

Primary Genital Herpes Simplex Infection Associated with Jewish Ritual Circumcision

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Circumcision is a common custom in many cultures. Complications of the procedure include adhesions, infection, hemorrhage, urinary retention, acute renal failure, and rarely, necrotizing fasciitis [1]. A recent study in Israel showed that urinary tract infection occurs more frequently after traditional circumcision performed by a *mohel* (Jewish Orthodox ritual circumciser) than after circumcision performed by a physician [2]. In this article we describe a case of primary neonatal herpes simplex infection associated with ritual circumcision.

Patient Description

An 18 day old boy was admitted to our department with a 3 day history of vesicular and pustular eruption on the penis, buttocks and left thigh. He was the product of a normal pregnancy and vaginal delivery and was born at 41 weeks gestation with a birth weight of 3.350 kg. The mother was a healthy 22 year old, gravida 1, para 1. The baby was breast-fed. There was no history of exposure to herpes virus or of oral or

genital lesions in the parents. At the age of 8 days, the infant underwent circumcision by a *mohel* in the community.

Physical examination revealed no abnormalities except for several pustules on the penis [Figure A], which was also edematous and dorsally deviated. Three vesicles with erythematous borders were also seen on the buttocks and left thigh [Figure B]. There was no fever, apathy, or feeding disturbance. Because primary herpetic infection was suspected a sepsis workup was performed.

Laboratory tests showed a white blood cell count of $11,430/\text{mm}^3$ with 35% polymorphonuclear leukocytes, 51% lymphocytes, 11% monocytes, 2% eosinophils and 1% basophils. Blood chemistry (SMA-18) was normal, including liver enzymes. Cerebrospinal fluid examination showed 25 cells (mainly mononuclear), protein 54 mg/dl and glucose 36 mg/dl. Blood, urine and CSF cultures were negative. Cultures of

fluid aspirated from a pustule on the penis grew HSV type I and *Klebsiella pneumoniae*. Serology for HSV-I showed high immunoglobulin M titers and moderate IgG titers. In addition, the serum was positive for HSV type II IgM but negative for IgG antibodies.

The patient was treated with intravenous acyclovir (30 mg/kg/day) and cefamandole (50 mg/kg/day) for 10 days and ganciclovir (5 mg/kg/day) for the first 3 days. Mupirocin (2%) was applied locally. Marked clinical improvement was observed within 4 days, with drying and crusting of the vesicles and pustules, although dorsal deviation of the penis persisted. A consulting urologist diagnosed dorsal chordee and recommended follow-up with possible surgical repair at a later date. The patient was discharged after 10 days in good condition.

During the next month the patient had two recurrences of lesions on the penis and thighs. However, his general condition was excellent, and he was treated with 5%

HSV = herpes simplex virus
Ig = immunoglobulin



[A] Vesicular lesions on the penis.



[B] Lesions on the buttocks.

acyclovir ointment. The patient was readmitted 6 weeks after discharge with low grade fever and a few dry vesicles on the penis and perineum and sent home after 24 hours observation with a prescription for local acyclovir treatment. During this hospitalization, repeated serologic tests showed high IgM and IgG titers for HSV-I but no detectable antibodies for HSV-II. The parents underwent serologic tests for HSV-I and II and were found to be negative. A request for HSV serology or saliva culture for herpes was refused by the *mohel*.

Comment

Two types of HSV have been identified: type I, which is associated mainly with infections of the mouth, lips, eyes and central nervous system, and type II, which is associated mainly with genital infection and infections in the prenatal or perinatal period. In neonates, the source of infection is usually the maternal genital tract, and the transmission occurs during delivery. Up to 75% of infections in neonates is with HSV-II. Primary or re-infection of the maternal genital tract may be present without symptoms of signs, and 0.01–0.4% of women shed HSV at delivery. Maternal primary genital herpes has a transmission rate of 33–50% to the newborn, whereas recurrent maternal disease has an attack rate of only 1–3%. Occasionally newborns may be infected postnatally by the mother or other persons who came into close contact with them. In our case, the presence of HSV type I infection of the penis in an 18 day old infant raised suspicions that it was related to the circumcision performed a few days earlier. This assumption was supported by several factors: a) the lack of history of genital or perioral herpes infection in the mother or father, b) the negative serology for HSV in the parents, and c) the finding of the type I strain while 80% of neonatal herpetic infections are due to type II strain. The initial detection of IgM antibodies for both HSV type I and type II in our patient could be explained by the known cross-reactivity among herpes virus antibodies [3]. The timing of the disease also favored a

possible epidemiologic link to the circumcision, since the incubation period for herpes infection is 2–12 days. Circumcision in our patient was performed on the eighth day after birth in accordance with Jewish Orthodox custom, and the lesions appeared 7 days later on the penis and buttocks.

During traditional circumcision, the *mohel* may perform *metsitsah*, a sucking on the circumcised bleeding penis. This ritual is described as an integral part of the circumcision ritual from its earliest religious description, and is considered to be obligatory. Therein lies the difficulty in persuading *mohalim* to eliminate *metsitsah* from the circumcision ritual. A possible explanation behind the ritual is that sucking the blood demonstrates that a procedure has been performed. Another modern explanation is that the *mohel* applies natural anticoagulants and antibacterial agents to the open wound. However, we believe this is a source of infection rather than an effective protective measure.

Several cases of transmission of infectious diseases during ritual circumcision have been documented. In 1999, HSV infection of the penis was described in two infants who underwent ritual circumcision including *metsitsah* [4]. Neither patient had a parent with a previous herpes infection. The first infant presented 4 days after circumcision with an erythematous, swollen penis and a purulent discharge from the glans. The second infant presented 3 days after circumcision with a similar picture. Viral culture grew HSV-I from skin lesions of both infants. Recurrent cutaneous lesions appeared in the genital area several months later. Both circumcisions were performed by the same *mohel*, who denied a history of oral herpes infection [4]. However, excretion of the HSV in the saliva of seropositive asymptomatic subjects is a proven phenomenon [5], and HSV can be cultured from the pharynx of 1–2% of asymptomatic seropositive individuals.

Other infectious diseases transmitted during ritual circumcision (and *metsitsah*) are syphilis and tuberculosis [4]. The risk of infection is bi-directional; the *mohel* also

risks being infected by blood-borne pathogens from the neonate, including hepatitis and human immunodeficiency virus.

To minimize the contact between the *mohel's* mouth and the freshly circumcised penis – and thereby, the risk of infection – many communities today have introduced the use of a sterile glass pipette. However, in our case, *metsitsah* was performed without any device.

In conclusion, *metsitsah* performed as part of Jewish ritual circumcision involves orogenital contact and is thus associated with a risk of pathogen transmission between *mohel* and neonate. This is a real epidemiologic problem considering the thousands of circumcisions performed with *metsitsah*. We suggest that the public consider a modified procedure without *metsitsah* or with *metsitsah* through a glass pipette.

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