



## CASE REPORT

# REVISED Case Report: Non-microscopic surgical management of incomplete penile amputation [version 2; peer review: 2 approved]

Donny Eka Putra <sup>1</sup>, Theddyon Bhenlie Apry Kusbin <sup>2</sup>, Paksi Satyagraha<sup>3</sup>, Stephanie Taneysa Widodo <sup>4</sup>

<sup>1</sup>Urology Department, dr. Dradjat Prawiranegara Hospital, Serang, Indonesia

<sup>2</sup>Bethsaida Hospital, Tangerang, Indonesia

<sup>3</sup>Urology Department, Faculty of Medicine, University Brawijaya/Saiful Anwar Hospital, Malang, East Java, Indonesia

<sup>4</sup>Universitas Pelita Harapan, Tangerang, Indonesia

**v2** First published: 07 Jul 2020, 9:681  
<https://doi.org/10.12688/f1000research.23775.1>  
 Latest published: 22 Sep 2020, 9:681  
<https://doi.org/10.12688/f1000research.23775.2>

## Abstract

**Background:** Penile amputation is an emergency urologic condition requiring immediate attention in order to maximize functional outcomes. Unfortunately, there is limited experience and publication of case reports describing the successful replantation of penis after incomplete amputation, especially in facilities without adequate microsurgical tools and means. We hereby present a case of penile amputation caused by a mechanical grass cutter and a discussion of its surgical management.

**Case description:** A 33-year-old Indonesian male presented to the emergency department with incomplete penile amputation six hours post injury. The patient has no prior medical history and presented with penile amputation due to a mechanical grass cutter trauma. He underwent immediate non-microsurgery reconstructive replantation of the penis, reattaching all visible vascular, corporal, and fascia layers. After replantation, the patient recovered well and showed preserved normal appearance and sensitivity of the penis. Subsequent Doppler ultrasound investigation revealed adequate arterial flow at the distal end of the anastomosis. The patient was discharged five days after surgery.

**Conclusion:** In the absence of microsurgical tools and means, the use of non-microsurgical replantation with an at least 2.5x loupe magnification should be the choice of treatment in the case of incomplete penile amputation. The technique showed good outcomes involving adequate functional and cosmetic restoration.

## Keywords

traumatic, penile amputation, replantation, case report

## Open Peer Review

Reviewer Status

	Invited Reviewers	
	1	2
<b>version 2</b> (revision) 22 Sep 2020		 report
<b>version 1</b> 07 Jul 2020	 report	  report

1. **Omer A. Raheem**, Tulane University, New Orleans, USA

2. **David J. Ralph**, University College London Hospital, London, UK

Any reports and responses or comments on the article can be found at the end of the article.

**Corresponding author:** Donny Eka Putra ([donnyputra8@gmail.com](mailto:donnyputra8@gmail.com))

**Author roles:** **Putra DE:** Conceptualization, Resources, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing; **Kusbin TBA:** Writing – Original Draft Preparation, Writing – Review & Editing; **Satyagraha P:** Writing – Review & Editing; **Widodo ST:** Writing – Original Draft Preparation, Writing – Review & Editing

**Competing interests:** No competing interests were disclosed.

**Grant information:** The author(s) declared that no grants were involved in supporting this work.

**Copyright:** © 2020 Putra DE *et al.* This is an open access article distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**How to cite this article:** Putra DE, Kusbin TBA, Satyagraha P and Widodo ST. **Case Report: Non-microscopic surgical management of incomplete penile amputation [version 2; peer review: 2 approved]** F1000Research 2020, 9:681  
<https://doi.org/10.12688/f1000research.23775.2>

**First published:** 07 Jul 2020, 9:681 <https://doi.org/10.12688/f1000research.23775.1>

**REVISED Amendments from Version 1**

This version contains revision by means of enrichment and elaboration from the previous version. Those revisions include points as follows:

1. Description of the injury sustained: the direction and extent of the injury. This part is revised to answer peer reviewer's request.
2. Elaboration of pre-operative patient care: including description of trauma protocol, assessment, and drugs administered at the time of patient arrival. This elaboration was done to answer peer reviewer's request.
3. Elaboration of intra-operative findings: consisting of urethral condition, as well as the mention of dorsal penile veins and nerves injury along with corporal bodies. This part is elaborated per peer reviewer's request.
4. Enrichment of technique: including the mention of the use of a 2.5x loupe magnification, vicryl 5/0 continuous suture to repair corporal bodies and 4/0 vicryl interrupted suture to repair fascia and skin. This part is elaborated to answer peer reviewer's questions.
5. Clarification of deep penile artery repair technique: The deep penile artery was in fact repaired, as opposed to 'not repaired' as mentioned in the previous manuscript, through anastomoses by approximating the deep dorsal artery end with the available 2.5x loupe magnification. This part is clarified to answer peer reviewer's question.
6. Elaboration of post-operative management and follow up: including follow up of EHS, IPSS and IIEF score, as well as the post-operative condition and treatment plan in a timely order. This part is elaborated per peer reviewer's request.
7. Revised conclusion statement: the recommendation of doing repair with at least a 2.5x surgical loupe instead of with "non-microscopic surgical repair" as previously stated in the manuscript. This part is revised to clarify author's message and to answer peer reviewer's question.

**Any further responses from the reviewers can be found at the end of the article**

## Introduction

Penile amputation is an infrequent emergency in the field of urology that needs to be addressed immediately in order to maximize functional outcomes. Frequently, the injury is caused by self-mutilation during an acute psychotic episode. Other etiologies include secondary circumcision, violence, criminal assault, and accidental trauma<sup>1</sup>. The management of such injury has shifted from the previous inevitable penectomy to a simple reattachment of the organ with re-implantation by microvascular techniques<sup>2</sup>. In 1929, Ehrlich *et al.* reported the first penile replantation using a macrosurgical technique. In 1977, Cohen *et al.* and Tamai *et al.* reported the first successful penile replantation by microsurgical techniques, which includes the re-anastomoses of blood vessels and nerves<sup>3,4</sup>. However, there is currently no universally accepted regiment to the repair of penile amputation<sup>5</sup>. There is limited experience and publication of case reports describing the favorable outcomes of penile replantation, especially after incomplete amputation. This case report evaluates therapeutic approach as well as outcome of non-microsurgical replantation of incomplete penile amputation and reviews related

literature to summarize the relevance of the current clinical experience<sup>6</sup>.

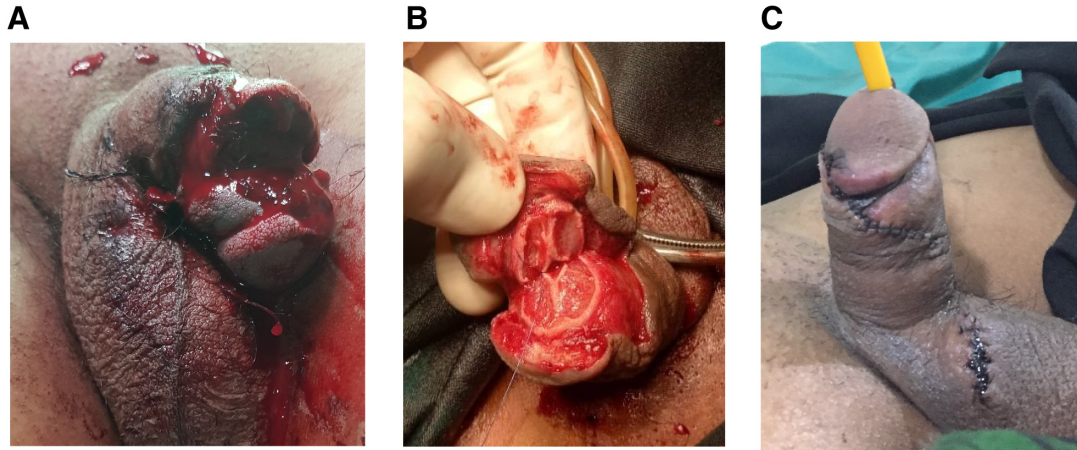
## Case report

A 33-year-old married Indonesian male handyman with no significant past medical and psychiatric history presented to the emergency department of a type-C class rural hospital with partially amputated penis after sustaining a mechanical grass cutter injury six hours prior to the hospital visit. Pre-operation assessment in the emergency department was limited to penile amputation only, as we were unable to clearly define structural damages due to diffuse bleeding and excessive pain. At the time of patient arrival, trauma resuscitation protocol including airway, breathing, and circulation assessment was running. The patient was also given antibiotic anti-tetanus, blood specimen testing and on a 23G IV line to handle the earliest signs of shock if necessary. Although compression was immediately performed on the wound, bleeding still persisted (**Figure 1A**).

