

CASE REPORT



CO₂ laser treatment of a kissing nevus of the penis: an alternative solution for a rare condition

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ABSTRACT

Divided or kissing nevi are a rare clinical variant of congenital melanocytic nevi developing in adjacent areas of the skin that undergo cleavage during embryogenesis. Penile lesions are even rarer, with only few cases described in the literature. Typically, they present as two opposing dark colored macular or papular lesions on the glans and prepuce, exhibiting a mirror-image symmetry relative to the coronal sulcus. The proposed management ranges from clinical follow-up to surgical excision. However, in this particularly sensitive location the risk of functional and esthetical complications is high, so an alternative treatment option was proposed. We report a case of a penile kissing nevus with its dermoscopic and histopathological characteristics as well as its successful treatment with the carbon dioxide (CO₂) laser.

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Introduction

Divided or kissing nevi are a rare clinical variant of congenital melanocytic nevi (CMN), which develop in adjacent areas of the skin that undergo cleavage during embryogenesis (1). The first description of such a lesion was in 1908 on the eyelids, and few reports have been published since then. Other locations were already described, such as fingers and rarely the penis (2–5). To date, only 23 cases of penile kissing nevi have been reported in the literature (6).

Classically, they present as varying size, dark colored macular or papular lesions on the glans penis and adjacent foreskin, exhibiting a mirror-image symmetry relative to the coronal sulcus (7).

The proposed management ranges from clinical follow-up to surgical excision with or without skin grafting (8,9). However, the latter may be discouraged in such particular locations due to the risk of functional and esthetic complications. A preputial flap may be a surgical alternative (10).

We report a case of kissing nevus of the penis and its dermoscopic and histopathological features, along with the description of an alternative treatment option in such a sensitive location.

Case report

A 14-year-old healthy uncircumcised male, phototype III, presented for consultation with two asymptomatic darkly pigmented patches on the glans and prepuce. The lesions were noticed soon after birth and progressively augmented with growth, but in recent months had increased in size and got darker, which caused the patient esthetic and psychological concerns. He had no history of local trauma, medication intake, risk factors for sexually transmitted infections nor personal or family history of melanoma or other types of skin cancer.

Physical examination revealed an oval shaped, dark-brown patch with almost 10 mm of biggest diameter and well-defined edges on the left lateral aspect of the glans almost reaching to the urethral meatus and another similar lesion on the opposing prepuce. The coronal sulcus was spared. At rest, the preputial lesion seemed smaller, but when retracting and pulling the prepuce, the lesions had the same size and overlapped each other like a mirror image (Figure 1(a)).

Dermoscopy examination showed a pigmented patch with irregularly distributed dark dots and discrete annular-granular structures on the prepuce side as well as a darker pigmented patch with greater density of irregularly distributed dark dots on the glans lesion. No vascular structures were identified (Figure 1(b,c)).

Incisional biopsies were performed of the most pigmented central areas of the glans penis and prepuce lesions. Histopathological examination of the biopsies of both lesions confirmed compound melanocytic nevi. The epidermis exhibited very marked hyperpigmentation with some discernable melanocytes as well as a few nests of round, heavily pigmented nevus cells. Similar nests as well as an area of more diffusely distributed nevus cells in a slightly denser connective tissue were present in the upper dermis. There were no marked differences between the glans and preputial lesions except for the surrounding dermis being less dense in the prepuce (Figure 1(d,e)).

Treatment with the carbon dioxide (CO₂) laser was proposed and the patient underwent two treatment sessions, 6 months apart. Anesthesia was achieved with application of topical 4% lidocaine gel for 30 min and afterwards infiltration of 3 ml of 2% plain lidocaine. Using a Lasering® CO₂ laser, treatment of the entire surface of the nevi was performed with 2 passes of continuous wave mode, 2 mm spot, 2.0 W power. Healing took place by secondary intention, with granulation tissue developing in 24 h and full epidermal regeneration within 7–10 days (Figure 2(a–c)).

