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Varieties of male circumcision: a study from Kenya

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Varieties of Male Circumcision
A Study From Kenya

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Background: Because male circumcision has been linked to a lower risk of HIV infection, it is advocated tentatively as a possible preventive intervention. Most studies, however, have relied on men’s self-reports of their circumcision status.

Goal: To document varied techniques of male circumcision in one area of Kenya and the visible results.

Study Design: Researchers interviewed men who had performed or undergone various forms of circumcision. They also did genital observations on a subsample of respondents.

Results: All the men reported undergoing circumcision during adolescence, and most were able to tell which technique was used. According to the circumcisers, in type A, approximately 4 cm of the prepuce is removed; in type B, 1 to 2 cm of the prepuce and some of its inner surface are removed. Types A and B result in the same genital appearance. In type C, 1 to 2 cm of the prepuce and some of the inner surface are removed. The remaining prepuce is slit and suspended below the penile shaft.

Conclusions: Asking a man “Are you circumcised?” is not sufficient. Classifying his circumcision status requires both a genital examination and an understanding of the precise local surgical techniques used. Even in a small geographic area, considerable variety may exist in the techniques of cutting, removing, altering, or leaving different portions of the foreskin. Each variation may affect the transmission of HIV and other infections.

A NUMBER OF EPIDEMIOLOGIC STUDIES and reviews have identified a link between male circumcision and a reduced risk of HIV and other sexually-transmitted infections. Several biologic mechanisms have been suggested as possible links between the presence of a foreskin and disease transmission: trauma to the glans, prepuce, or frenulum during intercourse; an environment under the prepuce favoring microorganisms and making cleanliness difficult; increased risk of genital ulcer disease or balanitis; and the presence of HIV target cells on the inner surface of the prepuce.

At this writing, most studies of male circumcision have been from sub-Saharan Africa, and most have relied on men’s self-reports of their circumcision status. However, Chogoria Hospital personnel have long been aware that not all “circumcision” is the same. Although virtually all adolescent boys in the area are circumcised, several different techniques are used, with differing results. The current study aimed to document these styles of circumcision, how men name and describe each one, and how the various techniques alter the foreskin.

Setting

On African maps showing circumcision practices and disease patterns, societies in the central and eastern part of Kenya are shown as practicing male circumcision. Chogoria Hospital lies in that “circumcision zone,” on the eastern slopes of Mt. Kenya (Figure 1). The area is home to various subgroups of the Meru people. All the groups speak Bantu languages, and all consider circumcision of adolescent boys to be an important, time-honored ritual. The Scottish Protestant missionaries who established Chogoria Hospital in 1922 began soon afterward to offer adolescent male circumcision in the hospital as a way of reducing the morbidity and mortality they associated with traditional circumcision practices. The hospital continues to provide circumcision services to approximately 300 adolescent boys each year.

From Chogoria Hospital, Chogoria, Kenya

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Research Methods

To respect the traditions of Meru culture, only male health personnel collected information for this study. These men were native to the Chogoria area and thus able to describe circumcision techniques as participant observers who had performed or undergone the procedures themselves. They held long discussions in the local languages with circumcisers and elderly area residents. They administered short questionnaires to more than 150 men and observed the genital appearance of a subsample during clinical examinations or surgery.

Results

All the participants in this study who grew up within 30 km of Chogoria Hospital answered “yes” to the question “Have you been circumcised?” They all reported undergoing the procedure during adolescence, generally between the ages of 13 and 17. When asked a follow-up question, “What circumcision did you have?” the men gave one of two replies:

Hospital circumcision (gutanwa kithibitari): This term originally implied that the procedure was done in hospital with the boy under anesthesia. Currently, the term implies the use of anesthesia, regardless of the location: a hospital, a dispensary, or the boy’s home.

Meru traditional circumcision (gutanwa kimeru): This term indicated that the foreskin was cut without anesthesia, and that the boy was circumcised at home or with a group of other boys in an open field. The term also implied that during the healing period, the boy was secluded, physically beaten, and instructed on “how to be a man.” Men who had undergone Meru traditional circumcision were then asked a further question, “Which style did you have?” Each man then named the particular technique used in his local area.

Gaining the confidence of the respondents was not always easy. Some who had been circumcised in a traditional way hesitated to disclose the details. At times, the interviewer encouraged reluctant respondents by declaring his own traditional circumcision status, or by signaling it with secret hand gestures.

Men who had been circumcised in a hospital did not always admit it readily. Meru men and boys who had undergone hospital circumcision knew they might be ridiculed and called kiroge (“anesthetized,” “bewitched”) by men circumcised traditionally. Some men have been beaten or even “recircumcised” by advocates of the traditional procedures.

Further observations and interviews with male nurses and traditional circumcisers revealed the details of three distinct circumcision techniques, all of which are performed currently in the Chogoria area. Technique A removes the entire prepuce, both inner and outer layers. Techniques B and C appear to remove most of the inner surface of the prepuce, but leave a small portion of the outer layer. With technique C, the remaining outer layer becomes an appendage on the under side of the penile shaft. The final appearance of the penis after technique C is quite different from that after techniques A and B. The details of the three techniques follow, as illustrated in Figure 2.

Type A: The prepuce is retracted and injected with local anesthetic, then pulled forward and clipped with artery forceps just beyond the tip of the glans penis (Figure 2, column A). Approximately 4 cm of the tip is cut off, and the remaining prepuce retracts behind the glans. If too much of the outer layer of the prepuce is judged to remain, this layer is again pulled over the glans, trimmed, and allowed to retract. The inner layer of the prepuce (attached to the corona) then is trimmed, and the cut edge of outer skin is stitched to the corona. Functionally, this technique removes the entire prepuce, both inner and outer layers.