At presentation, his vital signs showed blood pressure of 100/60 mmHg and heart rate of 100 bpm. Physical examination showed an amputated penis with diffuse bleeding. The detailed dorsal structures and urethra could not be evaluated properly. His scrotum and testicles were found to be intact. Laboratory tests were within normal values with a hemoglobin value of 14.5 g/dl.

Fluid infusion and antitetanic injection were administered and the patient was given emergency surgical management by the attending urologist. The patient was placed in the supine position and underwent general anesthesia with 200mg propofol, 50mg atracurium, 10mcg fentanyl, oxygen gas 1 liter/minute, and N2O 1 liter/minute. Saline irrigation bath was performed on the wound to allow visualization of all damaged structures. Surgical exploration revealed a complete detachment of cavernosal bodies, along with superficial and deep dorsal veins, dorsal and deep artery, and nerves injury. The spongiosal body sustained a partial rupture. The urethra was then found to be intact – no urethral mucosa was visualized – allowing insertion of a 16Fr foley catheter. The catheter was able to pass through without any resistance and therefore did not require any repair. Under loupe 2.5x magnification, the spongiosal and cavernosal bodies were sutured circumferentially at both ends with a vicryl 5-0 interrupted suture, followed by suturing the buck's fascia with the skin with a vicryl 4-0 interrupted suture, followed by application of a pressure bandage. The deep arteries, dorsal arteries and nerve, and the superficial and deep dorsal veins were anastomosed with the available 2.5x loupe magnification. The surgery was completed within two hours and 15 minutes with total ischemia time of nine hours (**Figures 1B and 1C**).

The patient was put on total bed rest until the third day post-surgery, with administration of intravenous 3<sup>rd</sup> generation cephalosporine antibiotics (ceftriaxone 2gr/day), an analgesic (Ketorolac 25mg twice a day), and penile phototherapy (six hours a day) for five days. On the 3<sup>rd</sup> day after surgery we applied a new sterile dressing on the wound and observed no significant



**Figure 1.** **A:** Penile amputation upon arrival to the emergency department. **B:** Wound exploration revealed cavernosal and spongiosal body rupture and allowed identification of deep penile arteries and superficial deep dorsal vein. **C:** Post-surgical evaluation at five days.

edema or pus or any leakage. On the fifth day after surgery, we adopted a post operative open wound treatment care plan. The catheter was also removed at the 5th day post surgery with close observation for hematuria or urinary retention. Five days after reconstruction, the penis showed no significant edema and swelling of the distal penile shaft, and sensation started to return gradually. The patient also underwent doppler ultrasound on day five to assess vascularization of penile distal to the injury. Evaluation with Doppler ultrasound showed adequate deep and superficial arterial flow at the distal end of the penis. On the fifth day post-surgery, the patient was discharged without urethral catheter following spontaneous micturition without difficulty in voiding (Figure 2).

One month after reconstruction, the patient underwent further evaluation at a urologic clinic with good skin preservation and adequate wound healing. The patient was also evaluated with the International Prostate Symptom Score (IPSS) of 2, the International Index of Erectile Function (IIEF) score of 19, Quality of Life (QoL) score of 1, and Erection Hardness Score (EHS) grade II–III rigidity, along with fine penile sensation. There was no urinary fistula formation or difficulties in voiding. The patients felt satisfied with his condition.

## Discussion

Genitourinary injury accounts for as much as 33–66% of hospitalization of patients with external genital injuries<sup>7</sup>. Males are more prone to genital injury than females due to anatomical differences. Male genitals are more exposed to violence, accidents, and extreme exercise. Of all genital trauma, 80% are caused by blunt injuries. Etiologies and classifications of genital trauma vary based on age (adult and pediatric), anatomical location, and the nature or mechanism of injury. Self-mutilation of the penis is one common etiology of adult genital injury and the majority of cases are associated with mental health problems<sup>7,8</sup>.

