Original Article – Pediatric Urology
Grand J Urol 2025;5(2):49-54
DOI: 10.5505/GJU.2025.98159

Thermocautery-assisted Circumcision: A Single-center Experience from the First Two Years of Surgical Expertise

Termokoter Yardımlı Sünnet: Cerrahi Uzmanlığın İlk İki Yılından Tek Merkezli Bir Deneyim

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Cite as: Şimşek A, Kırdar M, Başer A, Uysal Ü. Thermocautery-assisted Circumcision: a single-center experience from the first two years of surgical expertise. Grand J Urol 2025;5(2):49-54

Submission date: 18 March 2025 **Acceptance date:** 18 April 2025 **Online first:** 28 April 2025 **Publication date:** 20 May 2025

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Abstract

Objective: Circumcision, the surgical removal of the foreskin covering the penile glans, is one of the oldest and most commonly performed surgical procedures worldwide. In recent years, thermocautery has gained popularity as a cost-effective and practical method. This study aims to present the results of the modified three-stage circumcision technique performed with the help of a thermocautery device in response to the intense demand for circumcision in our region and to contribute to the circumcision literature.
Materials and Methods: This retrospective study analyzed 604 circumcision patients operated on using the three-stage guillotine method with thermocautery while preserving the glans. These procedures were performed by a single surgeon in the first two years of his specialization at Siverek State Hospital between October 2022 and September 2024.
Results: The mean operative time was 12.5 ± 2.8 minutes (range: 8–25 minutes). The mean age of the patients was 7.04 ± 4.1 years (range: 0.33–15.7 years). Bleeding in the form of minor leakage was observed in 3 patients (0.52%). Complications such as infection, penile injury, meatal stenosis, or secondary phimosis were not encountered in any patient.
Conclusion: Thermocautery shortens the duration of the procedure, reducing the child's exposure to anesthesia and surgical stress, while also lowering the risk of bleeding. Circumcision performed with a thermocautery is practical and safe when conducted by trained doctors in an appropriate setting.

Keywords: circumcision, device, complication, thermocautery

Özet

Amaç: Sünnet, penis başını örten sünnet derisinin cerrahi olarak çıkarılması olup, dünya çapında en eski ve en sık uygulanan cerrahi prosedürlerden biridir. Son yıllarda, termokoterizasyon uygun maliyetli ve pratik bir yöntem olarak popülerlik kazanmıştır. Bu çalışmada, bölgemizde sünnete olan yoğun talep üzerine termokoterizasyon cihazı yardımıyla gerçekleştirilen modifiye üç aşamalı sünnet tekniğinin sonuçları sunularak sünnet literatürüne katkıda bulunulması amaçlanmıştır.
Gereçler ve Yöntemler: Bu retrospektif çalışmada, glans korunarak termokoterizasyon ile üç aşamalı giyotin yöntemi kullanılarak gerçekleştirilen 604 sünnet hastası analiz edilmiştir. Bu prosedürler, tek bir cerrah tarafından, uzmanlığının ilk iki yılında, Ekim 2022 ile Eylül 2024 tarihleri arasında Siverek Devlet Hastanesi'nde gerçekleştirilmiştir.
Bulgular: Ortalama ameliyat süresi 12,5 ± 2,8 dakikadır (aralığı: 8-25 dakika). Hastaların ortalama yaşı 7,04 ± 4,1 yıldı (aralığı: 0,33–15,7 yıl). 3 hastada (%0,52) küçük sızıntı şeklinde kanama gözlendi. Enfeksiyon, penis yaralanması, meatal stenoz veya sekonder fimozis gibi komplikasyonlar hiçbir hastada görülmedi.
Sonuç: Termokoterizasyon, çocuğun anesteziye ve cerrahi strese maruz kalmasını azaltırken, aynı zamanda kanama riskini de düşürür. Termokoterizasyon ile yapılan sünnet, uygun bir ortamda eğitimli doktorlar tarafından yapıldığında pratik ve güvenlidir.

