Ritual Circumcision and Urinary Tract Infection in Israel

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Brit milah, the ritual circumcision of male infants in Judaism, is an obligatory commandment performed on the eighth day of life. This procedure is also practiced in other religions and cultures. Most circumcised males in the world are Muslim. Global estimates suggest that one in every three males worldwide is circumcised [1]. According to advocates of the procedure, circumcision may also provide health benefits to males, the most prominent being prevention of human immunodeficiency virus. It was recently shown in randomized controlled trials that adult circumcision reduced the risk of acquiring HIV infection [2-4]. Many studies have shown that male circumcision also protects against urinary tract infections in infants and children [5-9].

A large survey demonstrated that the incidence of UTI in circumcised male infants was significantly lower than in those who were uncircumcised, 0.02% vs. 0.24, respectively [10]. However, Israeli data of the last 25 years have shown an unexpected high peak in the incidence of UTI in circumcised infants during the first 3 weeks after circumcision [11-15]. The estimated incidence in circumcised male infants was 0.67% [15], higher than in uncircumcised infants in the United States [10].

Why do these observations derive only from Israel data? We found that the main difference between the American reports on the low incidence of infantile UTI after circumcision and the high incidence in Israel is associated with the person who performs the circumcision. In the U.S., most procedures are performed by physicians, while in Israel a *mohel*, an individual with no medical education, is trained to perform circumcisions. In two studies, the calculated odds ratio of acquiring UTI in children circumcised by a mohel compared with those circumcised by a physician were 4.3 and 2.8 [14,15].

In this issue of *IMAJ*, Toker and colleagues [16] report their experience with febrile circumcised infants admitted to the pediatric emergency room of a large Jerusalem hospital. The foremost results of their study were the high rate of UTI in febrile circumcised male infants after day 8 of life, 24.7% compared to 8.4% in females, and that most UTI episodes occurred within 9 days after circumcision. These findings strengthen the observation that ritual circumcision is an important factor in neonatal UTI.

The most striking finding in this study was the high rate of bacteremia in the infected infants, 16.6% with the same microorganism as in the urine, with two of them developing bacterial meningitis. Is this significant infection preventable? By examining the data comparing circumcisions performed by a physician or a mohel in Israel, it appears that the UTI rate is lower when the procedure is performed by a physician. The reasons for the high rate of UTI after a traditional circumcision performed by a mohel are unclear, but it is assumed that the technique of achieving hemostasis may be the main factor leading to urinary tract infections. The mohel uses a gauze dressing wrapped around the penile shaft, whereas physicians apply slight local pressure and calcium-sodium alginate fibers that melt within a few hours. The wrapped gauze used by the mohel has the potential to become resistant to the urine flow, which subsequently leads to urine retention. Urine retention is a known predisposing factor for UTI. One study reported that infants with UTI, after a traditional circumcision performed by a mohel, wore the gauze dressing for 25.6 hours compared to infants without UTI (16.6 hours) ($P = 0.007$) [14].

Consequently, we suggest that ritual circumcisers adopt the hemostasis technique used by physicians, or at least shorten the duration of the shaft wrapping. In conclusion, the unique phenomenon of the high rate of UTI in male infants in Israel seems to be related to the traditional technique of hemostasis. It is time to improve the practice of traditional circumcision.

HIV = human immunodeficiency virus
UTI = urinary tract infection

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