraperitoneal operation in favour of the lower segment transperitoneal type supported by adequate chemotherapy.

The controversy regarding the classical section and the low flap operation is also practically over. More and more obstetricians are declaring themselves in favour of the semilunar transverse incision of Phaneuf in preference to the longitudinal incision popularized by Beck, De Lee and others.

This report is a four year review from January 1951 to December 1954. During this period the number of deliveries at the Lady Hardinge Hospital totalled 12,554 of which 306 were delivered by abdominal section giving an incidence of 2.43%. Of these, 148 cases of caesarean section were admitted under my care and personally treated by me.

TABLE 1

Year	No. of deliveries	Caesarean section	Incidence %
1951	2,755	64	2.32%
1952	2,749	68	2.47%
1953	3,184	76	2.39%
1954	3,866	98	2.53%
TOTAL	12,554	306	Overall 2.43%

TABLE II  
Type of Section

Total	Lower segment	Percentage	Classical	Percentage	Rupture uterus			
					Repair of the rupture	Percentage	Ceas, hyst	Percentage
148 cases	124	83.8%	13	8.78%	8	5.4%	3	2.02%

Looking at Table I, it is apparent that the incidence of abdominal section has been practically stationary for the last four years. In Table II, an attempt has been made to classify the different types of operation. The lower segment operation was performed 124 times giving an incidence of 83.8%. The classical section was resorted to 13 times (8.78%). In four cases the indication was a transverse lie of the baby, while in two cases, with marked osteomalacia, the extreme beaking of the pubes precluded the lower segment operation. In the remaining eleven cases rupture of the uterus was present and was dealt with accordingly.

Low, Munro Kerr and various other workers recommend a similar line of treatment. Falls, however, differs and holds that the lower segment and the classical section do not offer any difference in post-operative morbidity and mortality.

Table III deals with the indications for the operation and it is seen that these closely follow the pattern of indications found by Colvin in his ten-year study. Cephalo-pelvic disproportion and contracted pelvis are the most frequent causes. This is

partly explained by the high incidence of osteomalacic and rachitic pelvis seen in our part of the coun-

TABLE III  
Indications

Primary indication	Number	Percentage
Cephalopelvic disproportion	99	66.9%
Ante-partum haemorrhage		
Placenta praevia	29	19.7%
Accidental haemorrhage	2	1.35%
Uterine inertia	6	4.05%
Malpositions	3	2.02%
Vaginal sclerosis	2	1.35%
V. V. F. & R.V.F.	2	1.35%
Ovarian cyst	1	.69%
Intestinal obstruction	1	.69%
Repaired R.V.F. c. chronic (operated) inversion	1	.69%
Retroperitoneal tumour	1	.69%
Hydrocephalus c. rupture uterus	1	.69%
<b>Additional Indications</b>		
Vesico-vaginal fistula	9	} 18.8%
Osteomalacia	18	
Rickets	5	
Toxaemia of pregnancy	3	
Repeat sections	30	
<b>Additional Operations</b>		
Sterilization	44	
Removal of ovarian tumour	3	
Appendectomy	1	

try. In this small series, 18 patients were osteomalacic and five had rachitic flat pelves, giving an incidence of 17.2%. Due to the above complication every multipara has to be assessed anew for each delivery.

Haemorrhage was not an alarming factor in this group except when the duration of labour exceeded 30 hours or more. In the latter group the lower segment was usually found to be stretched and friable and the head jammed down in the pelvis. No foetal extractors or scalp forceps were used and the only instrument resorted to in a few cases is the Wrigley's forceps. Murlless feels that the extractor is hardly of any value in cases where the head had descended low.

The introduction of practically the whole hand below the head to lever it up is certainly a factor in causing increased trauma to the lower segment. Unlike Deickmann, Randall, at the Mayo clinic, is extending the use of the low-flap operation to include patients 48 hours in labour or longer. He feels that the transperitoneal operation is apparently made safe because of blood, antibiotics and chemotherapy.