Type B: The prepuce is pulled forward and approximately 1 to 2 cm of the tip is cut off (Figure 2, column B). The
Fig. 2. Three techniques of male circumcision.
remaining prepuce is pulled back forcefully, tearing 1 to 2 cm of skin and leaving a ring of raw, exposed skin on the penile shaft behind the glans. The prepuce is pulled forward again, and a 1-to-2-cm ring of its inner surface is scraped off. Finally, the prepuce is allowed to retract behind the glans, so that its raw inner surface is in contact with the raw outer surface of the shaft. A bandage is applied for several hours to hold these surfaces together as healing and adhesion begin. This technique, believed to remove most of the inner surface of the prepuce, leaves a small portion of the outer layer.

Type C: The prepuce is pulled forward and approximately 1 to 2 cm is cut from the tip (Figure 2, column C). The remaining prepuce is pulled back forcefully, tearing approximately 3 cm of skin from the shaft. The prepuce is again pulled forward, and approximately 3 cm of its inner surface is scraped off. The prepuce is pulled further forward, and the circumcision inserts his thumb under the prepuce, above the glans. With his thumb protecting the glans, he cuts a small slit transversely in the top of the prepuce. The glans then is pulled through this slit, leaving the prepuce suspended below the penis. The suspended prepuce shrinks over time, but usually remains visible throughout life. This technique removes approximately the same amounts of both outer and inner layers of prepuce as technique B, but leaves part of the outer layer as an appendage on the underside of the shaft.

In summary, all the men in the immediate area of Chogoria reported that they had been circumcised, but different parts and amounts of the foreskin had been removed. The circumcision styles differed among ethnic Meru subgroups. In choosing a circumciser and a technique for their adolescent sons, families are influenced by cultural and social traditions as well as religion.

Three very different surgical techniques of male circumcision have been identified and described. The resulting genital appearances vary considerably. During clinical examinations of adult men, health personnel could easily recognize the results of type C circumcision, but could not distinguish type A from type B. Both genital examination and careful questioning were necessary.

Discussion

These findings demonstrate that simply asking men “Are you circumcised?” is not sufficient. Moses et al., reviewing evidence of the relation between circumcision and HIV infection, warned in 1994 that researchers should, whenever possible, clinically confirm men’s reported circumcision status. Nevertheless, many subsequent studies have continued to rely on men’s self-reports, without clinical verification.

One notable exception is the set of Tanzanian studies reported by Urassa et al. Researchers asked each man about his circumcision status on two different occasions. The agreement between the men’s own first and second reports was only 77% in one study and 90% in another. One of the studies did include a physical examination of the genital area. Each man was asked to pull down his foreskin, then release it. Observers classified the men in three categories: not circumcised: foreskin completely covered the glans penis; partially circumcised: foreskin partly covered the glans; completely circumcised: foreskin did not cover the glans at all.

The agreement between men’s reported and observed circumcision status was 81%.

Other African studies that included genital examinations also suggest that at least three categories are necessary. Pépin et al. classified 16% of their Gambian subjects as “functionally uncircumcised.” Lavreys et al. examined 992 men in the city of Mombasa, Kenya. They reported excluding from their study six “partially circumcised” men.

Although previous authors have proposed three categories, the current study shows that the “partially circumcised” category is not homogeneous. In the Chogoria area, a man’s self-report of having been “circumcised” can mean several different things. Each of the local circumcision techniques prescribes that particular portions and amounts of the foreskin be cut, removed, altered, or left in place. Discussion with colleagues in other parts of Kenya suggests that many other styles may also exist.

Therefore, detailed knowledge of local circumcision techniques and their physiologic results are necessary as we attempt to discover whether and in what way the presence of a foreskin may increase the risk of infection. Currently, seven possible intervening mechanisms have been proposed: 1) the large numbers of HIV target cells (Langerhans cells and macrophages coated with CD4 receptors) on the inner surface of the foreskin; 2) more genital ulcer disease, which is associated independently with noncircumcision and risk of acquiring HIV4–6; 3) inflammatory conditions, such as balanitis, which may be more common in uncircumcised men; 4) less keratinization of the prepuce or glans in uncircumcised men; 5) trauma to the frenulum or prepuce of uncircumcised men; 6) a microenvironment under the prepuce especially favorable to the acquisition, survival, and replication of bacteria and viruses; 7) difficulty in maintaining good hygiene of the prepuce.

The current study, which documented the variety of circumcision techniques performed in one limited area of Kenya, raises several new questions about possible modes of genital infection. For instance, techniques B and C remove only the tip of foreskin, plus some of its inner surface. Does a partial foreskin put a man as much at risk as a complete foreskin? Does the partial foreskin still contain Langerhans cells or other receptors?

Technique C partially detaches the remaining outer layer
of the foreskin and leaves it suspended from the penis. Does the suspended portion provide an environment in which infectious organisms can accumulate and multiply? Does a suspended foreskin affect the use and effectiveness of condoms? These questions warrant investigation. Furthermore, can the variation in observed effects among past studies of male circumcision and the risk for HIV infection be attributed partly to differences in types of circumcision?

Finally, male circumcision is now being suggested as one possible intervention to help reduce the risk of HIV and other genital infections among African men. If young men in noncircumcising societies begin to seek circumcision, they are likely to request the types already being performed among their neighboring ethnic groups. Medical practitioners and researchers need accurate knowledge of local circumcision techniques and their consequences to make clear recommendations in both circumcision and non-circumcising areas.

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