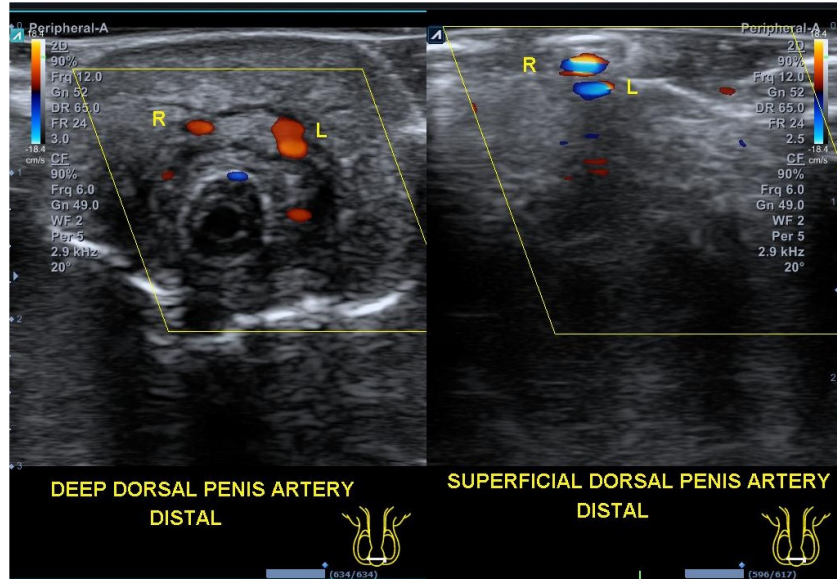
Penile amputation is an uncommon urologic emergency<sup>1</sup>. It occurs due to a variety of etiologies. The majority of penile amputations are due to self-mutilation due to psychiatric disorders,

which accounts for about 87% of all cases. Klingsor syndrome is a psychiatric disease involving self-mutilation characterized by paranoid schizophrenia along with command hallucination as well as disorders of eating such as anorexia and bulimia. The extent of penile injury ranges from minimal skin laceration to total amputation<sup>8</sup>. A minority of reported cases arise from accidental industrial trauma, masturbatory trauma, and assault by spouses<sup>2,9</sup>.

The first documented case of penile replantation was reported by Ehrlich in 1929. At that time, penile replantation was conducted on a traumatic injury using a non-microsurgical technique, which involves removal of all necrotic tissue, approximation of related structure, and introduction of a slip graft to cover the penis. A few days after replantation, there was reported hematoma at the glans. Two years later, the patient had urethral stricture and penile shortening with a normal-appearing penis<sup>10</sup>. However, the organ was functional and apparently in normal shape with few scars. In 1977, Cohen successfully reported the first microsurgical penile replantation<sup>5</sup>. A systematic review of literature between 1966 to 2007 revealed at least 30 successful penile replantations<sup>11</sup>.

In 2017, Morrison *et al.* conducted a systematic review of 106 patients who underwent penile replantation. They proposed that penile replantation appeared to be safe and effective<sup>5</sup>. Liu *et al.* (2019) reviewed 13 published case reports regarding penile amputation in the last five years. It showed that gross contamination or prolonged ischemia time are not factors in successful penile replantation, unless the injury sustained was severe<sup>6</sup>. However, penile amputation still possesses a great challenge to surgeons due to the current lack of cases, standardized surgical techniques and post-surgical protocols<sup>6</sup>.

Assessment of the final outcomes of penile replantation have varied widely and is often limited to subjective assessment of both surgeon and patient alike<sup>11</sup>. This involves survival of the organ, good urinary stream, satisfactory cosmetic appearance and return of sensation as well as erection<sup>2,5</sup>. Many reports have defined the factors that contribute to favorable outcomes. To



**Figure 2.** Post-surgical evaluation study at the fifth day with Doppler ultrasound showed adequate deep and superficial arterial flow at the distal end of the penis.

name a few, the duration of ischemia time, type and mechanism of injury, severity of injury, as well as microscope use at time of surgery<sup>5,11</sup>.

Many studies revealed that the ‘golden period’ within six hours post amputation is needed for satisfactory surgical outcomes, but Liu *et al.* (2019) reported adequate recovery of structure and functional capacity after microsurgical replantation with ischemia time exceeding 10 hours<sup>6</sup>. In addition, microsurgical repair after 16 hours cold ischemia or injuries of greater than 24 hours has shown promising results<sup>12,13</sup>. The ischemia time of the patient treated in this report exceeded six hours (about nine hours), but the final outcome of the patient also showed adequate functionality and cosmetic restoration.

