

## Parental Concerns on the Circumcision for Elementary School Boys : A Questionnaire Study

To evaluate the parental concerns for elementary school boys (7-12 yr) on the circumcision, a randomly selected cross-sectional survey was performed in each elementary school from 16 urban wards in Busan. We asked 10,861 parents to answer the questionnaires on the circumcision such as the benefits and fallbacks of circumcision, proper time and knowledge of the surgery, and neonatal circumcision. The overall response rate to the questionnaire was 38.9%. The overall circumcision rate of elementary school boys was 43.2%, which increased from 18.7% at 7 yr old to 64.8% at 12 yr old. The significant reason for and against circumcision was 'hygiene benefits (88.1%)' and 'unreliable medical benefits (38.5%)', respectively. 74.9% of parents thought that elementary school age is the optimal time of circumcision. Only 11.2% of boys were circumcised during neonatal period. The main reason for parents to oppose neonatal circumcision was 'their babies feel pain (35.8%)'. About 50% of parents thought that circumcision will prevent medical diseases. Besides the medical basis, the circumcision is emerging as a kind of social custom in Busan. For parents making the decisions on the circumcision of their boys, physician or health care providers should provide helpful and honest facts about circumcision.

**Key Words :** Circumcision; Child; Parents; Attitude

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## INTRODUCTION

Circumcision is one of the earliest surgical procedures that have been performed for approximately four thousand years. Circumcision has been performed in about 15-20% of the entire male population in the worlds for religious, cultural, and medical reasons (1-3). Circumcision is mainly performed for religious fulfillments, largely among Islamic and Jewish communities (1, 2). America is the only country where routine infant circumcision is widely practiced without any significant religious reason (2, 3). Korea also probably has the highest circumcision rate among those not Moslem or Jewish.

Several studies have been attempted to assess the value of circumcision in terms of doctors' views. However, there are only few studies on the circumcision in terms of parents' views. In Korea, so far, there is only one available data on the circumcision of children aged 10-13 yr (4).

We studied to evaluate the concerns on the circumcision in parents of elementary school boys in Busan for the purpose of getting basic data to give the public the correct information on their decision.

from January to March 2000. Of the 10,861 invited eligible parents of elementary school boys aged 7-12 yr, 4,225 parents aged 25-57 yr (mean 38.7 yr) participated in this survey. Self-administered questionnaires were distributed to parents through the homeroom teacher at each school. We divided participants into two groups; group I (parents who agree to circumcision) and group II (parents who disagree to circumcision).

The questionnaires consisted of five pages. The first page included a brief explanation of the intention of this survey. The remaining pages included items about the reason for or against circumcision, optimal time of circumcision, medical knowledge on the circumcision, neonatal circumcision, selection of doctors, and demographic characteristics of the group. Information on demographic characteristics was obtained and categorized by age, sex, socioeconomic status (income and education), religion, occupation, circumcision status of fathers and medical or paramedical relations. In the assessment of medical knowledge of parents on the circumcision, parents were asked to answer simply 'yes' or 'no'.

The statistical analysis was done with chi-square test or McNemar test. The level of significance was  $p < 0.05$ .

## MATERIALS AND METHODS

A randomly selected cross-sectional study was performed in each elementary school from 16 urban wards in Busan, Korea,

## RESULTS

Of the 10,861 invited eligible parents, the questionnaires were collected from 4,225 parents (response rate, 38.9%), 2,022

fathers (47.9%) and 2,203 mothers (52.1%).

### Parental characteristics

The group of parents who agree to circumcision (group I) and disagree to circumcision (group II) were closely matched. There was no significant difference between the two groups regarding age, education, occupation, income, religion, and relative who is related with medicine or paramedicine. However, the circumcision status of fathers was exceptional factor (Table 1).

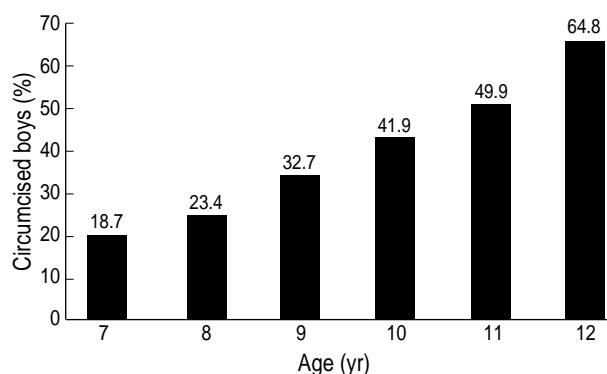
### Circumcision rate according to age

We assessed the circumcision rate according to age of circumcised 1,827 boys from the parents group. The overall circumcision rate among elementary school aged boys was 43.2% (1,827/4,225 boys). The circumcision rate increased significantly with age from 18.7% among 7 yr old to 64.8% among 12 yr old ( $p=0.001$ ) (Fig. 1).