Antepartum haemorrhage, the next commonest indication, was present in 31 cases or 21.05%. Of these, only two were cases of accidental haemorrhage. Placenta praevia figured 29 times and in many cases the baby was already dead before deciding on the operation. Due to difficulties in obtaining adequate quantities of blood for purposes of transfusion and the poor general condition of the patients, expectant treatment, as advocated by Macafee

and others, has not been possible in its entirety. This accounts partly for the high foetal prematurity and mortality. There was no case of excessive bleeding during operation in this group, showing that the low flap operation is quite safe for these cases. Death of the foetus prior to operation usually indicates a severe grade of placenta praevia or a low implantation of the umbilical cord. Regarding foetal prognosis, Meligan and Russell feel that the infant loss may be higher with the lower segment operation unless the cord is clamped without delay. Working on foetal haemoglobin estimations, they came to the conclusion that if the haemoglobin fell below 90% in the first 24 hours of life, a blood transfusion is urgently indicated to save the baby.

#### *Uterine Inertia*

Six cases were sectioned for this complication with a view to save the baby. One was, however stillborn and one died of respiratory infection in the neonatal period. Early operation may have improved the chances for these two babies. Intravenous pitocin infusion, according to Hellman, offers a much better chance for a vaginal delivery in these patients, thus reducing the incidence of caesarean section.

It is interesting to note that 9 cases in this series had had a vesicovaginal fistula, out of which three had been successfully repaired and in two others transplantation of ureters had been performed. Pregnancy and abdominal section were quite uneventful in these cases except for a recrudescence of urinary infection in

one of these cases. Recto-vaginal fistula was present in three cases, of whom one had had a successful repair combined with Spinelli's operation for chronic inversion of the uterus.

#### *Rupture Uterus*

This complication occurred 11 times and is rather a high incidence. Four of these cases had a spontaneous rupture and in one the rent in the uterus occurred after a high failed forceps outside. All these patients were admitted in an extremely poor condition. Treatment was undertaken after blood transfusions and resuscitation. Three cases were treated by caesarean hysterectomy of the supracervical type, and the rent repaired in the other two with sterilization. Of the remaining six, five ruptured through the previous classical scar and one after a lower segment operation. As most of our patients are rather young, I have been rather reluctant in carrying out a caesarean hysterectomy. The latter was only done when the rent extended into the broad ligament or into the cervix. Maternal mortality definitely appears to be lower in cases where the uterus is conserved. There were eight stillborn babies in this group. The increasing tendency towards caesarean hysterectomy in some hospitals in the United States for doubtful indications like sterilization is open to criticism.

*Repeat Section* was performed in 30 cases, or 20.23%. Most of the cases had had a previous section for contracted pelvis. Where placenta praevia or malposition was the indication previously, the patients were

allowed to deliver vaginally, provided there was no other contraindication. Two patients were admitted with pain in the scar and were immediately operated and found to have ruptured classical scars. Dippel and Brown advise soft tissue roentgenograms of the anterior uterine wall in the last month of pregnancy to determine the relative soundness of the uterine muscle in the region of the previous longitudinal scar. In one case, however, this complication could have been avoided by early resort to the operation. This was a case of osteomalacia who had had a previous lower segment section. She had, however, no living child. She went into labour prematurely at 35 weeks. She was sedated with pethidine with a view to stop the contractions. She slept off and on, but in the morning complained of pain in the lower abdomen and the foetal heart sounds, which were being checked regularly, disappeared suddenly. Laparotomy showed a ruptured lower segment scar with extrusion of the child into the peritoneal cavity. In the other patients, no delay could be detected, between the time of admission and the operation.

44 patients were sterilized, the majority by the modified Pomeroy's method and a few by the Irwing's technique. Other additional operative procedures included removal of 3 ovarian tumours and one appendectomy.

