

Complications of Circumcision in Israel: A One Year Multicenter Survey

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Abstract

Background: In Israel, virtually all children undergo circumcision in the neonatal period. Traditionally, it is commonly performed by a "Mohel" (ritual circumciser) but lately there is an increasing tendency among the educated secular population to prefer a medical procedure performed by a physician and with local anesthetic injection.

Objectives: To evaluate the outcome of this procedure and to compare the complication rate following circumcisions performed by ritual circumcisers and by physicians.

Methods: In 2001, of the 19,478 males born in four major medical centers in Israel 66 had circumcision-related complications. All the children were circumcised in non-medical settings within the community. The patients were medically evaluated either urgently due to immediate complications or electively in outpatient clinics later on. Upon the initial assessment a detailed questionnaire was filled to obtain data regarding the procedure, the performer, and the subsequent complications.

Results: All the circumcisions were performed during the early neonatal period, usually on day 8 of life (according to Jewish law). In 55 cases (83%) it was part of a ritual ceremony conducted by a ritual circumciser (Mohel), while in 11 babies (17%) physicians were involved. Acute bleeding after circumcision was encountered in 16 cases (24%), which required suturing in 8. In addition, we found two cases of wound infection and one case of partial amputation of glans penis in which the circumcision was performed by a ritual circumciser. Among the late complications, the most common was excess of skin in 38 cases (57%); 5 children (7.5%) had penile torsion and 4 children (6%) had shortages of skin, phimosis and inclusion cyst. The overall estimated complication rate of circumcision was 0.34%.

Conclusions: Complications of circumcision are rare in Israel and in most cases are mild and correctable. There appears to be no significant difference in the type of complications between medical and ritual circumcisions.

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include reduced sensation of the penis and sexual pleasure, as well as possible complications associated with the procedure itself. There is usually no medical indication for circumcision, and its performance is motivated by religious, cultural or aesthetic reasons among Jews, Moslems, Africans, and native Australians as well as many Christian Americans [1,2]. According to the U.S. National Center of Health Statistics [3], 61% of boys born in the United States in 1987 were circumcised. The procedure is less commonly performed in other countries, mainly northern Europe, Central and South America, and Asia. About 48% of males are circumcised in Canada and only 24% in Britain [4].

Circumcision has been part of Judaism from the very beginnings of the religion, when it was performed by Abraham, following God's instruction, on his sons Isaac and Ishmael, as well as on himself. The Jewish method of circumcision has been performed for thousands of years and has been passed on from generation to generation. The procedure is usually carried out by non-medical practitioners, and the technique has remained virtually unchanged over the years. Israeli males are circumcised in the neonatal period. Traditionally, it is performed by a "Mohel" (a ritual circumciser), but today there is an increasing tendency among the educated secular population to prefer a medical procedure performed by a physician using local anesthetic injection.

Although pediatric urologists are primarily involved in the procedure only in the minority of newborns, they serve as the ultimate referral physicians in all cases of circumcision-related complications. The pediatric urologist would usually encounter those cases in the emergency room setting or in outpatient clinics. The training and supervision of the *mohelim* (ritual circumcisers) in Israel is the responsibility of the Ministry of Religion and the Ministry of Health. Certification is granted following a special training course that includes lectures and examinations, and minimal experience. However, this training is not mandatory by law and many *mohelim* are not certified. Non-medically trained *mohelim* perform the vast majority of circumcisions. In this report of our multicenter prospective study we describe the complications resulting from circumcision.

Circumcision is the most common surgical intervention performed in non-medical settings within the community and is performed on millions of male children worldwide. Neonatal circumcision continues to be a controversial issue, although it has been shown to have a preventive effect on urinary tract infections in infants and penile cancer that might develop later in life. Some concerns

Patients and Methods

This prospective study was conducted during 2001 in four major tertiary care medical centers in Israel. Of the 19,478 male infants born in these institutions, 66 had circumcision-related complications, yielding an estimated complication rate of about 0.34%.

The patients were assessed either urgently after the procedure due to immediate complications, or electively in the outpatient clinics later on. Upon the initial assessment, a detailed questionnaire was obtained by the pediatric urologist, and data on the patient, the procedure, the performer and the subsequent complications were collected. The complications were defined as either immediate (bleeding, infection or penile injury), or late sequelae (excessive foreskin, penile curvature, penile torsion, shortage of skin, phimosis and inclusion cysts). Inclusion cyst was defined as a sub-cuticular mass on the penile skin that resulted from buried skin containing dead skin cells. Excessive foreskin was defined as the extent to which it covered at least half of the glans penis. In cases of children with excessive pre-pubic fat the evaluation of the extra skin was done while applying pressure on the fat at the base of the penis towards the pubic bone. Penile torsion was considered a complication only if the angle of the rotation exceeded 30 degrees. Meatal stenosis, a condition commonly regarded as an associated late complication of circumcision and usually diagnosed at the age of toilet training, was not included in this series.

Results

All 66 circumcisions in this study were performed during the early neonatal period, usually on day 8 after birth, according to Jewish law. The circumcision was in the setting of a ritual ceremony conducted by a ritual circumciser (Mohel) in 55 (83%) male infants, while physicians performed the procedure in the remaining 11 (17%).

