

# A Very Rare Complication: Keloid Formation After Circumcision and Its Treatment: Case Report

## Nadir Bir Komplikasyon: Sünnet Sonrası Gelişen Keloid ve Tedavisi

Anı ÇİNPOLAT,<sup>a</sup>  
Tamer SEYHAN,<sup>a</sup>  
Zumreta RİZVANOVIĆ,<sup>a</sup>  
Pelin DEMİRTÜRK,<sup>b</sup>  
Gamze BEKTAŞ<sup>c</sup>

Clinics of

<sup>a</sup>Plastic, Reconstructive and  
Aesthetic Surgery,

<sup>b</sup>Pathology,

Adana Numune Training and  
Research Hospital,  
Adana

<sup>c</sup>Clinic of Plastic, Reconstructive and  
Aesthetic Surgery,  
Tatvan State Hospital, Bitlis

Geliş Tarihi/Received: 22.08.2013

Kabul Tarihi/Accepted: 21.12.2014

Yazışma Adresi/Correspondence:

Anı ÇİNPOLAT

Adana Numune Training and  
Research Hospital,

Clinic of Plastic, Reconstructive and

Aesthetic Surgery, Adana,

TÜRKİYE/TURKEY

anicinpolat@hotmail.com

**ABSTRACT** Circumcision is still the most common surgical procedure performed worldwide. Although it is a safe and easy procedure, early and late complications could be observed occasionally. Complications such as bleeding, infection, reopening of wound, diminished penile sensation, urethral injury or amputation of the glans and penis may be seen. Keloid is the outcome arising from the excessive deposition of collagen in dermis and subcutaneous tissues. It usually develops at keloid-prone locations such as chest, ears and deltoid region; whereas, development on the penis is a very rare condition. In this report, we presented a case of keloid formation on the penis after circumcision and its following treatment.

**Key Words:** Keloid; penis; circumcision, male

**ÖZET** Sünnet, hala dünya genelinde en çok gerçekleştirilen cerrahi işlemlerden biri olmaya devam etmektedir. Güvenli ve kolay bir prosedür olmasına rağmen, bazen erken ve geç dönem komplikasyonları da görülebilmektedir. Görülebilecek komplikasyonlara örnek olarak, kanama, enfeksiyon, cerrahi sütür hattının açılması, peniste duyu azalması, üretral hasarlar veya glans ve penisin amputasyonu sayılabilir. Keloid, dermis ve cilt altı dokuda kollajenin aşırı birikmesi sonucu ortaya çıkan patolojik bir durumdur. Keloid genellikle göğüs, kulaklar ve deltoid bölge gibi keloid gelişimine yatkın alanlardan köken alırken, peniste gelişmesi nadir bir durumdur. Biz bu çalışma ile, sünnet sonrası peniste keloid ortaya çıkan bir olguyu ve uyguladığımız tedaviyi sunmayı amaçladık.

**Anahtar Kelimeler:** Keloid; penis; sünnet, erkek

**Türkiye Klinikleri J Case Rep 2015;23(4):444-6**

For many years, circumcision has been the most commonly performed surgical operation for both religious and medical causes. The reported complication rates vary between 0,5% and 2% in circumcision operations.<sup>1</sup> Most of these complications could be classified as minor, such as bleeding, infection and reopening of wounds. However, major complications such as glandular necrosis, glans and penis amputations, urethral openings, and preputial fusion defects could also take place.<sup>1-3</sup> Keloid is wound healing abnormality that is unique to human beings and is characterized by excessive deposition of collagen in dermis and subcutaneous tissues secondary to traumatic or surgical injuries. Sternal area, deltoid region, back, and posterior neck region are the probable locations to develop keloid following surgical or traumatic injuries.<sup>4,5</sup>

doi: 10.5336/caserep.2013-37383

Copyright © 2015 by Türkiye Klinikleri

Even though circumcision is the most common surgical procedure, particularly in prepubertal boys, keloid formation on the penis is an extremely rare circumstance. In this study, we presented a case of keloid formation on the penis after circumcision and its following treatment.

## CASE REPORT

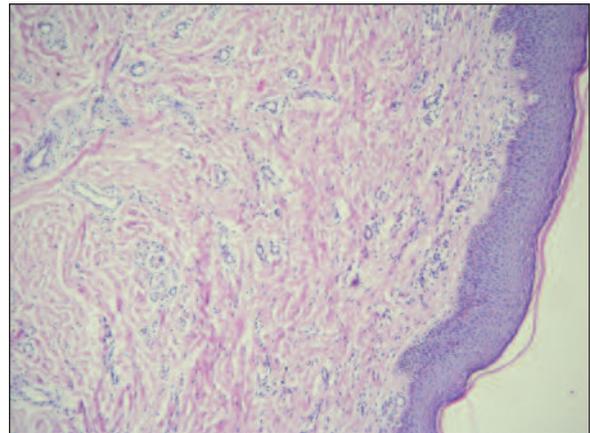
A 9-year-old boy was admitted to the clinic with an enlarging lesion on the penile skin that developed 8 months after the circumcision procedure. During the early postoperative period, no complications were observed. Then, site a slow-growing mass developed at the circumcision site. The patient complained embarrassment and pruritis. The patient and the members of his family had no history of abnormal wound healing. On physical examination, a circular-shaped, erythematous keloid lesion at the circumcision region, was noted around the coronal sulcus (Figure 1). The lesion was assessed as keloid because it was spreading beyond the borders of the circumcision incision site. Complete surgical resection of the lesion was achieved by a one-stage surgery, under general anesthesia. Presence of any tension at the suture site was avoided. Histopathological analysis of the surgical specimen revealed moderate epidermal atrophy, scarring of papillary dermis, formation of wavy collagen bands running parallel to epidermis (Figure 2). Immediately following resection and closure of the wound, steroid (triamcinolone acetonide, 40 mg/ml) injection was performed with 24 G needle to the wound. Starting from the first post-operative week, topical steroids (triamcinolone acetonide, 1 mg/g) were applied for 12 weeks. He had no recurrence after an uneventful 1-year follow up (Figure 3).

