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# Is there an association between female circumcision and perinatal death?

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& Jens Langhoff-Roos<sup>6</sup>

**Objective** In Sweden, a country with high standards of obstetric care, the high rate of perinatal mortality among children of immigrant women from the Horn of Africa raises the question of whether there is an association between female circumcision and perinatal death.

**Method** To investigate this, we examined a cohort of 63 perinatal deaths of infants born in Sweden over the period 1990–96 to circumcised women.

**Findings** We found no evidence that female circumcision was related to perinatal death. Obstructed or prolonged labour, caused by scar tissue from circumcision, was not found to have any impact on the number of perinatal deaths.

**Conclusion** The results do not support previous conclusions that genital circumcision is related to perinatal death, regardless of other circumstances, and suggest that other, suboptimal factors contribute to perinatal death among circumcised migrant women.

**Keywords** Circumcision, Female/adverse effects; Labor complications/etiology; Infant mortality; Transients and migrants; Cohort studies; Africa, Eastern; Sweden (*source: MeSH, NLM*).

**Mots clés** Infibulation/effets indésirables; Accouchement compliqué/étiologie; Mortalité nourrisson; Population passage et immigrants; Etude cohorte; Afrique orientale; Suède (*source: MeSH, INSERM*).

**Palabras clave** Circuncisión femenina/efectos adversos; Complicaciones del trabajo de parto/etiología; Mortalidad infantil; Transeúntes y migrantes; Estudios de cohortes; África Oriental; Suecia (*fuentes: DeCS, BIREME*).

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*Voir page 631 le résumé en français. En la página 632 figura un resumen en español.*

## Introduction

Much has been written about complications arising from female circumcision (defined by WHO as female genital mutilation involving the partial or total removal of external genitalia, whether for cultural or other nontherapeutic reasons) in Africa (1, p. 23–36). Although it has been claimed that scar or soft-tissue dystocia from circumcision can prolong the second stage of labour and lead to cerebral damage, asphyxia, and fetal death, few controlled studies have been published (2–4). Also, little attention has been paid to obstetric complications arising from genital mutilation among migrant women who move from a low-resource to a high-resource country (5–11).

A recent investigation showed that perinatal mortality among women who emigrated to Sweden from sub-Saharan Africa (predominantly Somalia) was greater than that of their Swedish counterparts, even after adjustments were made for background factors and perinatal risk factors (12). In three interview studies of circumcised Somali women who had immigrated to high-income countries (the USA and Sweden), the women expressed concern that Western health care providers would not know how to deal with circumcised women, especially during delivery (13–15). Somali women in

Sweden perceived Caesarean section as a life-threatening event and many reduced their food intake to prevent dystocia and to avoid operative deliveries. A similar fear was expressed by Somali women in the USA, and they favoured obstetricians with low rates of Caesarean sections. However, the Somali women in Sweden did not associate circumcision with obstetric complications, such as obstructed labour or perinatal death.

The present study was designed to test the hypothesis that genital circumcision is a contributing factor to the increased rate of perinatal death among infants of immigrant women who gave birth in a community with a high standard of obstetric care.

## Materials and methods

A perinatal audit of medical records in the national Swedish Medical Birth Register was made for all 63 perinatal deaths (defined as stillbirth after 28 weeks of gestation or death within the first week of life) that occurred in Sweden over the period 1990–96. The records represented the full cohort of pregnant women from the Horn of Africa who lived in Sweden during this period ( $n = 32$  for Ethiopia/Eritrea;  $n = 31$  for Somalia).

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Narratives based on individual records were obtained for each birth and contained in-depth descriptions of relevant time-related events, including medical history, social conditions, communication, surveillance, interventions and outcome. The narratives were limited to data obtained from the records and noted whether pertinent information was missing. All of the women had been circumcised, although the exact form of vulva trauma was not always described in detail. The commonest form of genital cutting among girls from the Horn of Africa is infibulation (16), an extensive form of mutilation involving en-bloc removal of the clitoris, minor labia, parts of the major labia and stitching together the remains of the major labia to leave a small opening at the lower part of the vulva.

An expert panel of three obstetricians and one neonatologist was convened to review the 63 case narratives and identify suboptimal factors that were likely to have contributed to perinatal death. Criteria for identifying suboptimal factors were primarily evidence based and adopted from the EuroNatal study of perinatal mortality in Europe (17). The study was approved by the Ethics Committee, University of Lund, Sweden.

## Results

Background and risk factors for the 63 circumcised mothers and their infants are shown in Table 1. Caesarean section was performed on 16% of the women, with threatening fetal distress being the commonest indication for performing it, but no indication of disproportion, shoulder dystocia or obstructed labour was found.