**Table 1.** Comparison between the groups of parents who agree to the circumcision (group I) or disagree to the circumcision (group II) regarding parental characteristics

| Demographic characteristics                    |                         | Group I (%) | Group II (%) |
|--|-------------------------|-------------|--------------|
| Educational level                              | Above college           | 96.6        | 3.4          |
|  | Below college           | 99.0        | 1.0          |
| Occupation                                     | White collar            | 97.7        | 2.3          |
|  | Blue collar             | 98.6        | 1.4          |
| Income   | ≥US\$20,000 equivalent  | 96.9        | 3.1          |
|  | < US\$20,000 equivalent | 98.5        | 1.5          |
| Religion                                       | Buddhism                | 99.1        | 0.9          |
|  | Christianity            | 95.5        | 4.5          |
| Relative related with medicine or paramedicine | Have                    | 97.0        | 3.0          |
|  | Don't have              | 98.9        | 1.1          |
| Father's circumcision status                   | Circumcised             | 99.2        | 0.8          |
|  | Uncircumcised           | 95.6*       | 4.4*         |

\*,  $p<0.05$ .



**Fig. 1.** Circumcision rate according to age (n=4,225). ( $\chi^2$  test for trend  $p=0.001$ ).

### Parental viewpoints on the circumcision

Most of the parents (96.8%) have considered the circumcision on their sons. 91.7% of parents also thought that their sons should be circumcised. Among them (91.7%), 82.8% had at least one reason to support their decisions on circumcision. They were asked whether their sons should be circumcised or not be circumcised and the results are summarized in Table 2. Among reasons for which parents agree to the decision on circumcision, social reason was less prominent. For parents who agree to circumcision, the most frequent response was the concern about medical issues; hygiene benefits accounted for 88.1% (Table 2). On the other hand, for parents who chose 'not to have their sons circumcised', the most frequent reasons were 'unreliable medical rationality' and 'foreskin may spontaneously retract with age' accounted for 38.5% and 23.7% of respondents, respectively (Table 2). Religion was given as one of the reasons for the decision on circumcision from only 14 respondents (0.3%).

Of the fathers (69.4%) who were circumcised, 50.9% of their sons were circumcised. On the other hand, of the uncircumcised fathers (30.6%), 55.6% of their sons were uncircumcised. Son's circumcision rate was significantly related with the circumcision state of fathers ( $p=0.001$ ) (Table 3).

In a question on the appropriate time of circumcision and the most suitable doctor to perform the procedure, most of the parents (74.9%) thought that elementary school age is the optimal time for circumcision. The response on the neonatal cir-

**Table 2.** Reasons deciding for or against circumcision

| Reasons  | No. respondents (%) |
|--|---------------------|
| Deciding for circumcision (n=3,453)                |                     |
| Hygiene benefits (easier to keep clean)            | 3,042 (88.1)        |
| Enhanced sexuality or larger penis                 | 294 (8.5)           |
| Peer pressure (I don't want him to look different) | 45 (1.3)            |
| Good cosmetic (looks better)                       | 17 (0.5)            |
| Religion   | 14 (0.4)            |
| Others   | 41 (1.2)            |
| Deciding against circumcision (n=772)              |                     |
| Unreliable medical rationality                     | 297 (38.5)          |
| Foreskin spontaneously retracts with age           | 183 (23.7)          |
| Fear of circumcision complications                 | 168 (21.7)          |
| Ridicule from peer (appearance)                    | 54 (7.0)            |
| Others   | 70 (9.1)            |

**Table 3.** Relationship between the status of father's circumcision and their sons

| Father        | Son (%)      |               | Total (%)     |
|---------------|--------------|---------------|---------------|
|               | Circumcised  | Uncircumcised |               |
| Circumcised   | 1,384 (35.3) | 1,336 (34.1)  | 2,720 (69.4)  |
| Uncircumcised | 534 (13.6)   | 668 (17.0)    | 1,202 (30.6)  |
| Total         | 1,918 (48.9) | 2,004 (51.1)  | 3,922 (100.0) |

McNemar test:  $p=0.001$ ,  $\kappa=0.054$ .

