

CHALLENGES IN MANAGING COMPLICATIONS DUE TO DELAYED HEALING AFTER CIRCUMCISION: A CASE REPORT

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Abstract

Introduction: This case report highlights the challenges in managing complications due to delayed healing after circumcision, specifically secondary infection and hypertrophic scarring. **Case Presentation:** A 12-year-old boy presented with persistent pain and intermittent bleeding from. His circumcision wound, performed during a mass circumcision event 10 days earlier. Initial treatment at a primary healthcare facility, including wound care and oral medication, failed to improve his condition. Local examination revealed an unhealed hypertrophic scar with signs of secondary infection. Laboratory tests showed an elevated white blood cell count. The patient underwent surgical debridement, scar excision, and re-circumcision under general anesthesia. Postoperatively, he received some medications and wound care. One week after surgery, the wound had healed well without recurrence of infection or scarring. **Conclusion:** Delayed healing after circumcision can result in significant complications. This case underscores the importance of proper wound care, timely intervention, and regular follow-up to prevent and manage such issues effectively.

Keywords: Circumcision, Delayed wound healing, Secondary infection, Hypertrophic scar, Complications.

Abstrak

Pendahuluan. Laporan kasus ini menyoroti tantangan dalam mengelola komplikasi akibat penyembuhan yang tertunda setelah sunat, khususnya infeksi sekunder dan jaringan parut hipertrofik. **Presentase Kasus.** Seorang anak laki-laki berusia 12 tahun datang dengan nyeri terus-menerus dan perdarahan intermiten dari luka sunatnya, yang dilakukan selama acara sunat massal 10 hari sebelumnya. Perawatan awal di fasilitas perawatan kesehatan primer, termasuk perawatan luka dan pengobatan oral, gagal memperbaiki kondisinya. Pemeriksaan lokal mengungkapkan jaringan parut hipertrofik yang belum sembuh dengan tanda-tanda infeksi sekunder. Tes laboratorium menunjukkan peningkatan jumlah sel darah putih. Pasien menjalani debridemen bedah, eksisi jaringan parut, dan sunat ulang di bawah anestesi umum. Pasca operasi, ia menerima beberapa obat dan perawatan luka. Satu minggu setelah operasi, luka telah sembuh dengan baik tanpa kekambuhan infeksi atau jaringan parut. **Kesimpulan.** Penyembuhan yang tertunda setelah sunat dapat mengakibatkan komplikasi yang signifikan. Kasus ini menggarisbawahi pentingnya perawatan luka yang tepat, intervensi tepat waktu, dan tindak lanjut rutin untuk mencegah dan mengelola masalah tersebut secara efektif.

Kata kunci : Sunat, Penyembuhan luka yang tertunda, Infeksi sekunder, Bekas luka hipertrofik, Komplikasi

INTRODUCTION

Male circumcision is a commonly performed surgical procedure involving the removal of the prepuce covering the glans penis.¹ It can be performed from the neonatal period through adulthood and is particularly common among pediatric populations.^{2,15} Globally, the practice of circumcision is influenced by medical, religious, cultural, and social factors.¹⁸ In Indonesia, circumcision is widely practiced not only for medical purposes but also for religious and sociocultural reasons, particularly within the predominantly Muslim population.^{3,4,16}

Although generally considered a safe procedure, circumcision may be associated with a spectrum of early and late complications. These include pain, bleeding, infection, glans or urethral injury, wound dehiscence, persistent penile edema, foreskin adhesions, phimosis, meatal stenosis, and, rarely, severe complications such as glans necrosis or penile loss.^{5,17} The occurrence and severity of these complications may be influenced by several factors, including the patient's age, procedural setting, sterility of equipment and technique, operator experience, and the quality of postoperative wound care.^{6,7}

Among these complications, postoperative infection is clinically important because it may disrupt the normal

wound-healing process.^{19,20} Persistent inflammation and delayed wound healing may subsequently contribute to abnormal tissue repair and excessive scar formation. In particular, prolonged inflammatory activity and disturbances in the processes of cell proliferation and migration have been associated with hypertrophic scar formation.^{11,12} When wound healing is delayed or complicated by infection, timely clinical assessment and appropriate intervention are therefore essential to prevent persistent local complications and the potential need for further surgical management.

This case report describes a 12-year-old boy who developed delayed wound healing after circumcision, accompanied by clinical signs of secondary infection and hypertrophic scarring at the circumcision site. The case highlights the challenges of managing coexisting postoperative wound complications and describes the surgical approach and short-term outcome following debridement, scar excision, and re-circumcision. By presenting this case, we emphasize the importance of adequate postoperative wound surveillance, early recognition of abnormal healing, and timely intervention in patients with persistent complications following circumcision.

CASE REPORT

A 12-year-old boy presented to the emergency department with persistent penile pain and intermittent bleeding from the circumcision wound. He had undergone circumcision during a mass circumcision event 10 days before presentation. However, detailed information regarding the circumcision technique, instruments used, operator experience, and sterility procedures was unavailable because the procedure had been performed outside our institution. According to his parents, the wound had failed to heal adequately following the procedure.

During the 10-day period after circumcision, the patient had attended a primary healthcare facility on three occasions because of persistent wound-related symptoms. At these visits, he received routine wound care and oral medication; however, the names and dosages of the medications could not be identified by the patient's parents. Despite these interventions, the wound remained unhealed, with persistent pain and intermittent bleeding, prompting his parents to seek further treatment at our hospital.

