

Neonatal circumcision, motivation and technique.

Sir,

Circumcision is the most common surgical procedure that has been performed on newborn male children. Both Jewish and Muslims perform the ritual; but in addition to the medical aspect, the ritual implies also some ethical and political aspects. Historically circumcision has been a topic of emotive and often irrational debate. We still have no agreement about who should perform the increasing number of circumcisions in Europe. Some politicians recommend prohibition against performing the ritual because of ethical considerations. Many countries refuse that ritual circumcisions take place in hospitals, but others accept it. These different principle resolutions will be mostly resolved by the help of discussion and possibly better professional advice. Physicians' knowledge about the ritual and what it implies of historical and medical aspects is generally quite limited. In this 'Letter to the Editor' we will try to examine the background, indications, techniques and possible complications.

**Anatomy.** The foreskin (or prepuce) covers the glands (head) of the penis from the fifth gestational month. It begins in the dorsum of the penis and ends with some kind of a fusion ventrally to cover the new developed urethra. The fusion between the two epithelial layers of glands and foreskin persists at birth; it called also the physiological phimosis. This physiological phimosis persist in most children for at least 2 years, until a natural separation begins (Figure 1). At birth only 4% of newborns have the foreskin completely retractable, but some kind of retraction is seen in about 90% in the first 3-4 years of life.<sup>1</sup>

**Ritual circumcision.** Circumcision is, in many regions of the world, part of a complex ritual marking the passage from childhood to adulthood,

and involves not only the surgical procedure, but also music, dance, song and complex interactions between family and community. Circumcision is a traditional act especially in the Islamic Countries, but it is not obligatory, and the date is less decisive.<sup>2</sup> In the Jewish belief, the ritual is obligatory and must be carried out when the boy is 8 days old by the so called mohel, which is a 'title' that is transferred directly from father to son. Circumcision among Muslims is performed by either doctor or by someone who is trained for this purpose, it can also be performed by a Jewish Mohel.

**Prophylactic circumcision.** During recent decades emotional, culture and religious aspects have influenced the procedure to be performed. Hygiene and prevention of venereal diseases became popular excuses for circumcision during World War I. In the USA 95% of all newborn boys were circumcised for these reasons.<sup>1</sup> Arguments have been changing with time, so during the 1930's the actual fear of the foreskin causing penile cancer and during the 1950's of the foreskin causing cervical cancer and the most recent justifications for routine neonatal circumcision of boys include protecting infants from urinary tract infections (UTI) during the first year of life and decreasing the risk of AIDS in the sexually active male.<sup>3</sup>

**Medical circumcision.** The indications phimosis, paraphimosis, balanitis, and balanoposthitis, phimosis being the most common

**Methods of circumcision.** Surgical methods are many; the most used are described below:

**Freehand surgery.** There are many different procedures of this technique, depending on the competence of the operating surgeon. In the case of ritual circumcision it is important that both the outer and the inner leaf are split up at the same level, 2-3 mm from the corona glands, so the frenulum is not cut. Freehand surgery is the most used method both in Europe, and in Muslim and Jewish cultures. Mogen Clamp (Figure 2) is used by many doctors in

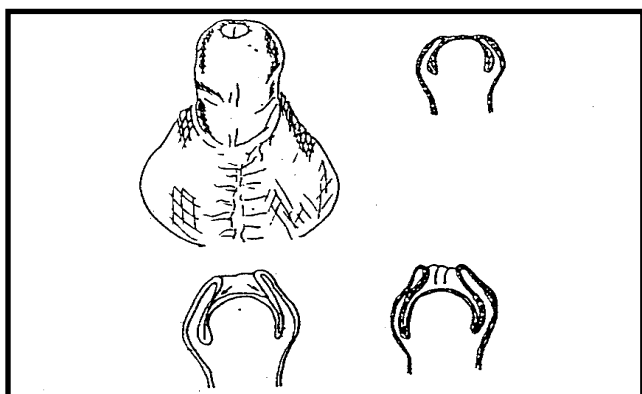


Figure 1 - Schematic illustration of the physiological phimosis.