**Table 4.** Optimal time and most suitable doctor for circumcision

|                                | No. respondents (%) |
|--------------------------------|---------------------|
| Time of circumcision (n=4,104) |                     |
| Neonatal                       | 612 (14.9)          |
| Preschool (kindergarten)       | 161 (3.9)           |
| Elementary school              | 3,075 (74.9)        |
| Middle school                  | 154 (3.8)           |
| High school                    | 27 (0.7)            |
| Before enrollment              | 25 (0.6)            |
| Military service period        | 29 (0.7)            |
| Before marriage                | 3 (0.1)             |
| Manhood                        | 0 (0)               |
| No consideration               | 18 (0.4)            |
| Specialist (n=4,225)           |                     |
| Urologist                      | 3,623 (85.8)        |
| General surgeon                | 364 (8.6)           |
| Obstetric-gynecologist         | 57 (1.3)            |
| Pediatrician                   | 47 (1.1)            |
| Do not matter                  | 134 (3.2)           |

**Table 5.** Medical knowledge of parents on the circumcision

| Questions   | No. respondents (yes) (%) |
|---|---------------------------|
| Questions on the circumcision   |                           |
| Smegma is a infected unsanitary material in the uncircumcised children    | 3,688/4,077 (90.5)        |
| Circumcision prevents a penile cancer                                     | 1,625/3,762 (43.2)        |
| Circumcision prevents a cervical cancer                                   | 2,487/3,900 (64.7)        |
| Circumcision prevents a infection such as cystitis, pyelonephritis        | 1,822/3,735 (48.8)        |
| Circumcision prevents a genital infection of spouse                       | 3,108/3,900 (79.7)        |
| Circumcision prevents a premature ejaculation                             | 1,501/2,662 (56.4)        |
| Circumcision prevents a balanitis or balanoposthitis                      | 1,576/3,819 (41.3)        |
| Circumcision should be performed in winter to lessen an inflammation      | 3,433/4,026 (85.3)        |
| Questions on the neonatal circumcision                                    |                           |
| Son will be teased from peers because of circumcised penis at earlier age | 896/2,786 (32.3)          |
| Anesthesia doesn't need in neonate because of no feeling of pain          | 1,092/2,687 (40.6)        |
| Neonatal circumcision enhances sexuality                                  | 1,610/2,685 (60.0)        |
| Neonatal circumcision enhances penile growth                              | 1,427/2,696 (52.9)        |
| Neonatal circumcision prevents a premature ejaculation                    | 1,501/2,662 (56.4)        |
| Neonatal circumcision enhances a strong urinary stream                    | 960/3,032 (31.7)          |

cumcision was only 14.9% in this question. Among respondents, 85.8% thought that urologists were the most suitable surgeons to perform the procedure. 5.6% of respondents chose 'obstetrics-gynecologist', 'pediatrician', and 'do not matter' (Table 4).

In the assessment of the medical knowledge or misunderstan-

**Table 6.** Reasons deciding against neonatal circumcision

| Reasons   | No. respondents (%) |
|---|---------------------|
| Babies feel pain                                    | 501 (35.8)          |
| Earlier circumcised, more unshaped                  | 354 (25.4)          |
| It is a easier teasing from peer                    | 170 (12.1)          |
| It is dangerous to circumcise a small size of penis | 141 (10.1)          |
| Fear of circumcision complications                  | 57 (4.1)            |
| Others  | 177 (12.6)          |
| Total   | 1,400 (100)         |

**Table 7.** Medical knowledge of parents on the neonatal circumcision

| Questions   | No. respondents (yes) (%) |
|---|---------------------------|
| Son will be teased from peers because of circumcised penis at earlier age | 896/2,786 (32.3)          |
| Anesthesia doesn't need in neonate because of no feeling of pain          | 1,092/2,687 (40.6)        |
| Neonatal circumcision enhances sexuality                                  | 1,610/2,685 (60.0)        |
| Neonatal circumcision enhances penile growth                              | 1,427/2,696 (52.9)        |
| Neonatal circumcision prevents a premature ejaculation                    | 1,501/2,662 (56.4)        |
| Neonatal circumcision enhances a strong urinary stream                    | 960/3,032 (31.7)          |

ding of parents on the circumcision, about 50% of parents took account of medical advantages on the circumcision (Table 5).

### Parental viewpoints on the neonatal circumcision

Most of Korean males were circumcised after the neonatal period; only 11.2% were circumcised during the neonatal period in this survey. 72.3% of parents were not recommended the neonatal circumcision on their sons from hospitals during the neonatal period. We asked the reasons to 1,400 parents who were against the neonatal circumcision; the results were summarized in Table 6. Among all reasons against the neonatal circumcision, the most frequent responses were 'babies feel pain', and 'earlier circumcised, more unshaped', accounted for 35.8%, and 25.3%, respectively.