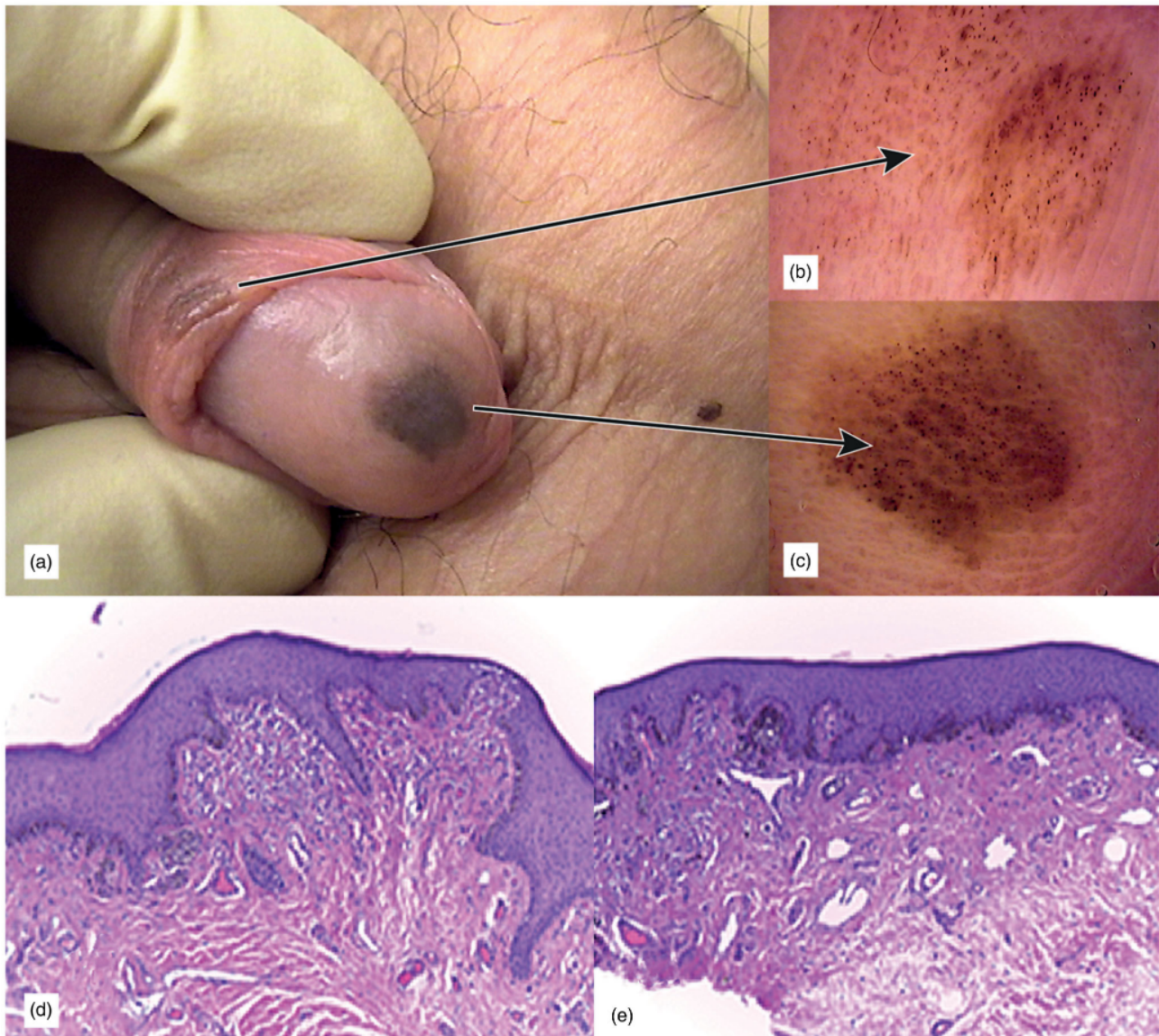


Figure 1. Oval, dark-brown patch on the left lateral aspect of the glans almost reaching to the urethral meatus and another similar lesion on the opposing prepuce (a). Dermoscopy shows a pigmented patch with irregularly distributed dark dots and discrete annular-granular structures on the prepuce (b), as well as a darker pigmented patch on the glans (c). In histopathology, the epidermis reveals a considerable hyperpigmentation with mainly lentiginous pattern, some single melanocytes and nests as well as diffusely arranged nevus cells in the upper dermis (d,e). The vascular pattern of the glans is also seen (e). H&E, $\times 100$.