Anahtar kelimeler: sünnet, cihaz, komplikasyon, termokoter

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Introduction

Circumcision, the surgical removal of the foreskin covering the penile glans, is one of the oldest and most commonly performed surgical procedures worldwide [1]. Its continued global practice, driven by religious, traditional, and medical reasons, sustains interest in this procedure. Despite ongoing debates regarding its psychological and ethical implications, circumcision remains one of the most frequently performed surgical interventions, carried out by physicians from various specialties in many societies today [2-4].

Nowadays, a number of methods are used for circumcision, such as the Shang Ring, PlastiBell, Gomco clamp, Mogen clamp, Smart clamp, Tara clamp, and thermocautery. The search for more practical, cost-effective, safe, and less complicated can be more suitable [5,6]. Healing period and the rate of complications can be affected by the surgical technique and energy source selected. Nonetheless, there are still disagreements on the best circumcision technique. Thermocautery has been more well-liked recently as an economical and useful technique. Thermocautery is a device that cuts tissue with a high-temperature metal tip while simultaneously providing coagulation. Unlike electrocautery, it uses a directly heated metal tip and does not transmit electric current directly to the tissue. The main advantages of this method include effective hemostasis during cutting, minimal bleeding, shorter procedure time compared to traditional surgery, and ease of use in field conditions due to its portability and low cost. However, thermocautery carries risks of thermal damage such as burns and delayed wound healing in surrounding tissues due to heat [7].

The aim of this study is to compare the modified three-stage circumcision technique performed with the aid of a thermocautery device (Electroteknik Medical, İzmir) **(Figure 1)** in response to the high demand for circumcision in our region, and to contribute to the circumcision literature.

Materials and Methods

After ethical approval (ethics committee approval date and number: 28.11.2022/ M5.TUT.019), this retrospective study analyzed 604 patients who underwent circumcision using the three-stage guillotine method with thermocautery while preserving the glans. These procedures were performed by a single surgeon in the first two years of his specialization at Siverek State Hospital between October 2022 and September 2024.

Figure 1. Thermocautery device

Patients who met the following exclusion criteria were excluded from the study: those individuals with penile anatomical anomalies (e.g., chordee, hypospadias, buried penis), patients undergoing additional perioperative surgical procedures, cases where thermocautery was not used, those requiring secondary surgeries, patients experiencing anesthesia-related complications, and individuals aged over 18 years.

Preoperative evaluations for all patients included physical examination in the outpatient clinic, complete blood count, bleeding parameters, and assessment by the anesthesia department. On the morning of the surgery, intravenous access was established after hospital admission. Before being taken to the operating room, patients received 0.1 mg/kg IV midazolam (Dormicum®) and were brought to the operating room accompanied by a nurse. Following induction of general anesthesia, dorsal penile block was applied with bupivacaine HCl (Marcaine 0.5%; AstraZeneca, Istanbul, Turkey) and prilocaine HCl (Citanest 2%; AstraZeneca, Istanbul, Turkey).

Surgical Technique

The settings of the thermocautery device were determined according to the age of the participant: 500°C was used for patients under 2 years of age, 550-650°C for patients between 2 and 10 years of age, and 700-750°C for patients over 10 years of age.

After local field preparation, the surgical site was draped under sterile conditions. In the first stage, the prepuce was completely retracted and the adhesions between the glans penis and the preputium were completely released. The prepuce was held with two clamps at the 6 and 12 o'clock positions, creating slight

Figure 2. A third straight clamp was placed under the clamps at the 6 and 12 o'clock positions and this was removed over the third clamp in a guillotine fashion with thermocautery, protecting the glans