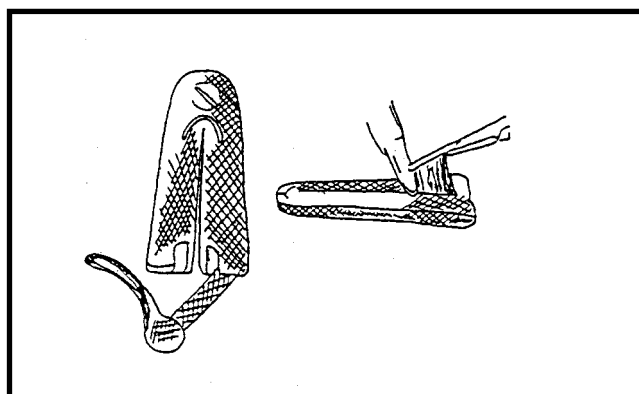
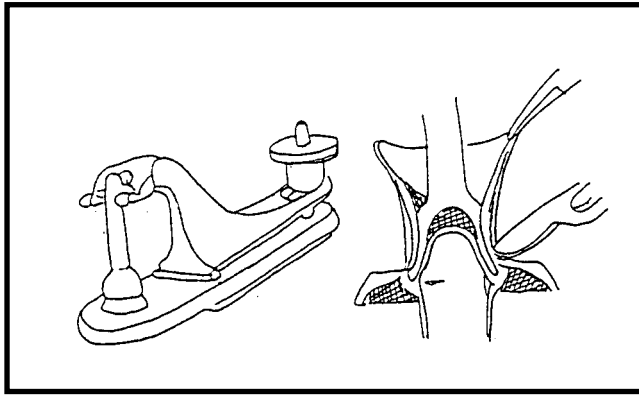
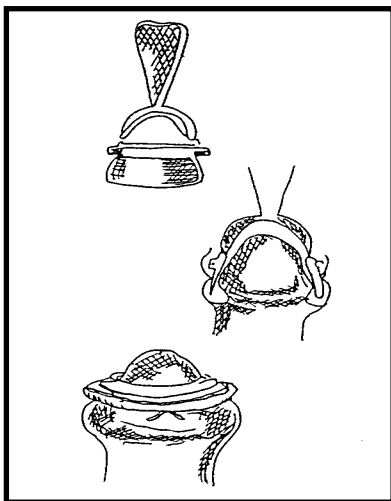


Figure 2 - Schematic illustration of the Mogen clamp circumcision device.



**Figure 3** -Schematic illustration of the Gomco clamp circumcision device.

the USA. A blunt-edged probe is used to separate the glands from the preputial lining, taking care not to traumatize the frenulum. These methods can cause some problems by inexperienced doctors. Gomco Clamp (Figure 3) is used mostly in the USA; it must be performed almost perfectly to avoid complications, such as amputation and asymmetry in the skin. The Gomco clamp was designed to crush about 1 mm of the foreskin circumferentially, while the Gomco bell protects the head of the penis from injury during removal of the foreskin. Plastibell (Figure 4) is a simple technique - 'ease of use'. Doctors do not need to be experienced before they can use it. The plastibell device is designed to cause circumcision by strangulating the blood supply to the distal foreskin. Necrotic tissue falls off 7 to 12 days after the procedure is performed. It has been popular in many places in Europe, and there are many who still use it. There is an increasing interest in using it



**Figure 4** -Schematic illustration of the plastibell circumcision device appropriately placed between the prepuce and the glans.

in many Muslim countries. Bris Tecknique (traditional Jewish circumcision) is by far the fastest and perhaps the most humane method. The entire procedure takes approximately 10 seconds; excising time is about one second. No tissue is crushed in this method but on the other hand requires good routine. Other known devices for infant circumcision are: Circumcision shield, circumcision template, CO2-laser, sleeve-technique, bone cutter oblique hemostat, the Ross circumcision ring, the Yellen clamp, the Sheldon clamp.