Table 2 presents a summary of the audits for the perinatal deaths. No documented evidence has been found that antenatal death is considered to be related to circumcision (7 severe malformations, 16 intrauterine growth retarded, 4 placental abruption, 1 twin transfusion syndrome, 3 stillbirth with positive culture of maternal cervical streptococci group B and 8 unexplained). There were eight intrapartum deaths: four were placental abruptions and four were due to fetal distress. However, none of the intrapartum deaths was related to genital mutilation and obstructed labour based on the audit of the medical records. Of the neonatal deaths, one involved a nullipara with a prolonged first stage of labour (25 hours). Retrospective analysis indicated that cardiotocography (CTG) showed signs of severe fetal distress for three hours without appropriate action being taken. Nevertheless, the infant was delivered vaginally without difficulty but died due to complications from neonatal distress. In general, misinterpretation of CTGs by midwives or obstetricians and mothers who avoided Caesarean section were important suboptimal factors that probably contributed to fatal outcomes in the cohort.

## Discussion

None of the perinatal deaths in the present study was considered to be related to complications caused by circumcision of the mothers. Neither obstructed labour nor prolonged second-stage of labour was common and had no impact on the number of perinatal deaths. In contrast, perinatal deaths among the study women were associated with suboptimal factors, such as maternal behaviour (mother avoiding operative delivery), verbal miscommunication and insufficient obstetric care, including misinterpretation of intrapartum CTG.

Table 1. Background and risk factors for 63 circumcised study mothers, Sweden, 1990–96

Background and risk factors	No. of mothers
Maternal age 19–40 years	62 (98.4) <sup>a</sup>
Smokers in early pregnancy	1 (1.6)
Antenatal care since the first trimester <sup>b</sup>	33 (65.0)
No ultrasound screening in the second trimester	11 (17.4)
Nullipara	21 (33.3)
Parity >4	4 (6.4)
Gestational age (weeks)	
<28	6 (9.5)
28–33	21 (33.3)
>33	36 (57.1)
Twin pregnancy	1 (1.6)
Maternal disease <sup>c</sup>	17 (27.0)
Caesarean section	10 (15.9)
SGA <sup>d</sup>	25 (39.7)
Neonatal distress <sup>e</sup>	16 (25)
Severe malformation	7 (11)

<sup>a</sup> Figures in parentheses are percentages.

<sup>b</sup>  $n=51$ .

<sup>c</sup> HIV-infection, diabetes, epilepsy or cardiac disease.

<sup>d</sup> Small for gestational age (two data points missing).

<sup>e</sup> Apgar score 5' <7 ( $n=23$ ).

Our results agree with those of a recent publication that found no relation between obstructed labour due to tough scars around the vaginal exit, including those from female genital mutilation, since the elasticity of the birth canal is not affected (1, p. 42). The results suggest that the elasticity of the birth canal is no more affected by circumcision scar tissue than by scar tissue induced by episiotomy.

For infibulated women there is a major risk of severe perineum tearing unless defibulation is performed (10). Although circumcision might not cause obstructed labour, it is important that defibulation be performed and that the women give birth in hospital. In the present study, defibulation or episiotomy were always performed when needed, which may account for the lack of correlation between circumcision and obstructed labour (8). No evidence of vaginal stenosis was reported, in contrast to the findings of earlier studies of non-nulliparous circumcised women in Somalia (17, 18).

High birth weight is known to be associated with obstructed labour. A total of 40% of infants born to circumcised women were small for gestational age (birth weight > 2 standard deviations below the mean) (19). Theoretically, fetal growth retardation might lead to easier vaginal delivery, with less risk of perineal injury and dystocia. On the other hand, it can be a cause for emergency interventions due to imminent asphyxia. Dystocia was not described in any of the cases in the present study.

Fetal distress was noted in some cases and was related to perinatal death because the mother refused emergency Caesarean section (Table 2). Because of fear of delivery complications and maternal death, the mothers often delayed or refused Caesarean section, even when experiencing severe symptoms such as vaginal hemorrhage or if there was a risk of fetal distress (13). The women's experiences in their countries of origin, where maternal mortality rates are high, resulted in

Table 2. Audit of 63 perinatal deaths to circumcised study mothers, Sweden, 1990–96

No. of deaths and relation to delivery	Reason for perinatal death	Comments	Circumcision related
<b>Antenatal</b> 39	Stillbirths	Malformation or IUGR <sup>a</sup>	Not likely
<b>Intrapartal</b> 4	Placental abruption and fetal distress	2 mothers refused C/S, <sup>b</sup> 1 case of misinterpreted CTG <sup>c</sup>	Not likely
4	Fetal distress <sup>d</sup>	1 mother refusing C/S, 2 cases of misinterpreted CTG	Not likely
<b>Neonatal</b> 4	Severe malformation		Not likely
1	Sudden infant death		Not likely
3	IRDS, <sup>e</sup> prematurely		Not likely
1	IRDS and sepsis		Not likely
2	IRDS and neonatal distress <sup>f</sup>	2 mothers refusing C/S	Not likely
5	Neonatal distress	3 cases of misinterpreted CTG	Not likely

<sup>a</sup> Intrauterine growth retardation.