In the assessment on the neonatal circumcision, more than 50% of parents were interested in son's sexuality and penile size as grown-ups, rather than concerns by the medical basis (Table 7).

## DISCUSSION

The origin of circumcision is shrouded in antiquity; mummies from 6,000 yr ago have been reported to show evidences of circumcision. The origin of the practice of circumcision is in both cultural and religious traditions. Circumcision has become an essential component in many religions, most notably in Judaism and Islam. Circumcision has been a part of Judaism

from the very earliest days of the religion, since it was first performed by the patriarch Abraham (5). The tradition also was prevalent among the Egyptians, Kalahari bushmen, Australian aborigines, and among other African communities (1). It has only become fashionable, since the rise of modern surgery in the 19th century (1).

In the United States, the origin of circumcision can be traced to religious beliefs, as well as to health beliefs that circumcised penis leads to a lower rate of cancer, infection, and phimosis, and better hygiene. Recently, however, medical researches on the topic have generated an ambiguous set of results regarding the impact of circumcision status on the lives of men. As a result, rhetoric has reached a fever pitch, as each side of the debate appeals to divergent criteria to make its case. Recognizing the merit of each position, the American Academy of Pediatrics (AAP) has counseled that parents must be fully informative of the risks and benefits of the procedure before deciding to have their sons circumcised (6, 7).

Circumcision is performed in most male, in spite of its vague medical indications in Korea, and despite policy statements of more than 20 yr ago against routine circumcision of newborns by the AAP and the American College of Obstetrics and Gynecology. Korea also stands apart from the rest of Asia with the highest rate of circumcision. Furthermore, Korea probably records with the highest number of the boys circumcised in elementary school age or teenage anywhere in the world. Unfortunately, Korean physicians and surgeons do not know exactly why Korea has the highest circumcision rate in these age group in the world, and there is also a little available data to survey the trend, especially among children (2, 4). We studied the prevalence of circumcision among elementary school boys in Busan, as well as the factors of influence on the decisions of the parents on circumcision. We also studied the reasons for or against circumcision, proper time of circumcision, medical knowledge of the parents on the circumcision, etc.

The role of physicians can be influential in the circumcision decision (8, 9). It is reported that the circumcision was performed in 20% of cases when physicians opposed it and in 100% of cases when the physician favored it (9). In our survey, the questionnaires were distributed through school teachers in order to avoid any influence and effect of physicians on the decision. And in our desire for objectivity, we also have not given sufficient emphasis to the view that circumcision was a procedure that is medically necessary.

With respect to prevalence, several investigators have reported that demographic characteristics, such as educational level, occupation, income, religion, etc have acted as parts of influencing factor of circumcision (4, 7, 10, 11). Laumann et al. demonstrated that circumcision rates are the greatest among better-educated respondents (11). Better-educated parents, who are more likely to be exposed to the prevailing scientific wisdom favoring circumcision and to be exposed to significant social pressure to conform to this wisdom, circumcised their sons at greater levels than less educated parents. Socioeconom-

ic differences between parents may reflect the greater tendency for mid-class parents to desire circumcision for their sons (4, 7). In other report (11), the estimated percentages of youths circumcised highly correlated with family income and education of head of household. However, in our study, different from previous reports (4, 7, 10, 11), there was no significant relationship concerning demographic characteristics, such as education level, occupation, income, and presence of relatives whose works are related with medicine/paramedicine. Father's circumcision status was an exceptional factor. While the circumcision has been employed as religious marker in other western societies, such religious purpose did not serve in Busan like the report of Oh et al. (4). Reasons for the difference between this survey and other reports are not entirely clear. Possible explanation could include regional and cultural differences, varying participation rates, methods of survey (phone, interview, mailed), formats of survey (open choices presented), and the length of time since the circumcision.

Previous reports (8, 10) on the reasons for circumcision decision have revealed parents concern for medical issues, although the importance of these issues has been difficult to estimate. Subsequent reports have supported the concern for cleanliness and prevention of infection or cancer as reasons for circumcision (2, 4, 6, 12-14). We could also find the same results in our survey. However, interestingly, reasons such as 'circumcision enhances sexuality or penile growth', 'peer pressure' or 'good cosmetic', that are not from the basis of medical knowledge, were covered as reasons of circumcision different from other surveys. In our study, just as in other surveys (10), father's circumcision status significantly influenced the circumcision decision of their sons. Even though most of parents concerned about medical issues, the concern that son's penis looks like his fathers' or brothers' or friends' seemed to be important. Social reasons for the circumcision decision also were the concerns among the parents, even though it categorized by the low percentage in our survey.