#### *Rupture of Membranes and Duration of Labour*

There is a high incidence of prolonged labour in this series. 27% of cases had a labour lasting 30 hours

or over and the longest was 96 hours. 40.5% of the cases had a labour more than 18 hours. Landesman reported 15% of his cases having a labour of 24 hours or more. The high incidence of prolonged labour is also responsible for the increased morbidity rate. The overall morbidity (temperature 100.4°F on any two post-partum days from the 2nd to the 14th day) is 43.25% which is rather high considering antibiotics and chemotherapy have been freely used both as prophylactic as well as curative agents. Zettleman and Bowers report an overall morbidity of 22.4% in their cases. In 18.25% of the cases in this group, the membranes ruptured 18 hours or more before operation was performed. There were no serious post-operative complications except a bad urinary infection in two cases and white leg in one case.

#### *Blood Loss*

In a hospital like ours which has no blood bank of its own and blood for transfusion is obtained with difficulty, the problem of haemorrhage is an extremely vital one. Our efforts are to minimise blood loss as much as possible. In cases of ante-partum haemorrhage, with history of previous serious blood loss, active treatment is instituted without waiting for a second bout of bleeding. As quite a few patients have rather low haemoglobin readings, they are poor risks for the expectant line of treatment. Out of 148 cases only 17 or 11.5% were given blood transfusions. 12 of these patients were

cases of ante-partum haemorrhage requiring blood transfusion before the operation could be undertaken. Four were cases of rupture of the uterus and one had a severe post-partum bleeding. Cohen and Posner reported an incidence of 43% blood transfusions in their cases. 79.3% of cases with prolonged labour, however, received blood transfusions. They also reported a considerable reduction in maternal morbidity following a liberal use of blood. Excessive bleeding was found to occur 7 times during operation in this series and all of them were cases of prolonged labour. In four of them signs of obstructed labour were present. In no case of placenta praevia was excessive bleeding encountered during operation. Three cases had excessive post-partum bleeding after being warded.

One case bled so profusely about four hours after operation that she went into irreversible shock and expired in spite of blood transfusion. Here, I would like to add that with a blood bank of our own, we would very much like to liberalise the use of blood in adequate quantities.

A few modifications adopted in the technique of the lower segment operation have helped to reduce blood loss during operation. The transverse incision is enlarged with the fingers, and the foetal head is levered up by the fingers of the right hand and expressed by fundal pressure. Forceps are required very occasionally for extraction of the foetal head. Injection of ergometrine into the uterine muscle is given only after the birth of the foetal head. As soon

as the baby is born, the surgeon and the assistant grasp the lateral angles of the uterine incision with haemostatic forceps and start with a mattress suture on each side, closing the uterine incision from both sides with a continuous suture till a two inch gap is left in the centre. The operation field is now practically bloodless. If at this stage the placenta has separated and presents at the opening, it is expressed by fundal pressure. If it is still not separated it is left alone and the closed portion of the incision is superimposed by a row of interrupted stitches. In nine cases out of ten the placenta is separated by now and is easily removed. Moreover, it is practically always entire and not ragged. The 2 inch gap is now closed by continuous and interrupted stitches. There is no waste of time. In fact, the operation takes less time as the operating field is clean and blood loss is found to be less than in normal labour in quite a few cases.

Due to the minimum handling of the uterus, the latter contracts well. In the event of any excessive bleeding an intravenous injection of ergometrine 0.125 mgms. is given at once.

Titus, Munro Kerr and Chassar Moir advocate the removal of the placenta before stitching the uterine

incision. I have found, however, that by allowing the placenta time to separate the third stage proceeds very smoothly and the continuous suture takes care of the bleeding from the edges of the uterine wound. No packing of the uterus has ever been found to be necessary. Marshall extracts the baby slowly, begins the interrupted suture, and then removes the placenta before proceeding further. Both lateral angles, however, must be dealt with in order to arrest the bleeding.

