

SCOPE OF TRANSVERSE ABDOMINAL INCISION IN CAESAREAN SECTION

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Kocher (1940) was one of the first surgeons to try to find a substitute for longitudinal incisions in laparatomies. The reason for this search was to avoid postoperative hernia. As early as 1823 Baudelocque (quoted from Tollefson *et al* 1954) advocated the use of a transverse abdominal incision for performing caesarean section. In 1900 Phannenstiel of Breslau (quoted by William 1960) described an incision in the lower abdomen cutting the skin, superficial fascia, and aponeurosis transversely with separation of the recti transversely. Sometimes, this incision is described as a transverse one through skin and superficial fascia followed by a vertical incision through aponeurosis and peritoneum when it is called a "Modified Phannenstiel incision". Maylard (1907) observed that a muscle cutting transverse incision on the anterior abdominal wall heals better than any other incision in that region.

In this series 175 caesarean sections have been performed by the muscle retracting technique with transverse subumbilical incision and transverse incision in the peritoneum.

The object of this study was

- (a) to evaluate indications of cases where transverse incision was used.
- (b) Assess the technical advantages and disadvantages in cases of
 - (i) Repeat caesarean section
 - (ii) Repeat transverse section
- (c) Compare the results with those of longitudinal caesarean section.

Material and Methods

Two hundred and seventy-five consecutive cases of caesarean section were taken from the Eden Hospital from January 1972 to May 1973. In one hundred and seventy-five patients transverse incision in abdomen was applied, while vertical incision was used for lower segment caesarean section in one hundred cases.

The incision was made at the junction of lower 1/3 and upper 2/3 between the umbilicus and symphysis pubis 1" below the interspinous line. The skin subcutaneous fat and rectus sheath were cut transversely in the majority of cases. The important vessels encountered were the superficial epigastric vessels. The rectus muscles were retracted on both sides after the sheath had been separated properly from the upper and lower part of the rectus muscle by snips of scissors and gentle gauze dissection. Then the peritoneum was cut transversely taking care about the position of the deep epi-

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gastric vessels. In a few cases the peritoneum and fascia transversalis were cut longitudinally. The upper flap was held with tetra towel clip in the midline and fixed with Allis forceps for adequate exposure.

No packing of the intestine was necessary because no loop of bowel comes into the field of the operation. The upper edge of the abdominal wall rests effectively over the retracted uterine body, preventing the intestines from coming over the operative field.

The delivery of the head in the series was done mostly by the manual method. In some cases where the head was absolutely floating extraction of the head was done either with the help of one blade of forceps or by guiding the head with the help of an Allis forceps along with fundal pressure. During closure of the abdomen the parietal peritoneum was sutured with double 'O' catgut with atraumatic needle by a continuous stitch. The rectus muscles were apposed by 4 or 5 interrupted stitches. According to Biswas (1973) the rectus muscles are not to be sutured together, as fibrosis may result and might cause difficulty as well as oozing of blood during subsequent laparotomy, especially in respect caesarean section. But, from the author's view point, no such difficulty was encountered during opening the abdomen in repeat caesarean section cases where two previous caesarean sections were done by transverse incision. Then the skin was closed with interrupted stitches or a continuous running stitch.

Majority of patients were primigravidae where the muscles of the abdominal wall are tight. No difficulty was encountered during the retraction of the muscles

Results

TABLE I

Indications For Which Caesarean Section was Done Using the Transverse Abdominal Incision

Indication	No. of cases
Toxaemia	20
Post-caesarean pregnancy (previous long incision) ..	24
Repeat caesarean (previous transverse incision) ..	8
Placenta praevia	30
Acc. haemorrhage	5
Prolonged labour	17
Cervical dystocia	8
Breech	12
Transverse	12
Face	4
Brow	1
Primi with borderline C.P.D. ..	11
Primi with long period of infertility	2
Postdated pregnancy with failed induction	4
Foetal distress (either from prolonged labour or after Syntocinon drip, cord round the neck, short cord, etc.)	12
Total cases	175

TABLE II

Difficult Cases Where Transverse Incision was Used

Post-caesarean pregnancy ..	24
Prolonged labour	17
Primigravida with borderline cephalopelvic disproportion ..	11
Foetal distress	12
Repeat caesarean section ..	8
Transverse presentation (Admitted as Emergency from outside the hospital)	12
	84

sideways. In very few cases the medial fibres of the muscle had to be cut.

TABLE III

Parity of Patients Where Transverse Incision was Used

Primigravida	51.4%
Second gravida	14.8%
Third gravida	8%
Fourth gravida	1.7%
Fifth gravida	4.5%
Sixth gravida	8%

TABLE IV

Difficulties in Extraction of the Head in Cases of Transverse Incision

Floating head (Particularly where the patients were not in labour)	14
Ant. placenta praevia	4
Post-caesarean pregnancy	6
Prolonged labour (Head deeply engaged)	5
Cases	29

Only in 29 cases out of the 175 caesarean sections in this series, there were difficulties in the extraction of the head. In these cases the head was either deeply engaged or absolutely floating or there was adhesion of the peritoneum with the muscles and sheath as in the case of previous longitudinal incisions. In most of the cases, the stitches were removed on the 4th postoperative day and only in a few cases on the 5th day. Majority of them were discharged on the 6th postoperative day, if there were no complications.

