

# Effects of Hygiene Among the Uncircumcised

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*Recommendations against routine neonatal circumcision are based on the assumption that good penile hygiene can offer the same advantages as this procedure. The purpose of this study was to investigate hygienic practices of uncircumcised subjects and the relationship of these practices to the condition of the prepuce and glans. Outcome was related to hygiene: subjects who retracted the foreskin when bathing were less likely to have smegma accumulation, inflammation, phimosis, or adhesions than those who did not. Significant correlations were also found between early instructions concerning hygiene and the type of hygiene practiced. These results support the recommendation that good hygiene can offer many of the advantages of circumcision and highlight the need for clear, early instructions on hygiene to uncircumcised patients.*

The 1975 Ad Hoc Task Force's recommendation against routine neonatal circumcision was based on the assumption that good hygiene can offer the same benefits as this procedure without the surgical risks.<sup>1</sup> To date, however, no information has been available concerning the adequacy of hygiene actually practiced by uncircumcised men or whether good hygiene does, in fact, make a difference in the incidence of adverse outcomes.

The purpose of this study was to document hygienic practices among uncircumcised subjects and to evaluate the effects of these practices.

## METHODS

Health care providers in four clinics in the Salt Lake City area volunteered to participate in the study. All study sites provided care for both adults and children. If on routine physical examination the patient was noted to be uncircumcised, he, or if the patient was a minor, his parents were requested by the physician or nurse practitioner to participate in the study. Informed consent was obtained from all study participants or

their parents if the subject was a minor. Participants or their parents were asked why the subject was not circumcised, what early instructions they could remember receiving from health care providers regarding penile hygiene, who cleansed the genital area (parents or the patient), how often this occurred, and whether this included retraction of the foreskin. The subject's age and racial or cultural background were recorded. The examiner specifically noted the condition of the prepuce and the glans, including presence of phimosis, foreskin adhesions, smegma accumulation, inflammation, or balanitis.

Data sheets were collected after a six-month period. Because the incidence of penile cancer is so low, investigation of the relationship of this condition to hygiene was not possible. Chi-square analysis was used to assess the correlation between reported hygienic practices and the condition of the prepuce and the glans, and the relationship between providers' instructions and the actual hygiene practiced.

## RESULTS

Fifty-one forms were collected. Three lacked information on hygiene currently practiced, while four had no information concerning early instructions. Complete data were available on 47 uncircumcised male patients. The age range was 2 weeks to 52 years (mean = 10½ years, median = 6 years). The racial distribution is shown in Table 1.

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**TABLE 1. RACIAL DISTRIBUTION OF STUDY POPULATION**

Race	Number of Subjects
Indochinese	26
White	18
Hispanic	4
American Indian	1
Mixed	2
Total	51

**TABLE 2. REASONS SUBJECTS WERE NOT CIRCUMCISED**

Reason	Number
Cultural	30
Father or other male family member not circumcised	11
Parent decided against circumcision based on reading or on physician's advice	5
Contraindicated (hypospadias, prematurity, etc)	2
Other	3
Total	51

**TABLE 3. INSTRUCTIONS GIVEN COMPARED TO HYGIENE PRACTICE**

	Instructions Given			Total
	Wash Retracting	Do Not Retract	None	
Usually retracts	18	4	7	29
Does not retract	2	3	12	17
Total	20	7	19	46

$\chi^2 = 11.94; P < .01$

**REASON CIRCUMCISION NOT PERFORMED**

The majority of subjects were not circumcised for cultural reasons. Circumcision is not routinely performed in Cambodia or Vietnam, and in speaking with recent immigrants from those countries, it was found that traditionally the foreskin is first retracted only after marriage or at the time of first intercourse. Other reasons expressed by parents for not having their sons circumcised are shown in Table 2.

**HYGIENE**

Of the 48 patients on whom hygiene data were collected, 24 were responsible for their own care (ages 4 to 52 years), 21 were cleansed by their mother or father (ages 2 weeks to 6 years), and 3 shared the task with a parent (all were aged 4 years). All of the subjects re-

ported washing the genital area at least two to three times per week; 37 of the 48 washed daily. Thirty subjects usually or occasionally retracted the foreskin when washing; 17 did not.