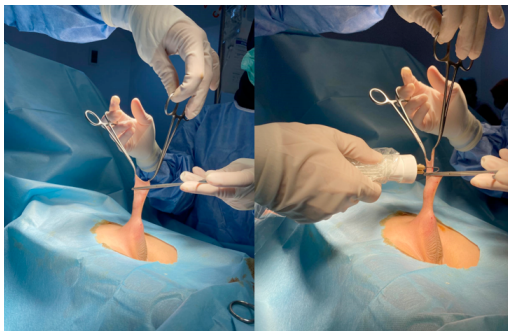

Figure 3. Only the outer preputial skin was clamped at the 12 and 6 o'clock positions, with the ventral aspect angled 15-20° upwards. After the tension was achieved, the outer prepuce was removed over the clamp in a guillotine fashion with thermocautery, again protecting the glans

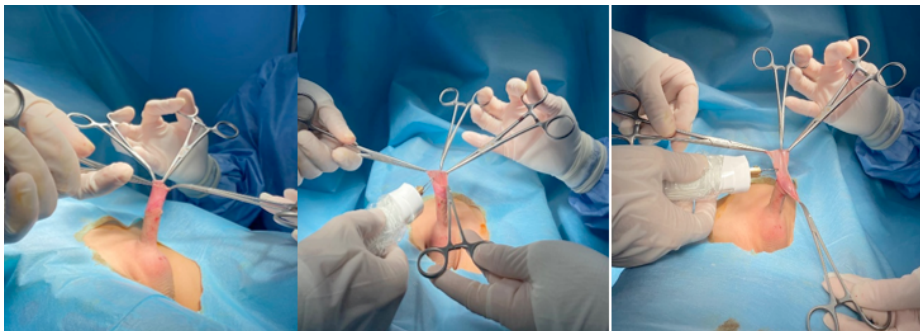

Figure 4. The mucosa (inner prepuce) was clamped only at the 12, 3, 6, and 9 o'clock positions and shortened using a thermocautery device

tension to adjust the length of the mucosa and foreskin. Then, a third straight clamp was placed under the clamps at the 6 and 12 o'clock positions and this was removed over the third clamp in a guillotine fashion with thermocautery, protecting the glans **(Figure 2).** In the second stage, only the outer preputial skin was clamped at the 12 and 6 o'clock positions, with the ventral aspect angled 15-20° upwards. After the tension was achieved, the outer prepuce was removed over the clamp in a guillotine fashion with thermocautery, again protecting the glans **(Figure 3).** In the third stage, the mucosa (inner prepuce) was clamped only at the 12, 3, 6, and 9 o'clock positions and shortened using a thermocautery device **(Figure 4).** The frenulum was preserved, leaving an average of 0.5–1 cm of mucosa intact. Active bleeding points were controlled by touching with the thermocautery **(Figure 5).**

To complete the procedure, 4/0–5/0 polyglactin 910 (VICRYL rapide®) sutures were typically placed at the 6–12, 2–10, and 4–8 o'clock positions, yielding a total of six sutures. Additional sutures were placed when necessary. The operative time was recorded as the time from the initial local site preparation to the placement of the final suture. After surgery, a topical antibiotic cream containing nitrofurazone was applied and the patient was transferred to the ward. Patients were usually discharged approximately six hours after the procedure. Follow-up assessments for complications were performed after one week, one month, and six months. Parents were informed of possible complications at discharge. Patients were evaluated in terms of operative time, bleeding, infection, urethral and penile injuries, secondary phimosis, meatal stenosis, urinary retention, and buried penis.

Statistical Analysis

The data was analyzed using SPSS 25.0 statistical software package. Number, percentage, mean ± standard deviation (minimum maximum) were used for descriptive statistics.

Results

A total of 573 patients who met the study criteria underwent circumcision for various reasons. The majority, 477 patients (83.2%), were circumcised for religious reasons. Physiologi-