A review by Phonsombat *et al.* of 110 cases of penile amputation showed that gunshot injury (49%) was the most common cause, followed by stab injury or laceration (44%), and bite injury (7%). Surgical reconstruction after penetrating trauma of the penis might be technically easier due to better identification of related structures with intact margins. Blunt penile trauma, however, is more challenging due to the deformed anatomy and unmarked margins<sup>6,14</sup>. In our case, the injury sustained was due to a mechanical grass cutter at a factory.

Based on the severity of injury, penile amputation can be classified into complete and incomplete<sup>15</sup>. There is no clear definition regarding incomplete amputation. Liu *et al.* showed that incomplete amputation with survival of vessels and nerves has a better prognosis compared to those with neurovascular damage<sup>6</sup>. A retrospective analysis by Morrison *et al.* concluded that total amputation, increased amount of nerves conglutinated, and anastomosis of the superficial dorsal artery all bear significant association to positive outcomes. In their opinion, complete

amputation of the penis tends to have better results because it enables the surgeon to access the neurovascular structure more clearly. However, numeral illustration and clarification of vessels requiring anastomosis were not available from their data<sup>5</sup>.

The preferred surgical techniques, either via microscopic or non-microscopic techniques, are still conflicting. Evaluation of two cases by Liu *et al.* showed that microsurgical repair was associated with better physical and psychosocial outcomes. Early anastomosis of penile neurovasculature is a critical factor that favors a successful outcome<sup>6</sup>. Microsurgical techniques enable appropriate anastomosis or coaptation of structure, which allows better sensation and control of sexual function and leads to greater patient satisfaction. Jezior *et al.* reported that meticulous anastomosis of cavernosal arteries and dorsal structure was associated with erectile function<sup>16</sup>. A contemporary report recognized the role of microsurgical revascularization in maintaining early and adequate penile blood flow in order to achieve the best appearance and erectile and voiding function outcomes<sup>11</sup>.

Based on the characteristics of penile blood supply, it is possible to have a good outcome without the need for blood vessels to be re-anastomosed<sup>15</sup>. Riyach *et al.* reported a case of incomplete penile replantation using non-microsurgical techniques. The deep penile arteries and superficial deep dorsal vein were not repaired. The outcome was good with a normal-appearing penis, good sensation, ability of penile erection, and ejaculation<sup>9</sup>. They suggested that the spongiosal bodies may play a role in the arterial supply, venous drainage, and penile erection. Another successful non-microscopic penile replantation was reported by Mensah *et al.* The aforementioned case reported good voiding flow, cosmetics, and ability of penile erection. They stated

that the corporal bodies might play a role in channeling penile blood flow. A review by Kochakarn (2000) concluded that both microsurgical and macrosurgical techniques constituted a good outcome after penile replantation. He reviewed 100 cases with ischemia time of up to 24 hours. The result was satisfying with adequate cosmetics and restoration of erectile ability. The most common complication was skin loss and urethrocutaneous fistula. He underlined that if there was not any microsurgical skills or facilities, penile replantation should be done macrosurgically, because it is proven to show good outcomes<sup>17</sup>.

Moreover, Li *et al.*'s study involving 109 cases of penile replantation, 51% of which involved non-microsurgical repair, concluded that erectile dysfunction and urethral stricture were more common among patients who underwent non-microsurgical repair. Another report by Mendez *et al.* showed that a non-microsurgical approach led to necrotic skin, penile sensation loss, urethral stricture, and urethrocutaneous fistulas<sup>18</sup>.

In our case, we carried out a non-microsurgical penile replantation in a patient with dorsal structure and cavernosal bodies rupture. As with the case report by Riyach *et al.*, the spongiosal bodies of our patient was partially spared. We used 2.5x loupe magnification to approximate the penile structure. On the fifth day post reconstruction, the penis showed no significant swelling of the distal penile shaft, and sensation started to return gradually. Our case demonstrated a good post-operative result with venous drainage restoration without a microsurgical technique. This raises questions about the role of the spongiosal body in penile blood flow and erection.