**Anesthesia.** Circumcision is a painful procedure usually performed under general anesthesia especially to small children.<sup>4</sup> A dorsal penile or ring local anesthetic block is also used. Generally, Jewish and Muslims do not use any kind of anesthesia especially when circumcision takes place outside the hospital system.

**Complications.** There is no evidence of any long-term psychological harm arising from circumcision. The risk of damage to the penis is extremely rare and is generally caused by an inexperienced doctor, or in training the junior surgeons to perform circumcision safely by using an operative technique which is easily understood. Complications can be divided into two categories, acute and late problems. The early problem-rate after circumcision has been estimated to be 0.19%, based on a study of 100,157 newborn males who were circumcised at US Army facilities.<sup>5</sup> Acute complications consist principally of bleeding, surgical trauma, infection and urinary retention. The late complications are many, but on the other hand rare: Skin loss, skin excess, skin asymmetry, skin bridge, epidermal inclusion cyst, concealed penis, phimosis, meatal stenosis, urethrocutaneous fistula and penile denudation.

It is not easy to judge the profit of preventive indications because of the many factors involved. The dialogue does not end here because of the increasing number of circumcisions in many countries. We can not change a 6000 year old tradition, even though it can be seen that the majority of doctors, especially in Europe, may be more against than for ritual circumcision. More interest and professional attention is needed to solve this ethical dilemma that we find ourselves in. Circumcision is a simple procedure and should cause very few complications. Most complications can be avoided by careful attention to complete separation of the glands from the inner preputial epithelium, careful symmetrical removal of the inner and outer preputial skin collar, and attention to hemostasis. It must be up to the individual doctor to choose the method. Most devices such as Gomco Clamp have never gained popularity in the Islamic world, and are mostly used by enthusiasts in European hospitals. This may be because the financial cost and the

apprehension they cause, both to the circumcizer and to the patient, limit their use.

Circumcision is a painful procedure and it is therefore performed with some kind of anesthesia. In Europe it is generally performed under general anesthesia, but not in the Islamic world, and the reason is due to the great experience and quick technique.

Risks for complications connected with circumcision are rare, and therefore this fact must not be a hindrance between doctors and ritual circumcision. There is no documentation that circumcision is a dangerous procedure or that it could be thought to have consequences for the circumcised later in life. If the ritual is performed because of cultural and religious reasons, it must be performed by doctors to insure the patients the optimal procedure during and after the operation.

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Unforgettable consultation.

Sir,

Had I been able to reach my own prostate with my index finger, I would not have consulted him to carry out my yearly digital rectal examination. Yet he found a hard nodule and booked me for a fine needle biopsy, though I had noticed that he had difficulty,

while he wrote down his notes, in remembering in which lobe the nodule had been. I took for granted his tactile ability because he was a urologist, and the integrity of his character, because he was supposed to have taken the Hippocratic Oath. As the date of the biopsy procedure approached my initial apprehension crescendoed to a barely manageable level, for my father had died from cancer of the prostate at the early age of 58. On the day of the biopsy, I was somewhat relieved to find out that my PSA level was 2.7ng/ml. But in the presence of a nodule, biopsy was indicated. Then I received a call from the x-ray department telling me that my biopsy appointment had been delayed by 2 hours because the urologist had 3 other patients for needle biopsy of the prostate that day, was that OK with me? I say yes. When I received another call half an hour later informing me that my original appointment was in force again, I became suspicious and asked them to postpone the procedure until further notice.

It was then that I remembered the joke my daughter's Russian cello teacher had told me about the Armenian, the Russian and the Jew. The sick Armenian consulted a physician who told him he had only one month to live. He wept and wrote down his will. The Russian also visited a physician who similarly told him that he had only one month to live. He quit his job and went on a binge of vodka. When the Jew was handed the same verdict by his doctor, what did he do? He sought another opinion. And that was exactly what I did the next day.