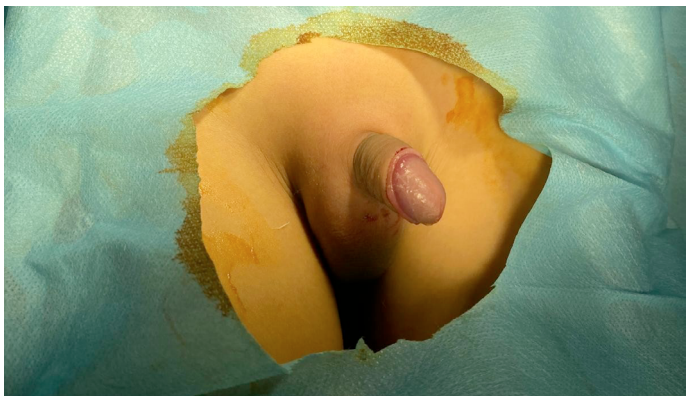

Figure 5. The frenulum was preserved, leaving an average of 0.5–1 cm of mucosa intact. Active bleeding points were controlled by touching with the thermocautery

Table 1. Patient age, operation time and complications

Number of patients (n, %)	**573 (100)**
Age (years, [mean±SD, (min.-max.)]	7.04±4.1 (0.33-15.7)
Operation duration (minute, [mean±SD, (min.-max.)])	12.5±2.8 (8-25)
Number of patients with complications (n, %)	3 (0.52)
Bleeding	3 (0.52)
Infection	0(0)
Secondary phimosis	0(0)
Meatal stenosis	0(0)
Circumcision reason (n, %)	
Religious reasons	477 (83.2)
Phimosis	47 (8.2)
Balanitis	23 (4.0)
Other reasons	26 (4.5)
Total	573 (100)

SD; standard deviation

cal phimosis was the indication in 47 patients (8.2%), while 23 patients (4.0%) underwent the procedure due to balanitis. The remaining 26 patients (4.5%) were circumcised for other medical or personal reasons **(Table 1).** The mean operative time was 12.5 ± 2.8 minutes (range: 8–25 minutes). The mean age of the patients was 7.04 ± 4.1 years (range: 0.33–15.7 years). Minor bleeding was observed in 3 patients (0.52%). Hemostasis was achieved in all cases with a 2-hour penile compression dressing. No cases of significant bleeding occurred, and none of the patients with bleeding had an underlying bleeding diathesis. Some patients developed varying degrees of edema, but this did not adversely affect the healing process. No postoperative infections related to circumcision were observed, and no systemic antibiotics were required. No complications such as infection, penile injury, meatal stenosis, or secondary phimosis were observed in any patient after a minimum of 6 months of follow-up **(Table 1).**

Discussion

Circumcision is one of the oldest and most frequently performed surgical procedures in human history [1]. In a study encompassing 237 countries, Morris et al. reported the global prevalence of male circumcision as 38%, while in Turkey, it was reported to be 98.6% [8]. Like any surgical procedure, circumcision carries a risk of complications. Given the high frequency of this procedure, a significant number of complications are observed [9,10]. In Şanlıurfa's Siverek district, which has a high birth rate, thermocautery has been preferred as a method for circumcision due to its speed, safety, reduced bleeding, and low incidence of severe complications. In our study, no major complications were observed in any patient.

Thermocautery has been found to be a safe method when performed by skilled practitioners [11]. However, relatively few studies have been conducted on the use of thermocautery in circumcision [12–14]. In general, the occurrence of complications is influenced by the surgeon's experience, the environment, and technical factors. These complications range from minor issues such as bleeding and simple infections to rare but serious outcomes such as glans amputation, thermal burns, poor wound healing, infection, meatal stenosis, necrosis, urethral fistula, or even death [10].

Previous literature has reported circumcision complication rates ranging from 0.1% to 35% [15]. In a study conducted in the United Kingdom involving 66,519 circumcisions, the complication rate was found to be 2%. Among the complications, bleeding occurred in 533 patients (0.8%), revision surgery was required in 303 patients (0.5%), and meatal stenosis was observed in 7 patients [16].

A meta-analysis examining thermocautery-assisted circumcisions in 32,000 patients from 17 countries reported a complication rate of 2.48%, with minor bleeding being the most common complication (2.2%). The most severe complications reported were entrapment of the penis due to secondary phimosis (0.078%) and meatal obstruction (0.018%) [17].

