

The Relationship Between Monosymptomatic Enuresis and Circumcision: Is it Beneficial or Traumatic? A Randomized Study

Alper Coşkun,¹ Kutluhan Erdem²

¹Department of Urology, University of Health Sciences, Kartal Dr. Lütfi Kırdar City Hospital, İstanbul, Türkiye
²Department of Urology, Aksaray University Training and Research Hospital, Aksaray, Türkiye

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Correspondence: Alper Coşkun,
SBÜ, Kartal Dr. Lütfi Kırdar Kartal
Şehir Hastanesi, Üroloji Kliniği,
İstanbul, Türkiye
E-mail: dr.alper05@gmail.com



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ABSTRACT

Objective: This study aims to examine the effect of circumcision on monosymptomatic enuresis and to evaluate by considering whether it is beneficial or traumatic.

Methods: A total of 130 boys aged 5–9 years who applied for circumcision for cultural and religious reasons were prospectively analyzed and after exclusion criteria, 107 boys were circumcised under anesthesia. The cases were divided into enuresis negative and enuresis positive. The presence of enuresis was evaluated preoperatively and at the 3rd, 6th, and 9th months postoperatively.

Results: The mean age of all cases was 6.7 years and there was no significant age difference between the groups. A statistically significant difference was found between the enuresis statuses of the enuresis-positive group after circumcision ($p=0.001$). The mean number of bedwetting before circumcision was 2.89 per week and 1.93 at the 9th month after circumcision. There was no statistically significant result that increased the frequency of enuresis in the enuresis-negative group in the post-circumcision period.

Conclusion: Circumcision is not a predisposing factor for enuresis. Furthermore, this surgery is likely to positively affect monosymptomatic enuresis and a reduction in bedwetting frequency.

INTRODUCTION

Monosymptomatic nocturnal enuresis, defined as intermittent nocturnal incontinence, is a common clinical condition that affects quality of life in children and families with a 15% remission improvement each age.^[1] Its average incidence is 5–10% in 7 years old and 1–2% in adolescents.^[1,2] Approximately 5–10% of school-age children suffer from this disturbance.^[3] Anamnesis, questionnaire forms, bladder and bowel diary, urinalysis, ultrasound and post-void residual urine volume test, and psychological screening are included in assessing enuresis. Both medical and behavioral treatments are significant in treatment.^[4]

Circumcision is a widespread surgical procedure that dates back to 15,000 BC for religious, cultural, and medical reasons.^[5] The specific benefits of circumcision have been identified as preventing urinary system infections, reducing the risk of transmission of sexually transmitted diseases, and preventing penile cancer.^[6] The benefits and

harms of non-therapeutic circumcision are still a matter of debate.

One of the primary limitations of the literature on circumcision and enuresis is that it is not well explored. It's unclear whether enuresis can be caused by traumatic effects following circumcision, or whether circumcision can help with enuresis. Based on this idea, we aimed to investigate the effect of circumcision on monosymptomatic enuresis prospectively.

MATERIALS AND METHODS

One hundred and thirty boys aged 5–9 years who applied for non-therapeutic circumcision to our hospital urology clinic between September 2018 and January 2020 were prospectively analyzed.

Exclusion criteria

Daytime incontinence, chronic constipation, previous surgery, additional problems detected in urinary system

examination (such as hydronephrosis and vesicoureteral reflux), and receiving treatment for enuresis were excluded from the study.

After the elimination, a total of 107 cases were included in the study. The cases were divided into two groups as with 69 patients with nocturnal enuresis negative and enuresis positive 38 patients (Table 1). It was taken into consideration that patients in the monosymptomatic enuresis-positive group had intermittent nightwetting for at least 6 months. Besides, urinalysis, urinary system ultrasonography, uroflowmetry, and post-void residuals volume were performed on all enuresis-positive group patients. These patients' parents were informed that no medical or behavioral treatment would be given for bedwetting at night within this study, and a consent form was filled.

No further urological assay was performed for the patients to be included in the nocturnal enuresis-negative group except for routine pre-anesthesia tests. The parents were also informed that if the enuresis emerges after circumcision, it will be waiting until the 9th month, and additional treatment will not be supplied. Furthermore, we

laid down as a condition that if enuresis continues at the end of the 9th month, treatment was planned.

Whether, the patients had nocturnal enuresis, who was questioned before the operation and at the 3rd, 6th, and 9th months after the operation.

Surgical procedure

All patients were operated on with the dorsal slit method by performing sedoanalgesia plus dorsal penile nerve block (prilocaine) under operating room conditions.

Statistical analysis

Groups were divided into two groups by simple randomization. Data were recorded in the SPSS IBM 25 statistics program. Pearson Chi-square test, Friedman, Wilcoxon test, and Student's t-test were used.

