

# Which skin incision for caesarean section?

Experiences of patients and doctors at three South African public hospitals



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**Background.** In South African public hospitals there is still no agreement on the best skin incision for caesarean section (CS). Vertical incisions may be easier to perform, but transverse incisions give better cosmetic results, with reduced risks of wound dehiscence and hernia formation.

**Objectives.** To explore women's views on CS skin incisions, and to determine incision preferences of obstetric surgeons in three large Johannesburg public hospitals.

**Methods.** A descriptive study was undertaken in two parts. Interviews were conducted with randomly selected women 3 days after primary CS, and a questionnaire was completed by doctors who regularly performed CS.

**Results.** Four hundred women were interviewed. There were 247 transverse (62%) and 153 vertical (38%) incisions. Three hundred and seventy-three women said they were satisfied with their skin incisions. Twenty-two stated that they were unhappy with the cosmetic results; of these 21 had had vertical incisions ( $p < 0.001$ ). Three hundred and ninety-four patients (98.5%) stated that they had received no preoperative counselling on skin incisions. Eighty-five per cent said they would have chosen transverse incisions if given the choice. Fifty-five doctors were interviewed, of whom 96% generally preferred transverse incisions for elective CS, with 49% preferring transverse incisions for emergency CS. Regarding preoperative counselling, 45% of doctors stated that they 'sometimes' provided information on skin incisions and 21% stated that they 'always' did so.

**Conclusion.** While most women in this study were satisfied with their skin incisions, a majority would have chosen transverse incisions if given the choice. Doctors communicate insufficiently with patients about skin incisions at CS. Transverse skin incision should be the approach of choice unless there are specific contraindications.

Caesarean section (CS) is the most common major operation performed in developing countries, but there is still no consensus on the best skin incision. The alternative approaches are vertical subumbilical, and transverse (Pfannenstiel, Joel Cohen) incisions.<sup>1,2</sup> It is thought that vertical skin incision may make the operation easier for an inexperienced surgeon, and that there may be fewer problems with access in the event of subsequent CS. These could be important considerations in under-resourced areas where major surgery is frequently performed by generalist or inexperienced doctors. Transverse incisions have, however, become the norm for uncomplicated CS in developed countries and in specialist private practice. The advantages are better cosmetic results and reduced risks of wound dehiscence and hernia formation.<sup>2</sup>

It is generally assumed that women prefer transverse incisions. However, no research has been done to confirm this assumption. In developing countries, where vertical incisions are commonly performed, the views of women need to be heard so that surgeons

can understand their concerns better, and provide explanations where necessary. We undertook this study to explore women's views on CS skin incisions, and to determine the incision preferences of obstetric surgeons at three large Johannesburg public hospitals.

## Methods

This was a descriptive study, divided into two parts. Interviews were held with women who had undergone CS, and a questionnaire was completed by doctors who performed CS. The study was conducted at Chris Hani Baragwanath, Coronation and Johannesburg hospitals, all government-run teaching and referral centres. The population served by these institutions is mostly working class and black, with a small proportion of mixed-race users, and a very small number of Asian and white patients. All three hospitals are staffed by consultants and registrars from the Department of Obstetrics and Gynaecology of the University of the Witwatersrand, with all registrars rotating through the three hospitals.

We interviewed patients on the 3rd postoperative day. These patients were selected from the operation register using a random number table applied to a list of CSs performed over a 24-hour period, 3 days previously. We excluded women who had had a previous CS or previous abdominal surgery. Sampling was done when convenient, with interviews conducted on days when the researcher (OR) had sufficient time. The researcher personally interviewed all women, using an interpreter from the ward staff when necessary. Questions included the type of skin incision used, whether this had been discussed preoperatively, and the patient's feelings about the incision. Questionnaires were given to all doctors who performed CSs at the three hospitals; they were asked which incision they normally used in public hospital practice and whether they discussed this preoperatively with their patients. They were also asked when they would select transverse or vertical skin incisions. Results from the data sheets and questionnaires were analysed on Epi-Info 6 statistical software using descriptive statistics and Fisher's exact test for comparison of frequencies.

## Results

Four hundred women were interviewed, 200 at Chris Hani Baragwanath, 100 at Coronation and 100 at Johannesburg hospitals. The mean age was 26 years, and 203 women (51%) were primiparous. There were 247 transverse (62%) and 153 vertical (38%) incisions. Three hundred and seventy-three women (93%) said that they were satisfied with their skin incisions. Of the 27 women who were not satisfied with their incisions, 22 stated that they were disappointed with the cosmetic results; of these 21 had had vertical incisions (Table I). Three hundred and ninety-four women (98.5%) stated that they had received no preoperative information on skin incisions, and 390 (97.5%) agreed with the suggestion that they should have been able to discuss this with the surgeon before the operation. When

asked what type of incision they would have liked, 340 women (85%, 95% confidence interval (CI): 81 - 88%) indicated a preference for transverse incision.

