Abdominal Wound Dehiscence after Caesarean Section

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Summary

In a series of 2,175 patients delivered by caesarean section a dehiscence of the abdominal wound occurred in 50. Wound dehiscence was eight times more common with a vertical incision than with a low transverse incision of the abdominal wall; with the vertical incision the incidence of partial and complete dehisence was 2·94% and with the low transverse incision no complete dehiscence occurred and the incidence of partial dehisence was 0·37%. The increased use of the low transverse incision would greatly reduce the serious complication of wound dehiscence after caesarean section.

Introduction

In England and Wales over 30,000 caesarean sections are performed annually. The calculated fatality rate for the operation is 1·6 per thousand caesarean sections, which is 10 times the mortality rate for vaginal delivery in this country (Arthure *et al.*, 1969). Morbidity after caesarean section is difficult to estimate, but one of the most serious complications which can mar the patient's postoperative recovery is disruption of the abdominal wound. This report concerns 50 cases of wound dehiscence which occurred in a consecutive series of 2,175 caesarean sections carried out in the Glasgow Royal Maternity Hospital during the years 1964-9. Only those patients in whom the extent of the dehiscence necessitated a return to the theatre for wound resuture, almost invariably under general anaesthesia, are included. Those with minor degrees of wound separation are not considered. The group consisted of 25 patients in whom complete dehiscence had occurred, with bowel or omentum appearing in the wound; in the other 25 the separation of the wound involved the anterior fascial sheath but the peritoneal layer remained intact.

The literature contains few reports on the incidence of wound dehiscence after caesarean section. Tweedie and Long (1954) reported an incidence of major wound disruption of 0·14% and Notelowitz and Crichton (1967) an incidence of 0·27%. The present series includes both partial and complete dehiscence and the incidence was 2·3%.

Factors Studied

TYPE OF INCISION

The type and location of abdominal incisions have generally been accepted as important factors in wound disruption (Wolf, 1950). The lower abdominal vertical incision used in the present series was either midline or paramedian. The wound was repaired by independent suture of the peritoneum and rectus sheath with catgut and the skin was closed with black silk and Michel clips. The low transverse incision was made as a straight or slightly curved line at a level of 2-4 cm above the symphysis pubis; the anterior rectus sheath was divided transversely to a point about 2 cm beyond the limit of the skin incision; the rectus muscle was separated from the anterior sheath superiorly almost to the umbilicus and inferiorly down to the symphysis pubis; the recti were then separated in the vertical plane; and the peritoneum was opened at a point midway between the symphysis pubis and the umbilicus. The transverse incision was closed by suture of the peritoneum in the vertical plane, approximation of the recti was carried out by interrupted catgut sutures, catgut was used to repair transversely the anterior rectus sheath, and the skin was closed with black silk sutures and Michel clips.

Incidence of Abdominal Wound Dehiscence Related to Type of Incision for Lower Uterine Segment Caesarean Section

Type of Incision	Caesarean Section	Wound Dehiscence	Percentage Incidence
Vertical	1,635	48	2·94
Low transverse	540	2	0·37
Total	2,175	50	2·3

To assess the importance of the incision the number of wound disruptions must be related to the frequency with which the particular incision is used (see Table). A vertical incision, either midline or paramedian, was made in about 75% of the series (1,635) and a low transverse incision in the remaining 25% (540). Of the 50 patients with wound dehiscence, 48 had a vertical incision, the dehiscence being complete in 25 and partial in 23; a partial wound dehiscence developed in two patients who had a transverse incision. Thus in this series complete wound dehiscence did not occur when the operation was performed through a low transverse incision, and the overall incidence of dehiscence was 2·94% when a vertical incision was used and 0·37% with a transverse incision. The dehiscence rate was therefore eight times more frequent with the vertical than with the transverse approach. The incidence of this complication was not related to the experience of the surgeon. In 42 of the 50 patients with wound dehiscence the caesarean section was performed by a consultant or senior registrar.