RESULTS

The mean age is 6.7, and there was no observed statistical difference between groups (Table 1) ($p=0.442$). We noticed that the number of patients with enuresis decreased from 38 to 23 in the 3rd month, 10 in the 6th month, and 9 in the 9th month after circumcision. Whether, the two groups have enuresis before and after circumcision and the comparison accordingly months are summarized in Table 2.

When considering the number of bedwetting per week (frequency), it was recognized that eight patients who had bedwetting 7 times a week before circumcision deter-

Table 1. Ages of the groups

	n	Age	p
Nocturnal enuresis negative	69	6.81	
Enuresis positive	38	6.5	
Total	107		=0.442*

*Student's t-test.

Table 2. Comparison of enuresis before and after circumcision

	3 rd month enuresis after circumcision			p-value
	No	Yes	Total	
Pre-circumcision enuresis				0.001*
No	69	0	69 (64.4%)	
Yes	15	23	38 (35.6%)	
Total		84	23	107
				0.218*
	6 th month enuresis after circumcision			
	No	Yes	Total	
Pre-circumcision enuresis				0.003*
No	69	0	69	
Yes	28	10	38	
Total	87	10	107	
				0.003*
	9 th month enuresis after circumcision			
	No	Yes	Total	
Pre-circumcision enuresis				0.003*
No	69	0	69	
Yes	29	9	38	
Total	98	9	107	

*Pearson Chi-square.

Table 3. Number of patients with enuresis before and after circumcision and enuresis frequencies

Number of bedwetting per week (Frequency)	Pre-circumcision n (%)	3 rd month enuresis after circumcision n (%)	6 th month enuresis after circumcision n (%)	9 th month enuresis after circumcision n (%)
1	17 (44.7)	12 (52.1)	6 (60)	8 (88)
2	7 (18.4)	7(30.4)	2 (20)	1 (11)
3	4 (10.5)	3 (13)	1 (10)	
4			1 (10)	
5	1 (2.6)	1 (4.3)		
6	1 (2.6)			
7	8 (21.1)			
Total number of children (n)	38	23	10	9

Table 4. Comparison of pre-circumcision and post-circumcision enuresis frequency

Frequency	n=107	Mean	Minimum	Maximum	Std. deviation	p-value
PC		2.89	1	7	1.40	0.000*
3 rd month EAC		2.34	1	7	0.93	
6 th month EAC		2.21	1	7	0.69	
9 th month EAC			1	7	0.56	
PC-3 rd month EAC difference		p=0.000**				
PC-9 th month EAC difference		p=0.000**				
3 rd month EAC-9 th month EAC difference		p=0.000**				

*Friedman test; **Wilcoxon signed-rank test. PC: Pre-circumcision; EAC: Enuresis after circumcision.

mined that there was no more night wetting at 9 months after circumcision (Table 3).

The average frequency value before circumcision is 2.89, and the 3rd month after circumcision is 2.34. Similarly, there is a statistically significant decrease in the number of bedwetting between the 6th and 9th months ($p=0.000$) (Table 4).

Our results also showed that enuresis was not observed in any of the 69 dry children after circumcision.

DISCUSSION

Monosymptomatic nocturnal enuresis is a common clinical case, and the etiological occasions and pathophysiological mechanisms of this condition keep on to be investigated. Epidemiological studies highlight that its etiology is multifactorial.^[7]

When seeking the literature, according to the current literature, we can observe that it is found to be more common in boys.^[8,9] For a long time, having a family history has been recognized as a risk factor.^[10] In a study by Von Gontard et al.,^[11] they found that if parents have enuresis, their children are more likely to have it as well. Psychological reasons can cause the emergence of enuresis, or the disorder itself may also predispose to psychological disorders. In this regard, it can be said that the discomfort is in a vicious circle.^[12]

Another critical problem is that these children have difficulty waking up. The adopted view on this issue is that sleep difficulties are common in these children.^[13] It is likely to achieve success in treatment thanks to sufficient awareness of parents. It should also be kept in mind that these patients may have spontaneous remission.^[1]

Male circumcision is the most frequently performed surgical procedure in the neonatal period in the USA and many regions of the world, and whether it should be performed outside the necessity of treatment and the ideal age range for it is still open to discussion.^[14] We included male children in the 5–9 age group to be significant for enuresis in our study's.

If we consider the probable negative effect of circumcision, we can say that studies in the literature mostly focused on sexual disorders, and patient groups are generally determined according to whether the adult age groups are circumcised. In light of these data, we can claim serious suspicions that male circumcision is a traumatic procedure and causes sexual dysfunction in the long term.^[15] However, regarding the contrary hypothesis, Aydogmus et al.^[16] reported that when circumcision is not performed in childhood, it has psychosocial and physical unfavorable effects in adulthood. There are also studies supporting the idea that male circumcision has a traumatic and adversely influences their psychology in the childhood age group.^[17,18] Meanwhile, there is no standard acceptance for circumcision under local anesthesia or general anesthesia;

there are still centers where anesthesia is still performed for infant circumcision even.^[19] However, the consensus is that the dorsal penile nerve block positively affects pain during circumcision and has psychological benefits.^[20] On the other hand, infant circumcision differs from schoolboys or pre-school boys circumcision. There are not enough studies about the differences in psychological effects of general anesthesia and local anesthesia on children. We generally prefer sedoanalgesia for circumcision in pre-school children.