## DISCUSSION

When circumcision operation is performed by an experienced consultant surgeon, it could be considered as a routine and a safe surgical procedure. However, even in the presence of ideal conditions, complications may still occur. Keloid is defined as a benign overgrowth of scar tissue taking place primarily in dermis, characterized by a fibrocollagenous proliferation.<sup>6</sup> The deltoid, the presternal area,



**FIGURE 1:** A circular-shaped, erythematous keloid lesion around the coronal sulcus, at the circumcision region.



**FIGURE 2:** Moderate epidermal atrophy, scarring of papillary dermis, formation of wavy collagen bands running parallel to epidermis (HE, x100).

the back and the posterior neck are known as the most susceptible regions for formation of such lesions. Keloid formation on the penis is exceptionally rare even though the penis is frequently subjected to surgical manipulations such as circumcision. Using the PubMed database, we performed a literature review, with the following keywords: circumcision and keloid; and, we obtained only nine case reports for male circumcision (Oct 25, 2012).

Hypertrophic scar is also benign fibrous growth that usually occur after trauma in predisposed individuals.<sup>7,8</sup> A classic description of keloid scars is that they are benign dermal fibroproliferative tumors that are thick, raised and extend be-



**FIGURE 3:** Appearance, 1 year postoperatively.

yond the margins of the original wound. This is in contrast to hypertrophic scars, which are thick, raised, remain within the confines of the original wound and regress over time.<sup>9</sup> Although, the keloid histology slide demonstrates thick, glassy, and irregularly oriented collagen fibers, the lesion was assessed as keloid because it was spreading beyond the circumcision site.

Various treatment modalities have been attempted to minimize the local recurrence of keloids. Silicone gel sheets, pressure therapy, intra-

lesional steroid injections and massage with topical steroids are proposed in keloid management.<sup>6-11</sup> The optimal treatment typically involves a combination of these therapies. The rate of local recurrence for surgical excision alone could be up to 100%. On the other hand, if the excisional surgery is combined with steroid injections, the local recurrence rate reduces from 100% to 50%.<sup>12</sup> In some of the cases reporting penile keloids in the literature, intra-lesional steroid injections were performed before the surgical resection with the aim to soften and to decrease the size of keloid tissue.<sup>13</sup> In the case we operated on, pre-surgical steroid injection was not needed due to the mass being not very large and rigid. In the presented case, intra-lesional steroid injection was done following the surgical resection; and, starting from the first post-operative week, topical steroids were applied for 12 weeks. In 1-year follow-up, no recurrence was detected.

In conclusion, this case presentation demonstrated that keloid of the penis may be observed as an uncommon complication after circumcision and it can be successfully treated with steroid injection after local excision and postoperative local steroid therapy.

## REFERENCES

- Atikeler MK, Onur R, Gecit I, Senol FA, Cobanoglu B. Increased morbidity after circumcision from a hidden complication. *BJU Int* 2001;88(9):938-40.
- Ceylan K, Burhan K, Yilmaz Y, Can S, Kuş A, Mustafa G. Severe complications of circumcision: an analysis of 48 cases. *J Pediatr Urol* 2007;3(1):32-5.
- 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.
- Sharon WW, John RG. Fibrous tumors of infancy and childhood. In: Straus M, ed. *Enzinger and Weiss's Soft Tissue Tumors*. 4<sup>th</sup> ed. Philadelphia: Mosby-Harcourt; 2001. p.295-9.
- Peacock EE, Madden JW, Trier WC. Biological basis for the treatment of keloids and hypertrophic scars. *South Med J* 1970;63(7):755-60.
- Gürünlüoğlu R, Bayramçılı M, Numanoğlu A. Two patients with penile keloids: a review of the literature. *Ann Plast Surg* 1997;39(6):662-5.
- Karagoz H, Sever C, Bayram Y, Sahin C, Kulahci Y, Ulkur E. A review of the prevention and treatment of hypertrophic scars: Part I clinical aspects. *Arch Clin Exp Surg* 2012;1(4):237-48.
- Karagoz H, Bayram Y, Sever C, Sahin C, Kulahci Y, Ulkur E. A review of the prevention and treatment of hypertrophic scars: Part II. experimental studies. *Arch Clin Exp Surg* 2013;2(1):49-58.
- Atiyeh BS, Costagliola M, Hayek SN. Keloid or hypertrophic scar: the controversy: review of the literature. *Ann Plast Surg* 2005;54(6):676-80.
- Körmöczy I. Enormous keloid (?) on a penis. *Br J Plast Surg* 1978;31(3):268-9.
- Parsons RW. A case of keloid of the penis. *Plast Reconstr Surg* 1966;37(5):431-2.
- Kelly AP. Medical and surgical therapies for keloids. *Dermatol Ther* 2004;17(2):212-8.
- Demirdover C, Sahin B, Vayvada H, Oztan HY. Keloid formation after circumcision and its treatment. *J Pediatr Urol* 2013;9(1):e54-6.