The lesions completely resolved with no signs of recurrence, neither on the glans nor on the prepuce, after a 5-year follow-up. Minor and not retractile scarring occurred on the glans (Figure 2(d)).

Discussion

Divided or kissing nevus of the penis was first reported by Desruelles et al. (4). The lesion is thought to be initially single and to divide during the development of the external genitalia, from gestational weeks 11–14. Desruelles et al. (4) and Kono et al. (1) proposed a possible embryological mechanism: melanoblasts migrate to the lesion site before or around the division of the epithelial preputial placode, which produces the glans and prepuce, around gestational week 12.

Kissing nevi are usually dark colored, oval-shaped macules or patches, with well-defined borders. Most penile cases describe two mirror images, symmetrical relative to the coronal sulcus,

which is devoid of pigment. The diagnosis of kissing nevi is clinical, but histopathology and dermoscopy are key auxiliary exams in the differential diagnosis and follow-up. On histopathological examination, intradermal or compound melanocytic nevi are the most common presentation. Dermoscopic findings have been described in five cases, with an appearance of a compound pattern with globules similar to our case (6,11–13).

Malignant melanoma is reported to account for less than 2% of all primary penile malignancies. Of all previously reported patients with kissing nevi, only one presented a histologically confirmed melanoma (14). Nevertheless, as these are CMN, they are at a certain risk for malignant transformation, and a thorough regular clinical and dermoscopic examination is of highest importance in order to early detect any modification (15).

Various management options have been proposed, from clinical follow-up to surgical excision with and without skin grafting (16). Treatment of kissing nevi may be required due to significant cosmetic and psychosocial impact or when signs of malignancy



Figure 2. Immediately after first CO₂ laser treatment (a,b). One week after CO₂ laser therapy (c). Five years after first CO₂ laser treatment. Minor scar without relapse of nevi either on prepuce or glans (d).

are present. There are two reports in the literature of successful surgical excision and skin grafting with remnant foreskin (8,9). Although considered the mainstay of treatment in other types of CMN, an exclusive surgical approach of lesions located in sensitive areas such as the glans and prepuce can potentially lead to unesthetic or retractile scarring and significant functional impairment. In order to avoid these complications and to achieve an acceptable functional and cosmetic result, non-surgical alternatives have increased in popularity (17).

Within these treatment modalities, laser therapy has shown promising results. The types of lasers studied so far for the treatment of CMN include pigment-specific lasers, such as ruby (694 nm) and alexandrite (755 nm) or the yttrium aluminum garnet doped neodymium laser (Nd:YAG) (1064 nm), as well as ablative laser treatment with the CO₂ laser (10,600 nm) and the yttrium aluminum garnet doped erbium laser (Er:YAG) (2940 nm) (18). A group of authors had recommended Nd:YAG treatment for a case of kissing nevi of the penis, but the patient refused treatment (7). Another study reports successful laser treatment of penile kissing nevi; however, it fails to specify which laser was utilized (19).

The CO₂ laser is an ablative non-pigment specific laser. Parameters are chosen based on skin thickness, skin type and previous treatments. It is a safe technique with good esthetic results. It obviates the need for stitches. The risk of infection, bleeding or altered sensation is minimal. When injury occurs deep in the dermis such as with the CO₂ laser there is a higher risk of retractile scarring or hypopigmentation, but if vaporization is performed these risks are reduced by limiting the damage to the superficial dermis. The procedure is mostly painless with the use of topical

anesthesia or local infiltration and the healing process is usually fast (7–10 days). It has already shown its versatility and efficacy in treating lesions in sensitive sites of the body (20). With laser treatment of CMN, a certain recurrence risk remains, and long-term follow-up should always be performed.

Our patient achieved very good esthetic results without functional impairment or retractile scarring and showed no evidence of recurrence by 5-year follow-up after CO₂ laser treatment. To our knowledge, this is the first report of kissing nevi treated with the CO₂ laser. Nevertheless, as the risk for malignant transformation is considered to be relatively low, a more conservative monitoring approach is also valid.

Disclosure statement

No potential conflict of interest was reported by the authors.

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