In the assessment of medical knowledge on the circumcision, more than fifty percent of parents had incorrect medical knowledge of circumcision, such as 'the surgery enhances sexuality, and penile growth', 'it prevents a premature ejaculation' or 'it should be performed in winter to lessen an infection'. This data is important in providing proper education for parents to make the right decision on circumcision. It seems to us that if proper medical information is going to make a difference in the incidence of circumcision, the group with this difference would be highly motivated with higher education.

There are a little survey on the time of circumcision. There are merits and fallbacks in the neonatal operation. Factors such as the degrees of feeling pain, anesthesia, ligature, complication, and cost were considered. Wiswell (13) strongly advocates the neonatal period as being the best time to perform circumcision, pointing out that the child will not need ligatures or general anaesthesia, nor additional hospitalization. Complication rate is also very low (0.2%) as well as the cost. Older

children aged 4 months to 15 yr usually have general anaesthesia and require ligatures. The child is often hospitalized overnight. There may be substantial complication although their occurrence is infrequent (1.7%). The postoperative pain lasts for days. It is more expensive to circumcise an older child (13). In adults, it can be performed on an outpatient basis with local anaesthetic, and ligatures are used. The pain generally last for 1-2 week, and the procedure is more expensive for adults (13). As seen in this survey, circumcision, different from other country's report, is mainly done during elementary school age, and the rate of circumcision increased according to age, even among the ranges of elementary school age. It may be influenced by parents' thoughts of increasing tolerability to pain during operation time and postoperative period, and being performed on the outpatient basis with local anesthesia.

Most of babies have taken circumcision during the neonatal period in the United States. However, in this survey, only 11.2% were circumcised during neonatal period, and the major cause avoiding neonatal circumcision by parents was that they thought 'baby feels pain' (35.8%) and 'earlier circumcised, more unshapely' (25.3%). We also learned that many parents had been misguided to the idea about neonatal circumcision, such as 'neonatal circumcision enhances sexuality', 'neonatal circumcision enhances penile growth', or 'neonatal circumcision makes a strong urinary stream'. To make correct decisions on their son's circumcision, it will be very important to give parents with accurate medical knowledge about the benefits of circumcision.

Several studies have attempted to assess the value of circumcision in terms of doctors' views (6, 7, 13, 15). We thought that there might be different opinions between physicians and parents. One of them was 'who is the most suitable doctor to circumcise?'. Among respondents, 85.6% thought that urologists were the most suitable to perform the surgery. Unexpectedly, some respondents (5.7%) chose 'obstetrics-gynecologists', 'pediatricians' or 'do not matter'.

Recent investigators have argued that an educational program about the lack of medical indication for the circumcision decision would lead parents to choose against circumcision on their sons. The medical aspects of circumcision have been written in the literatures and remain confused. It seems clear that it is still in need of modest hygienic care, and has been recently associated with its own infectious problems. This position was supported by this surveys showing a high proportion of concerns for medical issues among parents making the circumcision decision. However, in this study, besides the medical issues, there also were social concerns such as 'circumcision enhances sexuality or penile growth' or 'peer pressure'. The role of physicians or health care providers should be to knowledgeable and honestly discuss not only the medical aspects of circumcision, but also the impact of social concerns. Because of the strong base of the circumcision decision in social

issues and cultural traditions, it may be more of an emotional than a rational decision.

In conclusion, the circumcision has been done as a kind of custom or cultural conformity in Busan society; to change the parental attitudes toward their son's circumcision, it is not an easy task. Decisions on circumcision in Busan are based on the parents' perceptions of hygiene, their lack of understanding of the medical knowledge, or their desire to conform to the pattern established by the parents and their own societal structure. We believe that in counseling parents making the circumcision decision, physicians or health care providers should provide a knowledgeable and honest discussion of the medical and social aspects on circumcision.

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- 1) Under 500,000Won
- 2) 510,000-1,000,000Won
- 3) 1,000,001-1,500,000Won
- 4) 1,500,000-2,000,000Won
- 5) 2,000,001-2,500,000Won
- 6) 2,500,001-3,000,000Won
- 7) Over 3,000,001Won

Q11] What is your religion?

- 1) Buddhism
- 2) Protestant
- 3) Catholic
- 4) Others
- 5) I have no religion