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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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 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.
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%)
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 hem-
orrhage 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 “Moh-
el” 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 “Mohel,” 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 exces-
sively 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 infre-
quent, however, are late complications resulting from a technically
inadequate circumcision, these include excessive foreskin, short-
age 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 lit-
erature, 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.

References

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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

Capsule

Israel stem-cell technology repairs nerves

Developed at Tel Aviv University and based on discoveries made by Prof. Eldad Melamed and Dr. Daniel Offen, this technology is being used by BrainStorm Therapeutics under the name NurOwn. The technology enables the differentiation of bone marrow-derived stem cells into functional neurons and has already been demonstrated successfully on animals. BrainStorm is developing cell therapy products with adult stem cells to be used in the treatment of neurodegenerative disease, focusing initially on the development of bone marrow-derived neural-like cells for the treatment and rehabilitation of patients with Parkinson’s disease. Although the debate on stem-cell research has gotten quite heated in the United States because of religious objections, the use of stem cells taken during the first 40 days of the embryonic stage is considerably less problematic according to Jewish law. At its recent conference in Jerusalem, the Orthodox Union emphasized its support “consistent with Orthodox rabbinic teaching, for the continuation of a public funding for cutting-edge biotechnology research, including embryonic stem-cell research.”

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