<sup>b</sup> Emergency Caesarean section.

<sup>c</sup> Cardiotocography.

<sup>d</sup> Pathological intrapartal CTG.

<sup>e</sup> Idiopathic Respiratory Distress Syndrome.

<sup>f</sup> Apgar score 5' < 7.

maternal behaviours and pregnancy strategies that the Swedish caregivers had not considered. These factors, combined with miscommunication because of a lack of interpreters and suboptimal medical care (e.g. misinterpretation of CTG signs of fetal distress), heightened the risk of perinatal mortality. The high observed incidence of intrapartal or neonatal death was thus not related to maternal circumcision in this study.

It could be asked whether the women in our study were representative of their ethnic groups, since they might have represented a positively selected group with long-term complications due to circumcision (such as keloid scarring or cysts) (16). Although we found no evidence that ethnicity per se was an independent risk factor for prolonged labour (20–22), it was not possible to control the studies with non-circumcised immigrant women from the Horn of Africa.

Our findings should not be seen as a reason to vindicate the practice of female circumcision. On the contrary, it might help to focus issues concerning circumcision and underscore the need for intervention, since for the majority of circumcised women the consequences of giving birth might be totally different from those in the present study. Also, in developing countries with poor obstetric care it is difficult to obtain reliable data on birth labour. If the notion that circumcision is an important cause of obstetric risk among immigrant women is unwarranted, it might lead to

attention being focused on the wrong issue. This could result in inadequate intervention measures, rather than enhancing correct strategies against obstetric risk. An increase in the familiarity of Swedish obstetricians with these issues may decrease the perinatal mortality among immigrant women from the Horn of Africa by focusing on patient education, interpersonal communication, and improved fetal surveillance.

The UN recommends that governments adopt clear national policies to abolish female genital mutilation and intensify educational programmes about its harmfulness (23). Prevention of such mutilation is a matter of not only educating families but also health care providers by offering them correct information. In this way, the providers could better focus their work and give the best care to circumcised women in both low- and high-resource areas. ■

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**Conflicts of interest:** none declared.

## Résumé

### Existe-t-il une association entre la circoncision féminine et la mortalité périnatale ?

En Suède, pays ayant des normes élevées en matière de soins obstétricaux, l'importance de la mortalité périnatale chez les enfants de femmes immigrées originaires de la Corne de l'Afrique soulève la question d'une association éventuelle entre la circoncision féminine et les décès périnatals. Dans cette optique, nous avons examiné une cohorte de 63 décès périnatals survenus chez des enfants nés en Suède en 1990-1996 de mères circoncises, et n'avons rien trouvé qui indique une relation entre la circoncision féminine et le décès

périnatal. Il n'a pas été trouvé qu'une dystocie mécanique ou un travail prolongé, dus à la présence de tissu cicatriciel résultant de la circoncision, ait un impact sur le nombre de décès périnatals. Les résultats ne confirment pas ceux de travaux antérieurs faisant état d'une relation entre la circoncision féminine et les décès périnatals, indépendamment des autres circonstances, et laissent à penser que d'autres facteurs, suboptimaux, contribuent à la mortalité périnatale chez les enfants nés de femmes immigrées circoncises.

## Resumen

**¿Hay relación entre la mutilación genital femenina y la mortalidad perinatal?**

En Suecia, país que cuenta con una atención obstétrica de alto nivel, la alta tasa de mortalidad perinatal observada entre los hijos de las mujeres inmigrantes del Cuerno de África obliga a preguntarse si no existirá una relación entre la mutilación genital femenina y la mortalidad perinatal. A fin de investigar esa posibilidad, examinamos una cohorte de 63 defunciones perinatales de lactantes dados a luz en Suecia durante el período 1990-1996 por mujeres sometidas a ese tipo de mutilación. No se

observó efecto alguno del parto obstruido o prolongado, consecuencia del tejido cicatrizal provocado por la mutilación, en el número de defunciones perinatales. Los resultados no respaldan conclusiones anteriores que apuntaban que la mutilación genital guarda relación con la mortalidad perinatal, con independencia de otras circunstancias, y lleva a pensar que hay otros factores subóptimos que contribuyen a las defunciones perinatales entre las mujeres migrantes mutiladas.

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