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A Comparative Study Between Midline Vertical and Pfannestiel incision in lower Segment Caesarean Section With Reference to Wound Complications

KEYWORDS: caesarean section , Pfannenstiel incision, vertical incision

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ABSTRACT *Caesarean section is the commonest major emergency operation performed by the obstetricians worldwide. Various abdominal incisions have been used for caesarean section like vertical (vertical and paramedian) incisions and transverse incisions (Pfannenstiel, Maylard, Cherney, Joel-Cohen, etc.) . In India, midline and Pfannenstiel incisions are often used. The success depends on careful selection of incision and proper closure of the wound. Wound infection is a serious complication that significantly increases postoperative morbidity, hospital stay and cost.In this study it is concluded that with experts hands there is no significant difference in caesarean section wound complications when type of incision is considered. Pfannenstiel and vertical each incision has its own merits and demerits.*

INTRODUCTION:
Caesarean section is the commonest major emergency operation performed by the obstetrician worldwide[10,14,17]. Various abdominal incisions have been used for caesarean section[9,14]. The type of incision used may depend on many factors including, its simplicity, exposure, healing characteristics, clinical situation and preference of the operating surgeon. In India, midline and Pfannenstiel incisions are often used. The success depends on careful selection of incision and proper closure of the wound. Women undergoing caesarean section are usually young and otherwise healthy and operative time is short, till there are multiple factors which leads to wound dehiscence.

AIMS & OBJECTIVES
1. To compare the merits and demerits of the midline vertical & Pfannenstiel incision used for lower segment caesarean section.
2. To compare the post-operative wound complications in both the incisions.

MATERIAL & METHOD
This study include total 120 women, who underwent lower segment caesarean section In our tertiary hospital over the period of two years..

These Patients were divded into 2 major group :

Group - A:- 60 Patients with midline vertical incision.
Group - B:- 60 Patients with Pfannenstiel incision.

The peritoneum was sutured with chromic catgut in all cases & Rectus sheath was sutured with Vicryl (1) with continuous interlocking method.

Skin was sutured with Nylon no (1) with mattress stitches in all cases.

All patients received same antibiotics and analgesic except in post operative complication where antibiotics changed according to culture & sensitivity. Patients observed preoperatively, during operation & post operatively.

The parameters observed in both groups as type of incision, time required for opening the abdomen, degree of exposure, total duration of surgery & blood loss during surgery. Wound was examined on 3rd day if any local or constitutional symptoms appear. All other wound opened on 7th postoperative day for suture removal. Wound complications noted were as wound discharge: serous or pus. If any discharge was present it was sent for culture and sensitivity.

Wound dehiscence was assessed as

Superficial - only skin & subcutaneous tissues.

Deep - Rectus sheath involved.

Follow up of patient was after one and six month for any complication.

INCLUSION CRITERIA:
All patients who required lower segment caesarean section were included irrespective of type of surgery i.e. elective or emergency.

EXCLUSION CRITERIA:
Patients with systemic diseases like severe anaemia (Hb<6.5gm%) Diabetes mellitus, cardiac disease, Tuberculosis, Syphilis, Jaundice, Thyroid dysfunctions, severe preeclampsia & eclampsia, HIV- AIDS and malignancy were excluded. Obese patients (body mass index > 30) were also excluded.

RESULTS:
Age Distribution:
Majority of our patients were in the age group of 20-25 years (78%). This may be attributed to the starting of reproductive life early in Indian setup.

Table no 1: Age Distribution

Age Group (Years)	Pfannenstiel Incision	Midline Vertical Incision	Total (%)
< 20	08	06	14 (11.66%)
20-25	40	38	78 (65.00%)
26-30	10	14	24 (20.00%)
> 30	02	02	04 (03.33%)

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In this study,around 16% cases were done electively & (84%) of cases were done in emergency.