In a study by Akyüz et al., the incidence of trapped penis following thermocautery-assisted circumcision was reported as 0.38% [18]. Another study involving 2,973 thermocautery procedures reported a complication rate of 0.2%, with meatal stenosis and secondary phimosis each observed in 0.03% of cases [19]. Similarly, in a study of 1,011 children who underwent thermocautery circumcision, complications were observed in 4 patients (0.4%), including secondary phimosis in one child, meatal stenosis in another, bleeding in one, and infection in another [14]. The main approach to treating secondary phimosis is surgery; surgical revision may be required, especially in cases where scar tissue is evident. However, in some cases diagnosed early and with minimal scar tissue, topical corticosteroid therapy may be tried. According to the results of Yalçın's study, topical steroid treatment was largely ineffective in 54 cases of secondary phimosis that developed after circumcision with thermocautery, and all patients required surgical revision [20]. In our study, similar to the literature, minor bleeding was observed in 3 patients (0.52%), but no major complications were encountered. Bleeding, which is the most commonly reported complication in the literature (2–35%), is often caused by frenular or dorsal vessels [21]. In our patients, bleeding was controlled with postoperative compression dressings.

We believe that mucosal edema is a frequently encountered yet often overlooked complication in thermocautery-assisted circumcision. The literature reports varying rates of mucosal edema (20–30%), which are generally considered clinically insignificant [17]. In the study by Arslan et al., edema was observed in one-fifth of the patients and was deemed clinically irrelevant [12]. Ngcobo and colleagues reported that 20 to 30 percent of patients experienced penile swelling on the second day after surgery, although the surgical procedure was not clearly specified [22]. In our study, some children exhibited varying degrees of edema, but it had no adverse effect on the healing process. Concerns have been raised about thermocautery-related heat production causing damage to penile nerves, potentially reducing penile sensitivity and impacting tissue healing. Although few histopathological case studies exist, they have demonstrated that tissue damage caused by the high temperatures generated by the device is extremely limited [13,18,23].

Saracoğlu et al. reported that circumcisions performed with the thermocautery technique resulted in shorter operation times and less bleeding, contributing to reduced overall surgical duration [24]. Another study evaluating 2,973 children undergoing thermocautery-assisted circumcision reported an average procedure time of 6.5 minutes [19]. Meanwhile, another report indicated an average operation time of 17 ± 2.3 minutes (range 10–23 minutes) [18]. When we compare these times with other techniques, in the study of Tuncer et al., the classical surgical technique took 14.38 ± 2.91 minutes, the thermocautery technique 5.02 ± 1.32 minutes and the Alisklamp 4.05 ± 1.0 minutes, and all three techniques were found to be statistically different from each other in terms of surgery time [14]. In Yalçın's study of 5122 cases where the dorsal slit method was applied, the average procedure time was calculated as 11.74 ± 2.04 minutes [25]. In our study, the circumcision duration was recorded as 12.5 ± 2.8 minutes (range 8–25 minutes). Some centers use single- or two-stage guillotine techniques [14,17,19]. Although our circumcision duration was slightly longer due to the three-stage technique, our low complication rate, particularly the absence of major long-term complications such as meatal stenosis or secondary phimosis, can be attributed to the applied circumcision technique and the specialized training of the surgeon, who received extensive

education in a high-volume circumcision clinic.

Our study has certain limitations. Ideally, surgical techniques are best compared in prospective randomized trials; however, this is a retrospective study. Some minor complications may not have been noticed by the relatives of the patients or reported to the healthcare institution; this may have led to an underestimation of complication rates. The lack of a comparative control group in the study limits the ability to directly evaluate the efficacy and safety differences of the thermocautery technique compared to other methods. Long-term follow-up data are not available in our study; therefore, late complications, scar development or patient satisfaction could not be evaluated. Additionally, all circumcisions in this study were performed by a single surgeon.