I went to a General Surgeon who had been a colleague of mine and asked him to check my prostate for me. He obliged and told me that I had slightly enlarged prostate of normal consistency. To nip my growing hypochondria in the bud, I finally visited a urologist from another part of the town whom I did not tell of the previous 2 consultations. His verdict was: Slightly enlarged soft prostate. No nodules.

It was of no use going back to the first urologist to complain, for any future nodule that I might eventually develop could well be the one he had felt with his 'astute' index finger years earlier.

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Hypernatremic dehydration in a neonate due to high sodium concentration in breast milk and apparent lactation failure.

Sir,

With increasing awareness about the advantages of breast feeding, younger mothers desire to exclusively breast feed, however, these mothers need considerable emotional as well as technical support. In urban Riyadh (Kingdom of Saudi Arabia) not less than 32% of infants less than 3 months of age are exclusively breastfed.<sup>1</sup> Colostrum which is produced in the first 2-4 postpartum days is usually not more than 50 ml/day but in normal situations is enough for maintaining fluid & electrolyte balance of the newborn infant. Its sodium content is higher than mature breast milk (20 mmol/l compared with 8 mmol/l for mature breast milk). When the volume of colostrum/breast milk is abnormally small or the infant is not sucking adequately he/she can develop different complications the most common of which is isonatremic dehydration with abnormal weight loss and fever or both. If such milk contains abnormally high sodium then hypernatremic dehydration, which can result in serious and often fatal neurological & metabolic complications, may occur.<sup>2</sup> A 3-day old Indian boy was admitted to our hospital with fever, irritability and poor sucking for one day. He was born in our hospital by normal vaginal delivery at term with birth weight of 2.8 kg and discharged with the mother after 24 hours. The mother, a 19-year-old primipara, has been exclusively breast-feeding but the infant did receive 2 or 3 formula feeds while in the postnatal ward. She noticed that he was not sucking vigorously soon after discharge from the hospital, there was no history of diarrhea or vomiting but he was passing small volume urine. Physical examination revealed a severely dehydrated infant with sunken eyes & poor skin turgor. He was not jaundiced. Heart rate was 150/minute, respiratory

rate 50/minute and temperature 39°C. Weight was 2 kg (lost 800 grams). Other systemic examination was not remarkable. Investigations: serum sodium, blood urea and creatinin (Table 1). Potassium 5 mmol/l, blood glucose 3.4 mmol/l. Blood gases on admission showed: pH: 7.38, PCO<sub>2</sub>: 25, PO<sub>2</sub>: 97, HCO<sub>3</sub>: 15 and base deficit 8. Blood counts: Hemoglobin 15 gm/dl, white blood cell 15x10 with normal differential. Blood, urine & cerebrospinal fluid cultures were negative. Breast milk sodium on the 5th admission day (8th postpartum day) was 70 mmol/l. He was managed by intravenous fluids (D5% 0.22NS maintenance plus 5% deficit) after a bolus of plasma of 10ml/kg. Urine output was 1ml/kg/hour in the first 24 hours then increased to more than 2 ml/kg/hour in the following days. The weight increased progressively (Table 1). Antibiotics (crystalline penicillin & gentamicin) were given until results of cultures were obtained. He remarkably improved and the fever subsided after rehydration. The mother was examined soon after admission and her breasts were noticed to be rather empty. She was educated and motivated on repeated sessions and reassured that she can successfully breast feed if she has the desire but needs to observe the behavior of her baby (satiety, sleep pattern & urine output). Her milk supply was noted to be remarkably better during admission. Intravenous fluids were decreased gradually and discontinued one day prior to discharge and the infant remained well afterwards. He was seen in the outpatient clinic on the 15th day of life where his weight was 2.7 kg and on the 25th day of age with a weight of 2.9 kg on exclusive breast-feeding.