Time for opening abdomen :
Average time required for opening abdomen in vertical group was 9.2 min while in Pfannenstiel group it was 13.2 min. The average duration for surgery in midline vertical group was 49.38 min less than Pfannenstiel group (55.16 min). The longer time in case of Pfannenstiel may be attributed to longer time required for opening abdominal cavity.

Blood loss in surgery:
Total blood loss in midline vertical group (475ml) was less than Pfannenstiel group (570ml), which was statistically insignificant.

Wound complications:
Wound complications seen in 8 patients in Pfannenstiel incision group and in 16 patients in Vertical incision group.

Table 2: Comparision of vertical & Pfannensteil incision

	Variables	Vertical incision	Pfanastial incision	
1	Average Time of anterior abdominal wall Opening (min)	9.2	13.2	P= 0.47
2	Average total duration of operation (min)	55.16	49.38	P=0.33
3	Average blood loss (ml)	475	570	P= 0.44
4	Discharge from wound	11	4	P=0.933
5	Superficial gap	3	3	-
6	Deep gap	2	1	P=0.495
7	Brust abdomen	0	0	-

•Statistical calculation done by http://www.socscistatistics.com/tests/studentttest/Default2.aspx

Post operatively:
The wound discharge was present in 6.67% in Pfannenstiel group & 18.33% in vertical group (p> 0.05). Incidence of superficial gape was same 5% in both types of incisions. Deep gape was 1.67% in Pfannenstiel group and 3.33% in midline vertical group (p> 0.05). Over all incidence of wound complications in Pfannenstiel group was 13.33% and in midline vertical group it was 26.66%.

In our study, out of 120 cases not a single case was presented with burst abdomen. The organisms most commonly isolated in wound discharge were Staphylococcus aureus (37%) & E. Coli (29%) organisms.

DISCUSSION:
There is an on-going debate, biased by personal preference and convention, concerning the relative merits of vertical as opposed to transverse incision. The ideal method should be technically so simple that results are as good in the hands of trainee as in those of surgical masters, it should be free from complication and comfortable to the patient and it should result in a reasonably esthetic scar.

Quick entry into abdominal cavity is important in emergency cases. vertical incision allows this quick entry compare to Pfannenstiel incision[19]. Traditionally, vertical incisions were used for caesarean delivery. This incision has the presumed advantage of speed of abdominal entry and less bleeding[1]. Exposure can be increased in vertical incision by increasing length of incision but In Pfannenstiel incision, instead of increasing length degree of exposure can be increased by converting it into Maylard's muscle cutting incision[2,6,12]. In Pfannenstiel incision, branches of inferior epigastric vessels are injured at the lateral ends of incision[12,19,20]

Increased duration of surgery is also attributed to the wound complication rate. In many studies find that, Pfannenstiel incisions take longer time to make as compare to midline Incision[3,5,12] .In our study there is no significant difference regarding time of abdomen opening and time of surgery in both incision type(P> 0.05) .

Our incidence of surgical site infection comparable with other studies (3-15%) till it was statistically insignificant although its more in vertical incision. (p>0.05)[7,11,13,15,18].

The prolonged labour, premature rupture of membranes and chorio-amnionitis were associated with increased infection morbidity[3,8,18]. In our study, among the wound complications deep gape (Rectus sheath involved) was founding 1 case in Pfannenstiel group and 2 in midline vertical group. However all the three cases were associated with prolonged labour with premature rupture of membrane. Incidence of burst abdomen is less as compared to other wound complications and it is more in vertical group.

We have similar experience in our study as that of Gilstrap who stated staphylococci aureus as the most common organism in infection following caesarean section[4,13,15,16].

Conclusion
Pfannenstiel skin incision for primary caesarean section should be recommended due to its cosmetic effect and reduced incidence of wound infection. However vertical incion has its own advantages like less vascular and adequate exposure.The choice of incision varies from patient to patient according to different factors like time of surgery,exposure required,cosmetic value of incision,expected blood loss and anticipated wound complications.

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