Conclusion

In conclusion, reviewing the literature on circumcision suggests that such a frequently performed surgical procedure should be carried out by trained physicians under operating room conditions. There are various circumcision methods and specialized tools designed for this procedure. Thermocautery shortens the duration of the procedure, reducing the child's exposure to anesthesia and surgical stress, while also lowering the risk of bleeding. Circumcision performed with a thermocautery is practical and safe when conducted by trained doctors in an appropriate setting.

Ethics Committee Approval: Ethical approval for this study was obtained from Mardin Artuklu University Clinical Research Ethics Committee (Ethics committee approval date number: 28.11.2022/ M5.TUT.019.
Informed Consent: An informed consent was obtained from all the patients.
Publication: The results of the study were not published in full or in part in form of abstracts.
Peer-review: Externally and intarnally peer-reviewed.
Authorship Contributions: Any contribution was not made by any individual not listed as an author. Concept – M.K., A.B.; Design – A.Ş., A.B.; Supervision – A.B.; Resources – A.Ş., A.B.; Materials – A.Ş., M.K.; Data Collection and/or Processing – A.Ş., M.K., Ü.U.; Analysis and/or Interpretation – M.K., Ü.U.; Literature Search – M.K., Ü.U.; Writing Manuscript – A.Ş., Ü.U.; Critical Review – A.B.
Conflict of Interest: The authors declare that they have no conflicts of interest.
Financial Disclosure: The authors declare that this study received no financial support.

References

[1] Dunsmuir W, Gordon E. The history of circumcision. BJU Int 1999;83(1):1-12. https://doi.org/10.1046/j.1464-410x.1999.0830s1001.x

[2] Tasci A, Danacioglu Y, Arikan Y, Colakoglu Y, Yapar B, Buyuk Y. Management of post-circumcision necrosis of the penis: the medicolegal aspect. Pediatr Surg Int 2020;36(4):523-8. https://doi.org/10.1007/s00383-020-04630-2

[3] Atikeler MK, Geçit I, Yüzgeç V, Yalçın O. Complications of circumcision performed within and outside the hospital. Int Urol Nephrol 2005;37(1):97-9. https://doi.org/10.1007/s11255-004-6077-2.

[4] Tokuc E, Yildiz N, Sertkaya Z, Ozsoy E, Kayar R, Ozkaya F. The relationship of urological and psychological problems with circumcision-a cross-sectional study. Grand J Urol. 2023;3(3):90-6. https://doi.org/10.5505/GJU.2023.40427

[5] Abdulwahab-Ahmed A, Mungadi IA. Techniques of male circumcision. J Surg Tech Case Rep 2013;5(1):1-7. https://doi.org/10.4103/2006-8808.118588

[6] Barone MA, Ndede F, Li PS, Masson P, Awori Q, Okech J, et al. The Shang Ring device for adult male circumcision: a proof of concept study in Kenya. J Acquir Immune Defic Syndr 2011;57(1):e7-e12. https://doi.org/10.1097/QAI.0b013e3182158967

[7] Tuncer AA, Deger M. Incidence of complications following thermocautery-assisted circumcisions. Urol J 2018;15(6):359-64. https://doi.org/10.22037/uj.v0i0.4296

[8] Morris BJ, Wamai RG, Henebeng EB, Tobian AA, Klausner JD, Banerjee J, et al. Estimation of country-specific and global prevalence of male circumcision. Popul Health Metr 2016;14:4. https://doi.org/10.1186/s12963-016-0073-5

[9] Weiss HA, Larke N, Halperin D, Schenker I. Complications of circumcision in male neonates, infants and children: a systematic review. BMC Urol 2010;10:2. https://doi.org/10.1186/1471-2490-10-2

[10] Şimşek A, Başer A. An examination of erroneous medical practices in circumcision surgery in light of supreme court decisions. Pediatr Surg Int 2024;40(1):157. https://doi.org/10.1007/s00383-024-05737-6

[11] Karaman MI, Zulfikar B, Özturk MI, Koca O, Akyüz M, Bezgal F. Circumcision in bleeding disorders: improvement of our cost effective method with diathermic knife. Urol J 2014;11(2):1406-10. https://doi.org/10.22037/uj.v11i2.1771