The ischemic time presented in our case was within six hours post injury, and we finished reconstruction in about two hours. Although we did not use a microscope to anastomose a large number of vessels, this led to a shorter ischemic time and therefore better overall outcomes. Moreover, distal penile injuries bear

a greater challenge for vascular anastomosis in regards to the involvement of smaller vessels<sup>19</sup>.

The limitations of this study include the unavailability of long-term outcomes reported in this study. After coming in for the one month follow-up, the patient ceased to show up for further monitoring. Other limitations include the lack of standardized and validated methods used to report study outcomes. There are currently limited clinical data depicting long term outcomes and functionality of heterogenous surgical repair methods. The strength of this study includes the successful management of a rare case of penile amputation with a partial spared spongiosal body. Moreover, most cases of penile amputation comprise of complete amputation.

Penile amputation is an infrequent urologic emergency resulting from a variety of factors. This case report outlines the treatment of distal penile amputation with partial spongiosal injury. Although the gold standard treatment for said injury is a microscopic neurovascular reconstruction technique, non-microsurgical penile replantation with an at least 2.5x loupe magnification in a resource-deficient setting seems to yield adequate results.

### Data availability

All data underlying the results are available as part of the article and no additional source data are required.

### Consent

Written informed consent for publication of clinical details and clinical images was obtained from the patient.

### Acknowledgments

The authors would like to thank all faculty and staff of Urology, Anesthesiology, and Radiology Departments of dr. Dradjat Prawiranegara General Hospital Serang, Banten.

## References

- Patel MS, Jensen D, Culp SH: **Traumatic Penile Amputation: A Case Report and Acute Management.** *J Trauma Treat.* 2014; **3**(4): 1000210. [Publisher Full Text](#)
- Krishnakumar KS, Petkar KS, Lateef S, *et al.*: **Penile replantation.** *Indian J Plast Surg.* 2013; **46**(1): 143–146. [PubMed Abstract](#) | [Free Full Text](#)
- Cohen BE, May JW Jr, Daly JSF, *et al.*: **Successful clinical replantation of an amputated penis by microneurovascular repair.** *Plast Reconstr Surg.* 1977; **59**(2): 276–80. [PubMed Abstract](#) | [Publisher Full Text](#)
- Tamai S, Nakamura Y, Motomiya Y: **Microsurgical replantation of a completely amputated penis and scrotum: Case report.** *Plast Reconstr Surg.* 1977; **60**(2): 287–91. [PubMed Abstract](#) | [Publisher Full Text](#)
- Morrison SD, Shakir A, Vyas KS, *et al.*: **Penile Replantation: A Retrospective Analysis of Outcomes and Complications.** *J Reconstr Microsurg.* 2017; **33**(4): 227–232. [PubMed Abstract](#) | [Publisher Full Text](#)
- Liu X, Liu Z, Pokhrel G, *et al.*: **Two cases of successful microsurgical penile replantation with ischemia time exceeding 10 hours and literature review.** *Transl Androl Urol.* 2019; **8**(Suppl 1): S78–S84. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Kitrey ND, Djakovic N, Hallscheidt P, *et al.*: **EAU Guidelines on Urological Trauma 2020. European Association of Urology Guidelines 2020 Edition [Internet].** Arnhem, The Netherlands: European Association Urology Guidelines Office. 2020.
- Kim JH, Park JY, Song YS: **Traumatic Penile Injury: From Circumcision Injury to Penile Amputation.** *Biomed Res Int.* 2014; **2014**: 375285. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Riyach O, El Majdoub A, Tazi MF, *et al.*: **Successful replantation of an amputated penis: A case report and review of the literature.** *J Med Case Rep.* 2014; **8**: 125. [PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
- Ehrich WS: **Two Unusual Penile Injuries.** *J Urol.* 1929; **2019**: 1582047. [Publisher Full Text](#)
- Raheem OA, Mirheydar HS, Patel ND, *et al.*: **Surgical Management of**