*Infant Mortality*

This is very high in this series giving an incidence of 18.85%. There were, however, 18 stillbirths or 12.16%, and most of them were present in cases of placenta praevia or ruptured uterus. The operation in these cases was done mainly for the safety of the mother. 10 babies were lost in the neonatal period giving an incidence of 6.75%. Of these, 4 were premature and the latter are especially known to do poorly after an abdominal section. 6 babies over 5 lbs. were lost. In two of them, the condition of the child was not good prior to operation. In one case, with prolonged labour the baby was found to have a depressed fracture of the skull. Convulsions supervened on

TABLE IV  
*Duration of Labour*

Total	Not in Labour	Percentage	Below 6 hrs.	Percentage	6-17 hrs.	Percentage	18-29 hrs.	Percentage	Above 30 hrs.	Percentage
148 cases	101 cases	68.2%	6 cases	4.05%	8 cases	5.45%	6 cases	4.05%	27 cases	18.25%

the first and second day in two babies, for which no cause could be discovered. Post-mortem was refused in both cases. There was, however, an epidemic of virus encephalitis in the city at that time. Taylor and Ward report a foetal loss of 14.4%. I agree with them that the factor of weight in the survival of these babies is an important one. For this reason all the patients were allowed to come into labour if possible before putting them up for section.

### *Maternal Mortality*

There were four deaths giving an incidence of 2.7%. Two of them were cases of rupture of the uterus admitted in a very poor condition. Supracervical cesarean hysterectomy was performed after resuscitation and blood transfusion. One died on the seventh day of severe infection and the second one never recovered from the shock. Central placenta praevia complicated the picture with severe bleeding in one case. Even a classical section after several pints of blood did not save the patient who suddenly expired due to heart failure. The last case was the most tragic. This was a case of repeat section with the foetus in a transverse lie and all rolled up. Post-maturity further complicated the picture. Classical section and sterilization was done in the usual way with practically no bleeding. Four hours later she had a severe bout of post-partum bleeding and collapsed. Blood transfusion was started and theatre prepared for hysterectomy. She, however, expired before anything could be done. 2.7% is a high

figure for maternal mortality when many of the recent reports show a mortality figure of zero or below 1%. Quigley holds that the mortality rate for the low cervical section is one half, or less, than that of the classical section. Our findings are in agreement with him. Results with the low flap operation also show that the extraperitoneal section or cesarean hysterectomy is hardly indicated even when infection is a major consideration.

### *Conclusions*

1. The incidence of abdominal section is practically stationary since the last 4 years in our hospital.

2. The lower segment operation is gradually replacing the classical and the extraperitoneal sections.

3. The high incidence of complications like osteomalacia, rickets, vesico-vaginal fistulae and rupture uteri point to poor nutritional status and lack of proper obstetric care.

4. The high incidence of prolonged labours and neglected cases is also in part responsible for the increased complications and maternal mortality.

5. A blood bank is an absolute prerequisite in bringing down the maternal mortality and morbidity.

6. The appalling infant mortality can be reduced. It is necessary to have a resident pediatrician attached to the nursery, working in cooperation with the obstetric physician all the time.

7. A premature unit is very essential for an obstetric unit of our size.

TABLE V  
Rupture of Membranes

Total	Not ruptured	Peren- tage	Below 6 hrs.	Peren- tage	6-11 hrs.	Peren- tage	12-17	Peren- tage	Above 18 hrs.	Peren- tage
148 cases	101 cases	68.2%	6 cases	4.05%	8 cases	5.45%	6 cases	4.05%	27 cases	18.25%

TABLE VI  
Blood Transfusions

Total	A. P. H.	P. P. H.	Rupture uterus
17	12	1	4
Increased Blood Loss			
During operation	7	7 cases of prolonged or obstructed labours.	
After operation (P.P.H.)	3		

TABLE VII  
Infant Mortality

Total births	Still-births	Percentage	Neonatal deaths			
			Below 5 lbs.	Rate %	Above 5 lbs.	Rate %
149	18	12.16%	4	2.7%	6	4.05%
(One set of twins)						

TABLE VIII  
Maternal Mortality

Total	%	Caesar. hyst.	Rate %	Classical	Rate %	Lower segment
4	2.7%	2	1.35%	2	1.35%	nil



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