[12] Arslan D, Kalkan M, Yazgan H, Ünüvar U, Şahin C. Collective circumcision performed in Sudan: evaluation in terms of early complications and alternative practice. Urology 2013;81(4):864-8. https://doi.org/10.1016/j.urology.2012.11.070

[13] Tuncer AA, Bozkurt MF, Bayraktaroğlu A, Koca HB, Doğan I, Çetinkursun S, et al. Examination of histopathological changes of scalpel, monopolar, bipolar, and thermocautery applications in rat experimental circumcision model. Am J Transl Res 2017;9(5):2306-13. https://pubmed.ncbi.nlm.nih.gov/28559981/

[14] Tuncer AA, Erten EEA. Examination of short and long term complications of thermocautery, plastic clamping, and surgical circumcision techniques. Pak J Med Sci 2017;33(6):1418-23. https://doi.org/10.12669/pjms.336.13640

[15] Salle JLP, Jesus LE, Lorenzo AJ, Romão RL, Figueroa VH, Bägli DJ, et al. Glans amputation during routine neonatal circumcision: mechanism of injury and strategy for prevention. J Pediatr Urol 2013;9(6):763-8. https://doi.org/10.1016/j.jpurol.2012.09.012

[16] Cathcart P, Nuttall Mv, Van der Meulen J, Emberton M, Kenny S. Trends in paediatric circumcision and its complications in England between 1997 and 2003. Br J Surg 2006;93(7):885-90. https://doi.org/10.1002/bjs.5369

[17] Cakiroglu B, Gozukucuk A, Arda E, Tas T. Reliability of thermocautery-assisted circumcision: retrospective analysis of circumcision performed voluntarily in countries of low socioeconomic status. Ther Adv Urol 2019;11:1756287219882598. https://doi.org/10.1177/1756287219882598

[18] Akyüz O, Bodakçi M, Tefekli AH. Thermal cautery-assisted circumcision and principles of its use to decrease complication rates. J Pediatr Urol 2019;15(2):186.e1-186.e8. https://doi.org/10.1016/j.jpurol.2019.01.003

[19] Karakaya AE, Güler AG, Doğan AB. Hızlı sünnet: Bir epidemiyolojik ve teknik araştırma. Çocuk Cerrahisi Dergisi 2017;31(3):108-12. https://doi.org/10.5222/JTAPS.2017.108

[20] Yalçın, K. Termokoterle yapılan sünnet sonrası gelişen fimozisin tedavisinde topikal steroid kremlerin etkinliği var mı? Androl Bul 2023;25(2):67-72. https://doi.org/10.24898/tandro.2023.63496

[21] Polat F, Tuncel A, Balci M, Aslan Y, Sacan O, Kisa C, et al. Comparison of local anesthetic effects of lidocaine versus tramadol and effect of child anxiety on pain level in circumcision procedure. J Pediatr Urol 2013;9(5):670-4. https://doi.org/10.1016/j.jpurol.2012.07.022

[22] Ngcobo S, Wolvaardt JE, Bac M, Webb E. The quality of voluntary medical male circumcision done by mid-level workers in Tshwane District, South Africa: A retrospective analysis. PloS One 2018;13(1):e0190795. https://doi.org/10.1371/journal.pone.0190795

[23] Hay SA. The use of thermal cautery for male circumcision. JKAU Med Sci 2009;16(1):89-93. https://doi.org/10.4197/Med. 16-1.8

[24] Saracoglu M, Ozturk H, Zengin T, Kerman HS. Comparison of thermal cautery-assisted circumcision with the conventional technique. Human Andrology 2014;4(2):34-7. https://doi.org/10.1097/01.XHA.0000439147.28288.fe

[25] Yalçın, K. Sünnet uygulanan çocuklarda dorsal slit yöntemi sonuçlarımız. Androl Bul 2023;25(1):1-5. https://doi.org/10.24898/tandro.2023.34445