- Traumatic Penile Amputation: A Case Report and Review of the World Literature.** *Sex Med.* 2015; **3**(1): 49–53.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
12. Wei FC, Hunt McKee N, Javier Huerta F, *et al.*: **Microsurgical replantation of a completely amputated penis.** *Ann Plast Surg.* 1983; **10**(4): 317–21.  
[PubMed Abstract](#) | [Publisher Full Text](#)
  13. Faydaci G, Uğur K, Osman C, *et al.*: **Amputation of glans penis: A rare circumcision complication and successful management with primary anastomosis and hyperbaric oxygen therapy.** *Korean J Urol.* 2011; **52**(2): 147–149.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
  14. Phonsombat S, Master VA, McAninch JW: **Penetrating External Genital Trauma: A 30-Year Single Institution Experience.** *J Urol.* 2008; **180**(1): 192–5.  
[PubMed Abstract](#) | [Publisher Full Text](#)
  15. Mineo M, Jolley T, Rodriguez G: **Leech therapy in penile replantation: A case of recurrent penile self-amputation.** *Urology.* 2004; **63**(5): 981–3.  
[PubMed Abstract](#) | [Publisher Full Text](#)
  16. Jezior JR, Brady JD, Schlossberg SM: **Management of penile amputation injuries.** *World J Surg.* 2001; **25**(12): 1602–9.  
[PubMed Abstract](#) | [Publisher Full Text](#)
  17. Kochakarn W, Viseshsindh V, Muangman V: **Penile fracture: Long-term outcome of treatment.** *J Med Assoc Thai.* 2002; **85**(2): 179–82.  
[PubMed Abstract](#)
  18. Mendez R, Kiely WF, Morrow JW: **Self-emasculation.** *J Urol.* 1972; **107**(6): 981–5.  
[PubMed Abstract](#) | [Publisher Full Text](#)
  19. Mensah JE, Bray LD, Akpakli E, *et al.*: **Successful penile reimplantation and systematic review of world literature.** *African J Urol.* 2017; **23**(13): 253–257.  
[Publisher Full Text](#)

# Open Peer Review

Current Peer Review Status:  

---

## Version 2

Reviewer Report 07 October 2020

<https://doi.org/10.5256/f1000research.29017.r71791>

© 2020 Ralph D. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**David J. Ralph**

Andrology Department, University College London Hospital, London, UK

I am happy now with the corrections.

**Competing Interests:** No competing interests were disclosed.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

---

## Version 1

Reviewer Report 18 August 2020

<https://doi.org/10.5256/f1000research.26235.r69356>

© 2020 Ralph D. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**David J. Ralph**

Andrology Department, University College London Hospital, London, UK

- Need more anatomical description.
- Was this a division through the glans and distal corpora - urethral vessels were, therefore, supplying the glans?
- What about the dorsal neuromuscular bundle - please comment?



- Use the correct anatomy for each vessel, nerve, vein etc.
- Need a more subjective assessment of sensation and erectile function.

**Is the background of the case's history and progression described in sufficient detail?**

No

**Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?**

No

**Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?**

No

**Is the case presented with sufficient detail to be useful for other practitioners?**

No

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Andrology and penile reconstruction

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Reviewer Report 16 July 2020

<https://doi.org/10.5256/f1000research.26235.r66594>

© 2020 Raheem O. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Omer A. Raheem**

Department of Urology, Tulane University, New Orleans, LA, USA

1. This is an interesting paper and adds to the current literature in penile injuries. I would recommend for publication; however, major revisions need to be added first.
2. Need to delineate and describe anatomical injury and orientation: ventral and dorsal? What is preop trauma/injury assessment and how it was managed at the emergency room level?
3. I understand microscopy was not available but it remains gold standard in penile injury repair and reconstruction especially when anatomizing penile vasculature and corporal

- tissues and urethral. However, surgical loops were used? Correct?
4. How was urethral managed? Did you do preop UA, intra op cysto? Passing catheter? Any resistance? Did you repair urethra?
  5. Describe in detail penile vascular injury? Was dorsal penile arteries, veins, and nerves all injured? Did you use intrap doppler to assess for arterial signals?
  6. Why it was not repaired? You also mentioned deep penile artery was not repaired?
  7. What is post op follow up? How many days? Months since the injury? Do you have SHIM or AUA SS assessed? Did he retain any erectile or ejaculatory function? Make clear in the paper?
  8. Were other specialities like plastics present to assist or only urology?
  9. What is the management of foley cath post op and wound care?
  10. Describe reconstruction sutures used and what fashion interrupted vs continuous?
  11. In your conclusion, you mentioned that microscopic repair remains gold standard; however, if there are limited resources, then non micro repair is possible. That's ok. However you used surgical loops? Correct?
  12. Happy to write a short editorial to accompany this paper after revision is made.