Fifty-five doctors were identified as regularly performing CS, and 47 of these completed questionnaire forms, a response rate of 85%. These included 20 consultants, 23 registrars and 4 medical officers. Transverse skin incisions were generally preferred by 45 doctors (96%) for elective CS, and by 23 doctors (49%) for emergency CS. When asked their skin incision preferences for selected emergency indications, 44 doctors (94%) preferred transverse incisions for failed induction of labour and 33 (70%) for breech presentation. Seventeen surgeons (36%) chose transverse incisions for abruptio placentae and 15 (32%) for placenta praevia (Table II). Regarding preoperative counselling on skin incisions, 4 doctors (9%) said they never provided any information, while 12 (26%) did so 'seldom', 21 (45%) 'sometimes', and 10 (21%) 'always'.

## Discussion

In this study a large majority of women (93%) were satisfied with their CS skin incisions, and at the time of asking seemed largely indifferent to the type of incision used. However, 14% of those who had vertical incisions were dissatisfied with the cosmetic results on the 3rd postoperative day. Most of the women questioned (85%) said they would have chosen transverse incisions had they been given the opportunity. We did not enquire into the reasons for choosing a transverse incision, but it is likely that it was considered more cosmetically appealing. It is unfortunate that only 6 of 400 women were engaged in any preoperative discussion on their skin incisions.

Results from the doctors' questionnaires indicated that vertical skin incisions are still popular for emergency CS in our hospitals, especially where bleeding is anticipated (abruptio placentae and placenta praevia),

**Table I. Women dissatisfied with the cosmetic results of transverse and vertical caesarean section wound incisions, 3 days after operation\***

Incision	Number	Per cent	95% confidence interval
Transverse (N = 247)	1	0.4	0.00 - 2.24
Vertical (N = 153)	21	14	9 - 20

\*Fisher's exact test,  $p < 0.001$ .

**Table II. Doctors' preferences for transverse skin incision as opposed to vertical skin incision for emergency caesarean section, for a number of selected indications (N = 47)**

Indication	Number	Per cent	95% confidence interval
Failed induction of labour	44	94	81 - 98
Breech presentation	33	70	55 - 82
Cephalopelvic disproportion	28	60	44 - 73
Fetal distress	24	51	36 - 66
Chorioamnionitis	19	40	27 - 56
Abruptio placentae	17	36	23 - 52
Placenta praevia	15	32	20 - 47



where there is a risk of infection (chorioamnionitis and cephalopelvic disproportion), and where the baby needs to be delivered rapidly (fetal distress). The doctors' accounts of the information they gave to patients on skin incisions did not agree with the women's statements. If 45% and 21% of doctors truly gave preoperative information 'sometimes' and 'always' respectively, one would have expected many more women to have indicated this in their interviews. Doctors probably intend to discuss incisions with their patients, or believe that it is right to do so, but in practice do not communicate with patients preoperatively. Our own experience of the operating facilities at these hospitals bears this out.

A review of the literature failed to find studies exploring women's opinions on CS wound incisions. If it is assumed that women in developed countries prefer transverse incisions, it can at least now be stated that this is probably the case in developing countries as well. No studies have shown any clinical benefits associated with vertical incisions. The last study to compare the two approaches was a small randomised trial published in 1976,<sup>3</sup> in which transverse incision was associated with a greater need for blood transfusion, increased operating time and reduced febrile morbidity, although none of these differences reached statistical significance. A more recent observational study<sup>4</sup> found an increased risk of wound infection with vertical incision. It is

difficult to envisage any further randomised trials comparing vertical and transverse skin incisions for CS, as women would probably refuse to be randomised to receive vertical incisions. No studies could be found to support the views that vertical incision provides a safer approach for an inexperienced surgeon, or that repeat CS is more difficult or dangerous with previous low transverse abdominal scars.

We have noted the wishes of most of the women in our study, and have found no clear evidence of benefit of vertical skin incision for CS in the literature. We therefore can only agree with the view expressed in a recently published South African obstetrics textbook, viz. that 'a Pfannenstiel incision is executed in all patients except those who have previous midline scars, a bleeding diathesis, or an indication for classical caesarean section'.<sup>5</sup> Obstetricians who intend to use vertical skin incisions for CS should inform their patients preoperatively and explain, in each case, why this surgical approach is considered necessary.

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