Our patient presented at a relatively young age of 3 days while many cases in the literature presented after the first week of life. In most series the mother is a primipara as in our patient but hypernatremic dehydration has been reported in infants of multiparous mothers with previous experience in breast-feeding. The young mother lacking the psychological and technical support needed to initiate and maintain breast feeding is at the greatest risk for insufficient breast milk syndrome characterized by dehydration, fever, weight loss and breast feeding associated jaundice.<sup>4</sup> The usual type of dehydration in this situation is isonatremic and mortality or serious morbidity is quite unusual. Giving the infant any bottle-feeding in the early neonatal period is known to cause nipple confusion and disruption of the normal cycle of suckling secretion and can lead to lactation failure as in our patient. Many cases of hypernatremic dehydration were noticed in the contest of insufficient breast milk syndrome<sup>5</sup> and in many of these milk sodium was noticed to be abnormally elevated but in some reports there was no consistent relationship between serum and breast milk sodium. Mortality or severe

**Table 1** - Showing sodium, urea, creatinine and weight during hospital admission.

Day of hospital admission	Sodium (mmol/l)	Urea (mmol/l)	Creatinine (micmol/l)	Weight (kg)
Day 1 (2 pm)	169	169	257	2
Day 1 (9 pm)	161	161	205	-
Day 2	155	155	155	2.3
Day 4	145	145	70	2.5
Day 6	144	144	47	2.5

morbidity (renal impairment and metabolic acidosis) has been observed.<sup>2,6</sup> Postmortem examination was performed in some cases and failed to show any evidence of conditions predisposing to water loss.<sup>2</sup> Medicolegal questions were raised whether external salt has been deliberately given to these infants by their caretakers but breast milk analysis later on confirmed that it was due to abnormally high sodium. Some investigators have considered that relatively low breast milk sodium is a reliable indicator of successful breastfeeding in the coming few weeks. One such report found that 80% of mothers with breast milk sodium of 16mmol/l or lower at the 6th postpartum day sustained breastfeeding at the fourth postpartum week compared with only 50% of those with elevated milk sodium.<sup>7</sup> This, to our perception, may indicate that a high milk sodium level reflects decreased flow of milk and is unlikely to be due to absolute increase in secretion of sodium by the lactiferous ducts. Other reports had shown low lactose content inversely related to that of sodium in the breast milk, which may indicate a more complex disturbance in milk secretion.<sup>5</sup> Another factor that may predispose to hypernatremia is increased insensible water loss through the skin especially in dry desert climate areas like Riyadh City. Our patient was successfully breast fed thereafter and sodium level decreased with increasing milk flow but the level on 25th postpartum day (17mmol/l) was still significantly higher than normal mature breast milk (8 mmol/l). Acceptable weight gain of 28 grams/day was achieved but further follow up is mandatory to assure success of breast-feeding in the following weeks. Milk sodium was measured using an ion selective electrode, which is used for lipemic samples. The sample was taken on the 8th postpartum day after improvement of milk flow. This raises the doubt whether sodium content of samples taken on admission could have been even higher than 70mmol/l.

We conclude that physicians should be aware about insufficient breast milk syndrome particularly when associated with hypernatremic dehydration due to elevated breast milk sodium. Close supervision of lactating mothers especially primiparas and providing technical as well as emotional support can help to prevent this life threatening complication. Initiation of lactation in the delivery room and discouraging artificial feeding in the first few postnatal days would certainly help to sustain successful lactation.

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Have you ever wondered?

Sir,

Have you ever wondered if, in countries where the resistance rates of common bacteria to standard antibiotics is relatively high, the rates in other less frequently monitored bacteria are equally high? For instance are the erythromycin rates in *Streptococcus pyogenes* observed in some countries<sup>1-3</sup> reflected in local isolates of *Bordetella pertussis*, *Legionella pneumophila* or *Chlamydia pneumoniae* - all candidates for erythromycin therapy. Similarly are the metronidazole resistance rates in *Helicobacter pylori*<sup>4-6</sup> mirrored by the local anaerobes? Perhaps the data is out there but I don't believe I've ever seen it pulled together and expressed in this fashion. Molecular techniques now exist to determine the relatedness of resistance genes in these diverse species and to answer these questions. If the genes have spilled over into other species there could be sinister implications.

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