**HYGIENE INSTRUCTIONS**

Many of the subjects or their parents (20) remembered being instructed by a physician or other health care provider to gently attempt retraction of the foreskin when washing. Seven reported being told to wash without retracting the foreskin, while one parent was told to forcibly retract the infant's foreskin. Nineteen remembered no hygiene instructions. Patients were highly likely to follow whatever instructions they had been given ( $P < .01$ , Table 3).

**PHYSICAL FINDINGS**

Examination revealed phimosis in 10 subjects, while foreskin adhesions were present in 16. Because the foreskin is usually not completely retractable in young children, we did not consider this condition significant unless the subject was more than 4 years of age, at which time the foreskin is fully retractable in more than 90 percent of boys.<sup>2,3</sup> Excluding boys less than 4 years old, the prevalence of phimosis was 3/28 (10.7 percent), and the prevalence of adhesions, 6/28 (21 percent). Because of phimosis the glans was not visualized in six patients. Of the other 45 patients, smegma was noted around the glans in 13 subjects (28.9 percent), and there was one case of balanitis (2.2 percent).

The frequency of cleansing was not associated with any differences in the presence of smegma or inflammation; however, the type of hygiene practiced compared with these conditions was correlated. Subjects who retracted the foreskin were less likely to have smegma accumulation or inflammation than those who did not ( $P < .05$ , Table 4).

The type of hygiene, but not the frequency, was significantly correlated with the presence of phimosis or adhesions in patients more than 4 years of age. Patients who reportedly washed retracting the foreskin were less likely to have adhesions or phimosis than those who did not ( $P < .05$ , Table 5).

**DISCUSSION**

The American Academy of Pediatrics Ad Hoc Task Force's 1975 recommendation concerning routine neonatal circumcision was based upon the assumption that "a program of good hygiene offers all the advantages of routine circumcision without the attendant surgical risk."<sup>1</sup> The purpose of this study was to test this assumption by investigating whether uncircumcised subjects were likely to practice good hygiene and the effects of hygiene on the condition of the prepuce and the glans.

TABLE 4. CORRELATION OF HYGIENE WITH PHYSICAL FINDINGS

	Retract Foreskin and Wash	Wash Without Retracting Foreskin	Total
Smegma or inflammation	6	7	13
No smegma or inflammation	22	6	28
Total	28	13	41

$\chi^2 = 4.31; P < .05$

TABLE 5. CORRELATION OF HYGIENE WITH PRESENCE OF PHIMOSIS OR ADHESIONS

	Retract Foreskin and Wash	Wash Without Retracting Foreskin	Total
Phimosis or adhesions	3	6	9
Foreskin retracts easily	13	2	15
Total	16	8	24

$\chi^2 = 7.20; P < .05$

The study findings do support the conclusions of this committee. It was not possible to investigate the relationship between hygiene and penile cancer, but it was found that regular hygiene with retraction of the foreskin significantly decreased the incidence of phimosis, adhesions, smegma accumulation, and inflammation. It should be noted, however, that reported good hygiene did not entirely eliminate these problems.

Fortunately, physicians seem to have become more aware of the need for instruction concerning hygiene than previous studies indicate.<sup>4</sup> Sixty percent of the subjects in this study could recall instructions. Most followed whatever instructions they were given. Those who did not receive a specific program usually did not retract the foreskin while bathing.

These findings and those of others show that physicians are not likely to influence parental decisions regarding circumcision.<sup>5,6</sup> Only five (10 percent) subjects in the study were not circumcised because of advice concerning the procedure. Most remained uncircumcised because circumcision was not the cultural norm or because another family member was uncircumcised.

This study indicates that cleansing the glans two to three times per week with gentle retraction of the

foreskin can decrease the incidence of the problems most commonly associated with being uncircumcised. Should families choose not to have their infants circumcised, careful instruction regarding hygiene should be given at the time of birth and be repeated to the child during the prekindergarten examination, an age when he is likely to take responsibility for his own care. Repeat instructions or inquiries regarding hygiene should be made at each subsequent health maintenance visit.

#### References

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