

# Secondary Intention Healing Following Surgical Shave Excision of Nevi on the Penis. A Retrospective Study of 8 Cases

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**Purpose:** The purpose of the study was to determine the efficacy of secondary intention healing of wounds after penile nevi surgical shave excision.

**Patients and Methods:** A retrospective study in the Department of Dermatology, Peking University People's Hospital, between 2019 and 2023, on 8 patients with penile nevi was performed. Patients were treated by surgical shave excision and underwent secondary intention healing. For patients with relatively large nevi involving the glans penis, staged excisions were applied.

**Results:** In our case series, 7 patients achieved excellent wound esthetic outcomes and 1 patient achieved a good esthetic outcome, all with no loss of sensation. During the follow-up, 2 patients experienced the recurrence of pigmented macules in situ and received a second excision, achieving satisfactory outcomes as well.

**Conclusion:** Secondary intention healing of wounds after surgical shave excision of penile nevi has satisfactory outcomes and is a simple procedure for both doctors and patients.

**Keywords:** penis, nevus, shave, excision, secondary intention healing

## Introduction

Melanocytic nevi occurring on the penis are uncommon. Among children/adolescents who were given the diagnosis of melanocytic nevi, the prevalence of penile nevus was 2.72% (17/625), with 12 nevi located on the penile shaft and 5 nevi on the glans penis.<sup>1</sup> Penile nevi presented as macules and papules, with color ranging from pink-tan to dark brown. Although penile melanoma is rare,<sup>2</sup> biopsy or prophylactic excision of genital nevi is unnecessary in the absence of worrisome features,<sup>3</sup> some patients insist on the excision of penile nevi because they fear malignant transformation or sexual embarrassment.

Excision and reconstruction with free inner prepuce grafting is often chosen for the treatment of penile nevi.<sup>4</sup> However, it is a fairly sophisticated process and may have postoperative complications, including short-term problems such as infection, hematoma, seroma and long-term problems regarding cosmesis and function. Herein, we report 8 cases of penile nevi treated with surgical shave excision and secondary intention healing for patients who achieved satisfactory outcomes.

## Materials and Methods

We conducted a retrospective monocentric study on patients with penile nevi who were treated with surgical shave excision followed by secondary intention healing between 2019 and 2023, in the Department of Dermatology, Peking University People's Hospital, Beijing, China. Histopathological examination confirmed nevi for all patients.

After local infiltration anesthesia, the patients underwent surgical shave excision of the lesions with a safety margin of 1mm. The wounds were then covered with alginate dressings with bandages on top. Three days later, crusts above the wounds were removed with 3% hydrogen peroxide solution. Then the wounds were disinfected with iodophor, rinsed

**Table 1** Characteristics of Patients with Penile Nevi

Case	Age (Years Old)	Duration of Nevus (Years)	Location	Size (mm × mm)	Follow-Up Period (Months)
1	32	2	Glans penis	4×2	60
2	24	5	Glans penis	7×5	28
3	37	4	Glans penis	3×3	26
4	27	20	Glans penis	7×5	18
5	10	10	Glans penis	13×8	18
6	30	13	Glans penis	6×3	13
7	11	3	Glans penis and penile shaft	18×10	13
8	32	10	Glans penis and penile shaft	12×8	12

with normal saline and covered with erythromycin eye ointment. Subsequently, the wounds were cleaned every 1 to 3 days, using the same method mentioned above.

After healing, wound esthetic outcomes were divided into excellent, good, acceptable and poor. The evaluation criteria referred to previous literatures.<sup>5,6</sup> Excellent was defined as a scar with no mismatch in edge contour and a good color match or only minor hypopigmentation to surrounding skin. Good was defined as little mismatch in edge contour and good color match or only minor hypopigmentation to surrounding skin. Acceptable was defined as a depressed or elevated scar with good color match or a clear color mismatch but with good edge contour. Poor was defined as a clearly depressed or elevated scar with severe color mismatch. In addition, recurrence of pigmented lesions was monitored during the follow-up.