We conducted this study on male circumcision and its foreseeable negatives by wondering whether there is any relationship with enuresis, another disturbing clinical condition in which psychological factors are influential. We can express that there are a limited number of studies in the literature on this subject. A study established in 1956 had suggested that circumcised children may be predisposed to enuresis, but there are no statistical differences had been reported.^[21] There is no randomized prospective or retrospective study in the literature that directed whether there is a relationship between circumcision and enuresis.

Frankly, in this study, we thought that circumcision would be able to trigger enuresis; however, we found that the data we obtained showed the opposite. We should also specify no change in children who do not have enuresis after circumcision, both in the 3rd, 6th, and 9th months.

Our study supports the positive effect of circumcision on the course of enuresis in the beginning. However, our study has some limitations; not knowing whether the cases have a standard psychosocial structure, the difference between the number of patients in the groups and the low total number, the fact that it was conducted from a single center. The fact that a standard questionnaire about enuresis was not used in our study is a critical point. We state that we could not use this questionnaire form due to the lack of Turkish validation of the “Nocturia, Nocturnal Enuresis, and Sleep-interruption Questionnaire” questionnaire form mentioned in the literature.^[22] We accept that these issues we have indicated may make our results controversial. Another issue is the state of spontaneous remission in enuresis cases. From this point of view, we accept that the dilemma of “probably these patients recovered spontaneously” will also be a subject of criticism. According to the outcomes, it would, of course, be pretentious to say that “circumcision influence positively on the process of monosymptomatic enuresis.” However, we think that our study is valuable as it constitutes a first in this regard, and we believe that it will be an inspirer for future multicenter studies.

CONCLUSION

Circumcision is still a controversial issue all over the world. The problem of bedwetting at night, which impairs the quality of life of children and families, may be related to this surgical procedure. Our outcomes demonstrate that

circumcision has a beneficial effect on children with monosymptomatic enuresis primary. However, the disease is a multifactorial clinical phenomenon that prevents us from making definitive comments on this issue. Multicenter studies with larger populations, which will be designed both retrospectively and prospectively, will contribute to the literature.

Ethics Committee Approval

This study approved by the Kartal Dr. Lütfi Kırdar City Hospital Clinical Research Ethics Committee (Date: 27.01.2021, Decision No: 514/194/26).

Informed Consent

Prospective study.

Peer-review

Externally peer-reviewed.

Authorship Contributions

Concept: A.C.; Design: K.E.; Supervision: A.C., K.E.; Fundings: A.C.; Materials: A.C., K.E.; Data: A.C.; Analysis: A.C.; Literature search: A.C.; Writing: A.C.; Critical revision: A.C., K.E.

Conflict of Interest

None declared.

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Monosemptomatik Enürezis ve Sünnet Arasındaki İlişki: Yararlı mı yoksa Travmatik mi? Randomize Bir Çalışma

Amaç: Sünnetin monosemptomatik enürezis üzerindeki etkisini incelemek. Faydalı mı yoksa travmatik mi sorusunu göz önünde bulundurarak değerlendirmek.

Gereç ve Yöntem: Kültürel ve dini nedenlerle sünnet için başvuran 5-9 yaş arası toplam 130 erkek çocuk prospektif olarak incelendi ve dışlama kriterlerinden sonra 107 erkek çocuk anestezi altında sünnet edildi. Olgular enürezis negatif ve enürezis pozitif olarak ikiye ayrıldı. Enürezis varlığı ameliyat öncesi ve ameliyat sonrası 3., 6. ve 9. aylarda değerlendirildi.

Bulgular: Tüm olguların ortalama yaşı 6.7 idi ve gruplar arasında anlamlı bir yaş farkı yoktu. Enürezisi pozitif grubun sünnet sonrası enürezis durumu arasında anlamlı istatistiksel fark saptandı ($p=0.001$). Sünnetten öncesi haftalık yatak ıslatma sayısı ortalama 2.89 ve sünnet sonrası 9. ayda 1.93 idi. Enürezisi negatif grupta sünnet sonrası dönemde enürezis sıklığını artırdığına dair istatistiksel olarak anlamlı bir sonuç bulunmadı.

Sonuç: Sünnet, enürezis için predispozan bir faktör değildir. Ayrıca, bu ameliyatın monosemptomatik enürezis üzerinde olumlu etkisi ve yatak ıslatma sıklığında azalma olması muhtemeldir.

Anahtar Sözcükler: Enürezis; sünnet; yatak ıslatma.