One-stage Reconstruction of Penile Paraffinoma Using Spiral Stitches FTSG and Evaluation of Sexual Function

Jufriady Ismy, PhD
Mirnasari Amirsyah, MD
I Nyoman Palgunti, MD
Gugum Indra Firdaus, MD
Fakhruulriza Fakhruullia, MD
Said Alfin Khalilullah, MD

Summary: Paraffinoma of the penis is rare and caused by paraffin liquid injection. This condition can cause significant penile deformity, ulceration, pain, and sexual dysfunction. However, it can be managed with surgical procedures to obtain normal aesthetic and functional results. Herein, we reported a 42-year-old male with penile paraffinoma who underwent excessive surgical excision of the fibrotic tissue and one-stage reconstruction using a spiral stitch full-thickness skin graft. At one year of follow-up it showed a good aesthetic outcome with no hypertrophic scars, skin contractures, penile curvature, or penile shortening. The sexual evaluation using the International Index of Erectile Function instrument also showed a good result with normal erectile function and satisfaction with sexual sensation. This case is interesting because we used the spiral stitch full-thickness skin graft technique to cover the degloving area and long-term follow-up to evaluate the aesthetic and functional results. (Plast Reconstr Surg Glob Open 2022;10:e4048; doi: 10.1097/GOX.0000000000004048; Published online 18 January 2022.)

CASE REPORT

A 42-year-old man with painful and thickened skin along the shaft of his penis due to injection with paraffin liquid oil in an unregulated and nonsterile environment 5 years ago presented to the emergency department. He also complained about erectile dysfunction with an International Index of Erectile Function (IIEF) score of 10 (moderate erectile dysfunction) and unsatisfied sexual intercourse. On examination, we observed irregularly thickened, hard skin involving the whole circumference of the penile shaft, the corona of the glans penis extending through the small of the scrotum and suprapubic region. There were areas with skin discoloration along the hardened skin, but no signs of acute inflammation, discharge, or ulcers were observed (Fig. 1).

Intraoperative exploration found the fibrotic tissue involved both the skin and subcutaneous tissue layer along the shaft of the penis. The surgical intervention consisted of extensive surgical excision of the fibrotic tissue followed by one-stage reconstruction using a spiral stitch full-thickness skin graft (FTSG) technique for coverage. The choice of reconstruction technique should consider the aesthetic aspects (e.g., hypertrophic scars, penile contractures that lead to a curvature, and penile shortening) as well as the sexual function. Herein, we present a one-stage penile reconstruction using a full-thickness skin graft (FTSG) with spiral stitches as a suitable technique for penile paraffinoma followed by a 12-month evaluation after reconstruction surgery.

From the Faculty of Medicine, Universitas Syiah Kuala, Aceh, Indonesia.

Received for publication September 6, 2021; accepted November 16, 2021.

Copyright © 2022 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

DOI: 10.1097/GOX.0000000000004048

Disclosure: The authors have no financial interests in relation to the content of this article.

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.
the shaft from the corona through the base of the penis, extending to the scrotum and suprapubic region. Careful dissection of the thickened tissue was performed circumferentially until the Bucks’ fascia, which then proceeded into gloving the skin from the shaft of the penis. An FTSG was harvested from the inguinal region to cover the degloved area and anchored by using catgut 5/0 suture in a spiraling stitches technique (Fig. 2). Moist, fluffy gauze was also applied as a bolster dressing to secure skin grafts which were carefully undressed at five days postoperative after wetting the gauze to avoid skin detached from the underlying bed. Then, Vaseline gauze dressing was applied daily until the skin completely healed.

After eight days postoperative, the graft condition was good (See figure, Supplemental Digital Content 1, which shows the good surgical outcomes without hematoma, swelling, discharge, and skin necrosis. http://links.lww.com/PRSGO/B888). The patient was then followed up for 12-months after surgery. Although there is a slight deformity on the ventral aspect of the penis, no hypertrophic scar or skin contracture were observed (Fig. 3).

The patient was allowed to start sexual activity 1 month after surgery, but he was worried and first partook after 2 months. Furthermore, sexual function has improved compared with preoperative conditions. We evaluated the sexual function using the IIEF score. (See table, Supplemental Digital Content 2, which illustrates the IIEF score questionnaire. http://links.lww.com/PRSGO/B889.) This instrument consists of 15 items and five domains that were developed for determining male sexual function. In this case, erectile function improved after 3-, 6-, and 12-months follow-up, with IIEF scores being 20, 23, 24, respectively. He was also satisfied with sexual sensation.