The mean age of the patients was 34·3 years (S.D.=6·1) and the complication had no relationship to parity.

EMERGENCY OR ELECTIVE CAESAREAN SECTION

Morbidity after caesarean section is generally held to be greater when the operation is performed as an emergency rather than as an elective procedure. In this series 24 of the 50 patients with wound dehiscence had an emergency operation. This, however, approximates to the incidence of the emergency operation to the elective procedure in the hospital. The risk of dehiscence must therefore be considered as equally great in both circumstances.

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RUPTURED MEMBRANES AND WOUND INFECTION

In 10 of the 24 patients who had emergency operations the membranes had been ruptured for more than 48 hours. The hazard of intrauterine infection was considerably increased in these patients, and this may have been a factor predisposing to wound disruption. Clinical signs of wound infection, however, were rare; slight inflammation was noted in 13 of the 25 patients with partial wound dehiscence but in the 25 who suffered a complete dehiscence pyrexia and wound inflammation were rarely seen.

TIME OF OCCURRENCE

Most complete wound separations develop in the deeper layers in the first few days after operation. A serosanguinous discharge from the wound is usually the first sign that separation of the deeper layers has occurred and the peritoneal cavity is communicating with the depths of the wound. Often the complication goes unrecognized until the skin sutures are removed and the skin layers separate. In this series the dehiscence was diagnosed in 32 cases between the sixth and ninth days, when the sutures were removed, in 15 between the tenth and the fourteenth days, and in 3 the wound broke down after the fourteenth day.

PREVIOUS CAESAREAN SECTION

Twenty-one of the 50 patients had had a previous delivery by caesarean section. This approaches the incidence of repeat caesarean section in the hospital and suggests that excision of a previous scar does not per se predispose to wound dehiscence.

POSTOPERATIVE STAY IN HOSPITAL

The average postoperative stay for patients with wound dehiscence was 22 days (S.D.=5). The usual postoperative stay after an uncomplicated caesarean section in the hospital during this time varied between 10 and 14 days. Wound dehiscence is therefore a major factor in prolonging the patient's stay in hospital after caesarean section.

OTHER COMPLICATIONS

One of the patients in the series died with a pulmonary embolism on the fifteenth postoperative day. She was aged 42 and the vertical incision was resutured on the seventh postoperative day. This probably represents one of the added hazards that can accompany wound disruption, as this complication inevitably leads to a prolonged postoperative stay in hospital and the restriction of mobility at a time when the risk of thromboembolism is considerably increased.

Conclusions

This review indicates that the type of incision used for caesarean section seems to be a most important factor in abdominal wound dehiscence after the operation. Though the transverse lower abdominal incision is often used in gynaecological surgery the vertical incision is by far the most common approach for caesarean section. The present investigation indicates that the more frequent use of a low transverse incision would considerably reduce the incidence of wound dehiscence. This approach would also undoubtedly reduce the incidence of incisional hernia after caesarean section. With modern anaesthesia and muscle relaxation a first caesarean section through a transverse incision can usually be performed without difficulty. Particular care is, however, required when repeat caesarean section is performed through the transverse incision; dense fibrosis of the anterior rectus sheath may be present and some difficulty can arise in defining the layers of the abdominal wall and the precise position of the bladder.

Another important feature in the patients who had wound dehiscence after emergency caesarean section was the high incidence of prolonged rupture of the membranes In this particular situation, therefore, where the risk of dehiscence appears to be increased, the transverse incision should be considered in order to reduce its likelihood. Overt wound infection does not appear to be a contributory factor, particularly in the more severe degrees of dehiscence.

Patients undergoing caesarean section are in the main healthy young women, and wound complications should be relatively infrequent. In the early postoperative period abdominal distension often occurs and the layers of the abdominal wound are therefore under considerable strain. With such conditions, despite a good surgical technique, wound dehiscence may develop, as may defects which later present as incisional hernia. A more frequent use of the transverse incision would greatly reduce the incidence of both these complications.

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