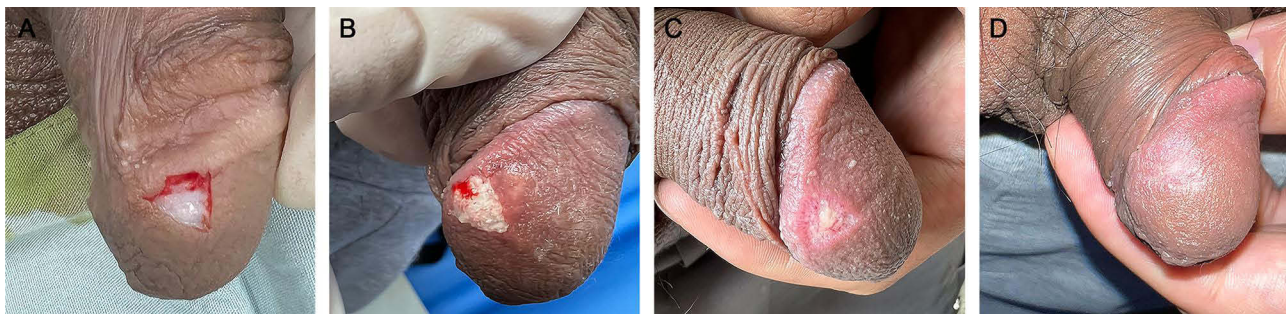
## Results

Eight patients with penile nevi (median age: 28.5 years; age range: 10–37 years) were included in our study, which included 2 children and 6 adults. The patients had a long history of pigmented macules, patches or papules, ranging from 2 to 20 years, with a median duration of 7.5 years. Six patients had the lesions only on the glans penis, while 2 patients' glans penis and penile shaft were both involved. The size of the lesions ranged from 4×2 mm to 18×10 mm. The patients were followed up after excision, with a median duration of 18 months. (Detailed information is listed in Table 1).

For the 2 children, the sizes of the nevi involving the glans penis were relatively large, so staged excisions were applied, twice and thrice, respectively.

The wounds of all patients healed within 1–2 weeks, with no sign of bleeding, infection, or obvious scar formation. Seven patients achieved excellent wound esthetic outcomes and 1 patient achieved a good outcome, all with no loss of sensation. Figures 1–4 demonstrated 4 cases of excellent wound esthetic outcomes.

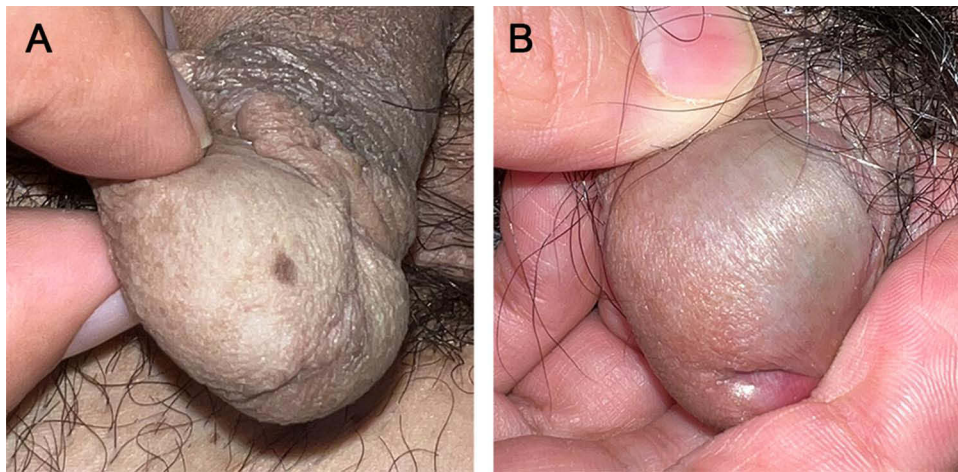
However, during the follow-up, 2 patients experienced the recurrence of pigmented macules in situ. One patient had a macule with 1 mm diameter in the center of the original nevus 40 days after excision of nevus on the glans penis. The



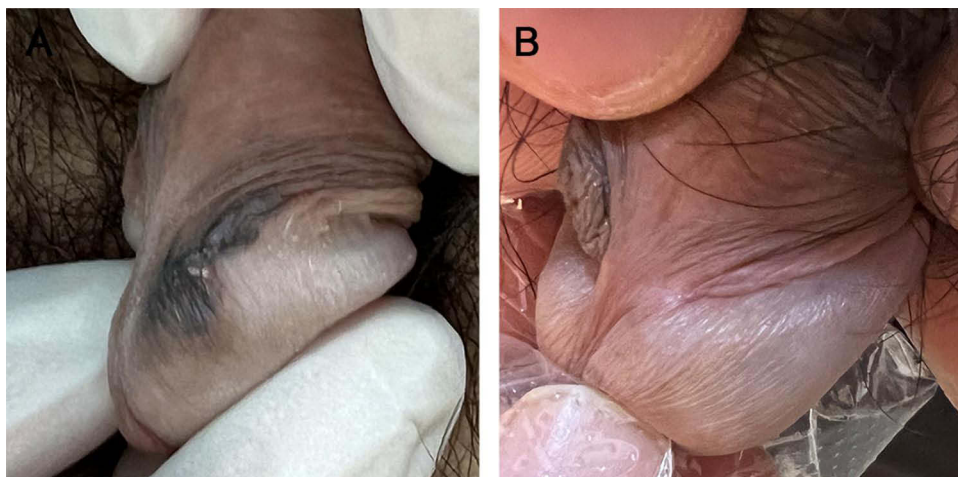
**Figure 1** A defect on the glans penis with secondary intention healing in a 24-year-old patient. (A) Immediate after surgery; (B) Two days after surgery; (C) Nine days after surgery; (D) Forty days after surgery.



**Figure 2** A Nevus involving the glans penis and penile shaft undergoing staged shave excisions and secondary intention healing in an 11-year-old patient. (A) A pigmented patch with a size of 18 mm×10 mm on the penis, with scattered dots around; (B) One and half month after the first surgery; (C) Immediate after the second surgery; (D) Two months after the second surgery.