**DISCUSSION**

Extensive excision of the fibrotic tissue in penile paraffinoma followed by resurfacing of the penis has been reported to provide an excellent aesthetic result with no recurrence. Several resurfacing techniques such as flaps, split-thickness, or full-thickness skin grafts have been reported, with satisfactory results. Several aspects need to be considered in selecting the resurfacing technique, including aesthetic (eg, hypertrophic scar and skin contracture) and functional aspects.

In this case, we used spiral sutures to secure the FTSG as they reduce the risk of hypertrophic scars and skin contractures. In contrast to linear stitches, the spiral stitch can prevent pathological scars by not placing the suture in a straight line to effectively reduce the scar’s tension. A case report conducted by Prasetyono found that the spiraling FTSG for resurfacing of the penis after paraffinoma excision has a good outcome, with no postoperative hypertrophic scar and no recurrence. We also avoided using flap dissection such as scrotal skin to prevent complications such as wound disruptions, penile shortening, and scrotal hematoma. Furthermore, FTSG results in a hairless penis, which is preferred to the undesired hairy penis observed after scrotal flaps reconstruction. Additionally, FTSG also provided more sensitive skin that seemed to be more natural, which is abundant in sensory nerves.

Apart from the benefits mentioned above, another positive outcome after reconstruction is an improvement of sexual function in our case. The patient can achieve full penis length during an erection without pain and resume normal sexual intercourse with the satisfaction that can only be obtained by a good erection without pain and pathologic scar. Innervation in the glans has a more
critical role than the shaft of the penis in erection and sexual sensation physiology.13

CONCLUSIONS

Penile paraffinoma can be treated by excessive surgical excision of the fibrotic tissue and continued by reconstruction. One-stage reconstruction with FTSG using a spiral stitch technique can result in a good clinical outcome, including cosmetic aspect, patient satisfaction, and sexual function.

Jufriady Ismy, PhD
Faculty of Medicine
Universitas Syiah Kuala
Aceh, Indonesia
E-mail: jufriadyismy@unsyiah.ac.id

REFERENCES

1. Downey AP, Osman NI, Mangera A, et al. Penile paraffinoma. Eur Urol Focus. 2019;5:894–898.
2. Salauddin SA, Ghazali H. Surgical techniques for correction of penile paraffinoma. Malays J Med Sci. 2019;26:137–142.
3. Prasetyono TOH. One-sheet spiraling full thickness skin graft for penile resurfacing after paraffinoma excision. Med J Indonesia. 2011;20:222-225.
4. Lee HG, Lim SY, Yoon GS, et al. Circumferential penile defect reconstruction with pull-up double-opposing keystone-designed perforator island flaps: a case report. Medicine (Baltimore). 2020;99:e18762.
5. Syahir S, Palinrungi A, Krahmadi E, et al. Characteristics and treatment of penile paraffinoma in Makassar, Indonesia. Am J Med Sci Med. 2017;5:53–55.
6. Rosen RC, Cappelleri JC, Smith MD, et al. Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. Int J Impot Res. 1999;11:319–326.
7. Fakin R, Zimmermann S, Jindarak S, et al. Reconstruction of penile shaft defects following silicone injection by bipedicled anterior scrotal flap. J Urol. 2017;197:1166–1170.
8. Soebhali B. Penile self-injections for girth augmentation: treatment of complications. In: Martins FE, Kulkarni S, Kohler TS, eds. Texbook of Male Genitourthral Reconstruction. New York: Springer; 2020:783–794.
9. Chon W, Koo JY, Park MJ, et al. Paraffin granuloma associated with buried glans penis-induced sexual and voiding dysfunction. World J Mens Health. 2017;35:129–132.
10. Ogawa R. Ideal wound closure methods for minimizing scarring after surgery. In: Téot L, Mustoe TA, Middelkoop E, et al. eds. Textbook on Scar Management. Cham: Springer; 2020.
11. Delliis AE, Nastos K, Mastorakos D, et al. Minimal surgical management of penile paraffinoma after subcutaneous penile paraffin injection. Arab J Urol. 2017;15:387–390.
12. Al-Abad A, McAninch JW, Harris CR, et al. Utilities of split-thickness skin grafting for male genital reconstruction. Urology. 2015;86:835–839.
13. Dean RC, Luc TF. Physiology of penile erection and pathophysiology of erectile dysfunction. Urol Clin North Am. 2005;32:579–595.

Fig. 3. Twelve months of follow-up. A, A good cosmetic aspect without hypertrophic scar and no post-operative skin contracture. B, The slight deformity on the ventral aspect below the glans penis is just fatty tissue.