Excessive bleeding after circumcision was encountered in 16 infants (24%). Suturing was used to stop the bleeding in eight infants, and conservative treatment including local pressure and dressing was used in the other eight. There was no case of hemorrhage requiring blood transfusion. Noteworthy, in 14 of the 16 cases of bleeding (87%) the circumcision was performed by ritual circumcisers, while in 2 (13%) it was performed by physicians. In addition, two patients with wound infection and one patient with partial amputation of distal glans penis were circumcised by ritual circumcisers.

Excessive foreskin was the most common late complication (38 cases, 57%). Five children (7.5%) had penile torsion and 4 children (6%) had shortages of skin, phimosis, and inclusion cyst. All these late complications were successfully treated by elective surgical repair with the child under general anesthesia.

Discussion

In Israel, neonatal circumcision is commonly performed by a "Mohel" when the male infant is 8 days old; this ritual event usually takes place in a celebration hall in front of an audience of family and friends. The conditions are usually clean but not sterile, and anesthesia is not used. Clearly, these are not optimal conditions for such a delicate procedure in neonates. The procedure should

be done quickly and smoothly, by means of a technique that involves detachment of the foreskin from the glans penis and cutting both the inner and outer prepuce in one incision without suturing, leaving the penis to heal secondarily. Therefore, the Israel Ministry of Health supervises the training of the "Mohelim," and they should follow strict regulations. In recent years however, there is an increased demand among the non-religious population in Israel for a medical circumcision to ensure improved sterility conditions and local anesthetic injection. Interestingly, the medical circumcisions are often performed by obstetricians, neonatologists, pediatricians, general practitioners, general surgeons, etc., and only rarely by urologists. With no solid data for comparing the outcome of religious versus medical circumcisions, the preference of either a physician or a Mohel is usually influenced by other considerations such as religious background, tradition, common knowledge, and recommendations.

In several large series of newborn circumcisions (combining ritual and medical), the complication rate ranged from 0.2% to 0.6% [5,6]. The early complications included mainly bleeding, which was reported in 0.1–35% [7], and wound infection in 0.2–0.4% [5,8]. Relatively rare are urinary retention caused by an excessively tight circular bandage [9] and penile or urethral injury [10], while meatitis is a frequent complication of circumcision with a reported incidence of 8–31% [11,12]. In such cases, the newborns are generally referred urgently to the urologist and are examined in the emergency room.

For most late complications the affected babies are electively examined by urologists in outpatient clinics due to either parental or primary care physician dissatisfaction. Parents generally claim that the child does not look circumcised or that the penis "does not look right." Most of these cases represent a minor cosmetic abnormality that requires no more than reassurance. Not infrequent, however, are late complications resulting from a technically inadequate circumcision; these include excessive foreskin, shortage of penile skin, penile torsion, penile curvature, formation of inclusion cysts of the penile skin, phimosis, mature scarred skin bridges, lymphedema, urethral fistula, and meatal stenosis. These complications usually produce what is essentially a cosmetic and not a functional problem. The urologist is often faced with the dilemma of whether the complication is significant enough to justify surgical circumcision repair under general anesthesia.

Our estimated complication rate of 0.34% is quite low and similar to the estimated figures of 0.2–0.6% reported in the literature [2]. The possible explanation for this low complication rate is probably under-reporting, since many of the complications are quite minor and do not require surgical repair, while others are diagnosed later and are mistakenly not attributed to the circumcision. This may be especially true for penile curvature and meatal stenosis, the latter of which was not included in that study.

In the present study, the overall circumcision-related complications appear to be rare. In accordance with the literature, the most common complication in the current series was excess of skin in 38 cases (57%). Overall, the estimated incidence rate of this complication is 1%–9.5% [4,13] and the wide range of the reported rates can understandably be related

to the subjective interpretation of this finding. Therefore, we considered the foreskin to be excessive only if the skin covered more than 50% of the surface of the glans penis and only then did we recommend surgical repair. When there is a significant excessive foreskin after circumcision, the parents are sometimes told that the redundant skin will disappear as the penis grows. This is incorrect since the penis and the foreskin grow in parallel and there is no improvement in the appearance of redundant foreskin with age [14]. However, when there is some excess of skin associated with “buried penis” due to a deep pre-pubic fat pad, improvement can be expected with the child’s growth and attendant reduction of the pre-pubic fat pad. The 0.01% infection rate is very low in this series, most likely due to the excellent healing capability and rich blood supply of the penis in the newborn. There was only one case of a major complication in our series (partial amputation of glans penis) and it resulted from a circumcision performed by a ritual circumciser.

Overall, the type of complications following circumcision performed by ritual circumcisers and physicians were similar. We presume that this finding reflects the low rate of circumcision-related complications in Israel. We attribute this low rate to the fact that usually, circumcision is the sole or main occupation of the *mohelim* and, therefore, most are professional and experienced. In addition, they usually work under strict regulations; being concerned about malpractice claims, they are obliged to adhere to high standards of performance.

In conclusion, complications of circumcision are rare, mild, and correctable in the vast majority of cases. There appears to be no significant difference in the type of complications between medical and ritual circumcisions.

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I’m not offended by all the dumb blonde jokes because I know I’m not dumb – and I’m also not blonde.

Dolly Parton