**Is the background of the case's history and progression described in sufficient detail?**

Yes

**Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?**

Yes

**Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?**

Partly

**Is the case presented with sufficient detail to be useful for other practitioners?**

Partly

**Competing Interests:** No competing interests were disclosed.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

Author Response 28 Jul 2020

**Donny Eka Putra**, dr. Dradjat Prawiranegara Hospital, Serang, Indonesia

1. Thank you prof Raheem, we highly appreciate your feedback. We are deeply sorry for the delay in our respond.

2. Need to delineate and describe anatomical injury and orientation: ventral and dorsal? What is preop trauma/injury assessment and how it was managed at the emergency room level?

The injury sustained resulted from a grass-cutter blade in the direction from the dorsal side of the penis. The injury consisted of dorsal artery nerves and veins, bilateral corpus cavernosum, and corpus spongiosum. The urethra was intact.

Pre-operation assessment in the emergency department was limited to penile amputation only, as we were unable to clearly define structural damages due to diffuse bleeding and excessive pain. At the time of patient arrival, trauma resuscitation protocol including airway, breathing, and circulation assessment was running. The patient was also given antibiotic anti-tetanus, blood specimen testing and on a 23G IV line to handle the earliest signs of shock if necessary.

The patient was then treated with compression bandage on the penis to minimize bleeding.

3. I understand microscopy was not available but it remains gold standard in penile injury repair and reconstruction especially when anatomizing penile vasculature and corporal tissues and urethral. However, surgical loops were used? Correct?

Yes, we used surgical loupe with 2.5x magnification.

4. How was urethral managed? Did you do preop UA, intra op cysto? Passing catheter? Any resistance? Did you repair urethra?

At the time of surgical exploration, urethra was found to be intact and the catheter was able to pass through without any resistance. I did not do prep UA and i did not have the need to repair the urethra.

5. Describe in detail penile vascular injury? Was dorsal penile arteries, veins, and nerves all injures? Did you use intrap doppler to assess for arterial signals?

Surgical exploration revealed dorsal penile veins and nerves injury along with corporal bodies. I did not use doppler US because it was not available during surgery.

6. Why it was not repaired? You also mentioned deep penile artery was not repaired?

What I meant by 'not repaired' is that I did not repair it by micro-surgical means to create a proper end-to-end anastomosis. I however did an anastomoses by approximating the deep dorsal artery end with the available 2.5x loupe magnification.

7. What is post op follow up? How many days? Months since the injury? Do you have SHIM or AUA SS assessed? Did he retain any erectile or ejaculatory function? Make clear in the paper?

The patient was discharged from the hospital on the 5th day after surgery. At day 5, the patient underwent doppler ultrasound to assess vascularization of penile distal to the injury. The patient was discharged without catheter following no difficulty in voiding. At one month after surgery, the patient was evaluated with IPSS, IIEF, and EHS score.

Yes, the patient retained erection and ejaculation function at the level of grade 3 EHS, IIEF score 19, IPSS score 2, QOL 1.

8. Were other specialties like plastics present to assist or only urology?

No, Only Urology.

9. What is the management of foley cath post op and wound care?

On the 3rd day after surgery we applied a new sterile dressing on the wound and observed no significant edema or pus or any leakage. On the fifth day after surgery, we adopted a post operative open wound treatment care plan. The catheter was also removed at the 5th day post surgery with close observation for hematuria or urinary retention.

10. Describe reconstruction sutures used and what fashion interrupted vs continuous?

I used vicryl 5/0 interrupted suture on the corporal bodies and 4/0 vicryl interrupted suture on fascia and skin.

11. In your conclusion, you mentioned that microscopic repair remains gold standard; however, if there are limited resources, then non micro repair is possible. That's ok. However you used surgical loops? Correct?

Yes. My apologies, i will revise my conclusion with the recommendation of doing repair with at least a 2,5x surgical loupe like the way i treated the patient in the paper.

12. Happy to write a short editorial to accompany this paper after revision is made.

Thank you, we highly appreciate the time you spent to review our paper. We would love to have your short editorial to accompany our paper.

**Competing Interests:** No competing interests were disclosed.

The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact [research@f1000.com](mailto:research@f1000.com)

**F1000Research**