The patient had no history of delayed wound healing or other relevant medical conditions, and no significant family history was reported. He had no urinary complaints. On local examination,

the circumcision wound appeared incompletely healed, with a moist wound surface, hypertrophic scar tissue, minimal bleeding, and the presence of purulent discharge (Figure 1). The glans penis and urethral meatus were intact, the coronal sulcus was preserved, and no epispadias or hypospadias was observed.

Laboratory evaluation showed leukocytosis, with a white blood cell count of $14.3 \times 10^3/\mu\text{L}$. The available differential leukocyte results included neutrophils of 7.1%, eosinophils of 1.5%, and basophils of 0.3%. Other reported hematological parameters were a red blood cell count of $5.94 \times 10^6/\mu\text{L}$, MCV of 80.3 fL, MCH of 35.6 pg, MCHC of 31.9 g/dL, and a platelet count of $314 \times 10^3/\mu\text{L}$. Bleeding and clotting times were within normal limits. In the context of the persistent unhealed wound and the presence of purulent discharge, the elevated white blood cell count supported a clinical suspicion of an ongoing inflammatory or infectious process. However, microbiological examination, including wound culture and antimicrobial susceptibility testing, was not performed; therefore, the causative organism could not be identified.



Figure 1. Penile presentation on day 10 after sircumcision at Emergency Departement. the circumcision wound appeared incompletely healed, with a moist wound surface, hypertrophic scar tissue, minimal bleeding, and the presence of purulent discharge

The patient was informed of the consent for planning surgical treatment and scheduled to undergo repair and recircumcision under general anesthesia.

Operating Procedure

Firstly, disinfecting the regional area around the penis using povidone iodine 10%, and cleaning the hypertrophic scar area from any remaining pus and blood. Then we made circumferential incision to remove the hypertrophic scar on the mucosa and skin. After completely remove, the mucosa and the skin has approximately suture with continuous suture pattern also topical antibiotic was administered (Figure 2).



Figure 2. The hypertrophic scar was repair and recircumcision. Penile condition after surgery.

After the surgical procedure, the patient was hospitalized for 2 days with administration of paracetamol for analgesic and Ceftriaxone for antibiotics, along with wound care to prevent reinfection. Subsequently, the patient was discharged.

One week after the surgery

The patient came for a follow up, the wound showed improvement without signs of hypertrophic scar recurrence at the suture site, normal urination process, and no additional complaints.



Figure 3. Appearance of the circumcision wound at 1-week postoperative follow-up, demonstrating satisfactory wound healing without clinical evidence of recurrent infection or hypertrophic scar formation.

DISCUSSION

Complications following circumcision have been reported with variable frequencies, ranging from 0% to 16%, and may be influenced by patient age, procedural setting, sterility, operator experience, and postoperative wound care.^{6,7} These complications can occur early or late and range from minor conditions to severe complications requiring surgical intervention.⁸

This case involved delayed wound healing with clinical signs suggestive of secondary infection and hypertrophic scar formation. Normal wound healing progresses through overlapping phases of hemostasis, inflammation, proliferation, and remodeling.²⁰ Disruption or prolongation of these processes may delay wound closure and lead to abnormal tissue repair. In this case, persistent inflammation, possibly associated with secondary infection, may have interfered with the normal progression of wound healing. The presence of purulent discharge, persistent wound moisture, intermittent bleeding, and leukocytosis supported a clinical suspicion of an inflammatory or infectious process. However, as no wound culture was performed, secondary infection could not be microbiologically confirmed.

Prolonged inflammation is also considered an important factor in hypertrophic scar formation. Persistent

inflammatory activity may alter fibroblast function and extracellular matrix remodeling, resulting in an imbalance between collagen synthesis and degradation and subsequent excessive scar tissue formation within the wound boundaries.^{11,12,14} Therefore, delayed wound healing and persistent inflammation may have contributed to the hypertrophic scarring observed in this patient, although a causal relationship cannot be established from a single case.

Because conservative management had failed to improve the wound condition, the patient underwent debridement, hypertrophic scar excision, and re-circumcision. At the 1-week follow-up, the wound had healed satisfactorily without clinical evidence of recurrent infection or hypertrophic scar formation. This finding highlights the importance of timely evaluation and intervention in persistent postoperative wound complications. Patient and caregiver education regarding appropriate wound care, warning signs of infection, and the importance of follow-up may also facilitate early recognition and management of complications.

This case has several limitations. Details regarding the initial circumcision technique, procedural setting, sterility measures, and previous oral medications were unavailable. In addition, no microbiological examination was

performed; therefore, the causative organism could not be identified. Finally, the follow-up period was limited to 1 week, precluding assessment of long-term healing and hypertrophic scar recurrence.

CONCLUSION

This case report shows how careful wound care and resurgery were needed to fix these issues after the circumcision. It's important to manage wounds well, educate patients and their families, and keep checking on progress to make sure everything heals properly and problems are caught early. We suggest that patients with persistent pain, bleeding, purulent discharge, or delayed wound closure after circumcision undergo prompt clinical reassessment to prevent progression to more severe complications and the potential need for further surgical intervention.

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CONFLICT OF INTEREST

The authors declare that there is no conflict interest regarding the publication of this case report.

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