**Figure 3** A nevus on the glans penis before and after shave excision and secondary intention healing in a 37-year-old patient. (A) Before surgery; (B) Four months after surgery.



**Figure 4** A nevus on the glans penis and the penile shaft before and after shave excision and secondary intention healing in a 32-year-old patient. (A) Before surgery; (B) Five months after surgery.

macule had not recurred during a 16-month follow-up after the second excision. The other patient underwent a third excision for the recurrence of a macule on the coronal sulcus with the size of 5×2 mm 4 months after two staged shave excisions. The macule had not recurred during a 9-month follow-up.

## Discussion

Penile nevi are uncommon. The 14.2% prevalence of genital nevi in 17- to 25-year-old males by clinical diagnosis back in 1962<sup>7</sup> may be overestimated. The investigators did not use dermoscopic or histopathological evaluations, and might have included other pigmented lesions (eg, lentigines or pigmented condyloma). Specific locations were also not described in that study, which might have included sites other than the penis. Furthermore, histopathological examination showed that in 27 males with pigmented penile lesions, only 3 patients had atypical nevi and 3 patients had melanocytic nevi.<sup>8</sup> For the treatment modalities for penile nevi, most publications are about divided nevus, which occurs on adjacent parts of the body that are separated during embryogenesis and involves the glans penis and prepuce at the same time. It was summarized that for the treatment of divided nevus of the penis, 66.7% of the cases chose free inner prepuce grafting,<sup>4</sup> with free inner prepuce grafting for glans defects and direct suture for prepuce defects in most cases.<sup>9</sup> Although surgery and reconstruction are considered the mainstay of treatment of penile nevi, it can potentially lead to unaesthetic or retractile scarring and significant functional impairment in such sensitive areas. Wound closure with a full-thickness skin graft from the oral mucosa of the lower lip was also applied in 1 case, but no pictures or descriptions of wound recovery were documented.<sup>10</sup> Additionally, the carbon dioxide (CO<sub>2</sub>) laser for 2 treatment sessions, 6 months apart, was also reported to successfully treat penile nevi, with no evidence of recurrence by a 5-year follow-up.<sup>11</sup> But a minor scar was left afterwards. Moreover, biopsies were performed before the laser treatment, causing multiple damages.

For common penile nevi other than divided nevi, the glans penis was more often affected than the shaft of the penis.<sup>8</sup> But handling the glans penis nevi is more difficult than the prepuce nevi, as the loose prepuce is ideal for direct suture, while the glans penis is not. Jin et al compared the efficacy of different reconstruction methods in 9 patients with excision of melanocytic nevi on the glans penis, with free inner prepuce grafting in 1 patient, direct suture in 3 patients, and secondary intention healing in 5 patients. The skin graft in 1 patient showed necrosis that healed after debridement. Two out of 3 patients who underwent direct suture had scar hyperplasia after 1 month, and 1 patient had scar contracture 6 months later. Only 1 out of 5 patients who underwent secondary intention healing had scar hyperplasia 6 months later. So they concluded that secondary intention healing after excision was a simple, safe, and effective way to treat glans penis nevi, with high patient satisfaction.<sup>12</sup>

In our case series, we chose secondary intention healing for defects both on the prepuce and glans penis. To the best of our knowledge, this is the first study using such methods. Secondary intention healing is the most elemental form of wound closure and the most basic technique in the reconstructive ladder, but it is often overlooked by surgeons who are familiar with more advanced reconstructive techniques. Certain locations or situations are more amenable for secondary intention healing than others. The most important predictor of cosmesis is the contour of the lesion location. It was suggested that the penis is an amenable location for secondary intention healing.<sup>13</sup> The use of secondary intention healing essentially entails keeping the wound moist and protected while it heals. The wounds in our case series were covered with erythromycin eye ointment and most patients achieved excellent outcomes.

For large penile nevi, we chose staged excision and repeated resections after the wounds healed with no obvious scar, adhesion, or loss of sensation in the study. Although we have 2 cases of recurrence, repeated excisions were acceptable for patients, as no postoperative complications such as infections or hematoma occurred.

This study has several limitations. Firstly, we only included 8 patients as penile nevus is relatively uncommon. Secondly, no comparison to other reconstruction methods were made. In future studies, we will try to include more patients with different reconstruction method groups to compare the efficacy.

## Conclusion

Secondary intention healing of wounds after surgical shave excision of penile nevi has satisfactory outcomes and is a simple procedure for both doctors and patients. In an era of sophisticated reconstruction for defects, secondary intention healing should still be a choice.

## Ethical Approval and Informed Consent

This study was approved by the Institutional Ethics Committee of the Peking University People's Hospital, Beijing, China. The study was conducted in accordance with the Declaration of Helsinki. Informed consent was obtained from all adult patients, and from parents of patients under 18 years old. All participants signed a photo release consent form authorizing the distribution of any images collected during the study.

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## Disclosure

The authors report no conflicts of interest in this work.

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