TABLE V

Incidence of Abdominal Wound Dehiscence in Lower Segment Caesarean Sections and Comparison with others

Thompson and associates	0.5%
Mowat, et al	0.37%
Whitaker	0.9%
Naidu, et al	Negligible
Biswas	Nil
Present series	1.1%

Out of 175 cases there was wound infection in 5 cases and superficial disruption of wound in 2 cases where secondary suture were needed. Wound infection was cured by simple strapping of the wound after proper dressing with local antibiotic drops. Postoperative complications were practically nil. In only one patient there was slight distension and this was cured by conservative treatment. No complete dehiscence occurred in any case. According to Sloan (1927) the wound dehiscence and disruption are reduced following a transverse incision.

In the present series, percentage of infection and disruption is high in comparison to other authors. This might be due to the fact, that all of these patients were undergoing emergency caesarean section, and had come from low socio-economic conditions.

TABLE VI

Wound Infection in Transverse Incision and Comparison with Other Authors

Author	No. of cases	No. of wound infection	Percentage
Naidu et al	433	4	0.9
Hunter et al	700	26	3.7
Donald et al	236	6	2.5
Biswas	143	2	1.3
Present series	175	5	2.8

Discussion

Transverse incision in the lower abdomen for caesarean section can safely be undertaken as an ideal method. Although Naidu et al (1966) have demonstrated that the muscle-cutting incision is superior to the muscle retracting one such procedure is probably necessary for major gynaecological operations. The rectus muscles are widened and stretched by the enlarged uterus and therefore mus-

TABLE VII

Wound Dehiscence in Transverse Incision and Comparison with Longitudinal Incision

Author	Type of incision	No. of Caesarean section	Wound infection	Wound dehiscence	Wound resuture
Biswas	Transverse	143	2	—	1
	Longitudinal	197	20	2	15
Present series	Transverse	175	5	2	2
	Longitudinal	100	20	8	15

cle cutting is unnecessary in caesarean section; cutting of the rectus muscle and the inferior epigastric vessels causes troublesome haemorrhage and should be avoided in caesarean sections.

Fitzgerald and Lees (1960) quoted by Naidu *et al* (1966) admit that the drawback with Phannenstiel incision is that the exposure obtained is not adequate. In this series adequate skin incision and proper retraction of the muscles laterally gave good exposure and easy approach to the lower uterine segment.

In the present series, it has been found, that if the head is fixed, it is more easily negotiable than when it is floating. In cases where the head is absolutely floating, extra fundal pressure and guiding the occiput by an Allis tissue forceps is enough to deliver the head. One should not apply force on the Allis forceps as it's use is not traction but only to control the direction of the head.

In this series 84% belonged to the difficult group of patients and 51.4% were primigravidae.

As the uterine wound is under the peritoneal incision there is no difficulty in suturing even when there is an extension of the wound. In cases of prolonged labour when the bladder is drawn up abdominally, the assistant will have to draw down the bladder carefully.

All the above mentioned cases were admitted from outside after rupture of membrane and were in labour for more than 24 hours.

Coller, Thompson & Maclean (1949) have shown that postoperative adhesions were negligible with transverse incisions, and the pus in the wounds could be drained out by the lateral dependant angles. In the present series, there were 8 cases where repeated transverse incisions were put in the same patient (5 cases with two consecutive transverse incisions for previous caesarean sections, and in one case with three consecutive transverse incisions). None developed adhesions nor was any difficulty encountered during the opening of the abdomen.

Twenty-four cases of previous longitudinal incisions were also performed by transverse incisions. In 8 cases extensive omental adhesions were found in the upper part. Therefore, transverse incision even in the presence of a previous longitudinal incision is not a bad choice.

Contrary to the common belief, rapid access to the abdominal cavity could be obtained where necessary, even in transverse incisions. In this series, we have used the transverse incision on 12 cases of foetal distress, 35 cases of APH, 2 cases of cord prolapse and 4 cases of ruptured ectopic pregnancy.

Lastly, the transverse incision has obvious cosmetic advantages.

Disadvantages

Inadequate exposure is said to be one of the shortcomings, but it has been found that if the skin incision is adequate, and if the aponeurosis is separated well upwards and downwards and the rectus muscles are retracted properly, there is no difficulty in opening the abdominal cavity.

There may be more bleeding than in longitudinal incisions, but this is seldom serious. When a longitudinal and transverse incision are used successively for two different operations on the same patient, an unsightly cross bow or anchor shaped scarring may result. Transverse incision may be avoided in such a case.

Therefore, we find that all the contra-indications for a transverse incision are relative rather than absolute. Incisional hernia is almost unknown in Phannenstiel incision although one series mentioned a higher rate of incisional hernia in this incision compared to vertical incision. It is not yet possible for us at this stage, within such a short period of time to make any comments on incisional hernia in transverse incision.

Most of the patients were discharged within 4-5 days with good union of the wound, which is hardly possible in cases of operation by vertical incision.

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