Clinical Presentation and Surgical Outcomes of Congenital Divided Nevus of the Eyelids in Three Filipino Patients: A Case Series

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ABSTRACT

Congenital divided nevus of the eyelids is a rare form of melanocytic nevus which involves contiguous portions of the upper and lower eyelid margins unilaterally, hence the term 'kissing nevus'. While usually present at birth, these nevi may also appear later in life. When the mass enlarges, it may cause cosmetic issues to the patient, as well as functional problems such as mechanical ptosis, ectropion, and epiphora.

We report three cases of congenital divided nevus of the eyelids, all presenting with unilateral upper and lower hyperpigmented lid masses since birth. The first case had an upper lid mass measuring 11 mm x 19 mm, and a lower lid mass measuring 55 mm x 47 mm, with both masses extending into the palpebral conjunctiva, and causing severe ptosis and corneal neovascularization due to chronic irritation. The second case presented with hyperpigmented masses at the lateral third of the right upper eyelid measuring 8 mm x 17 mm and of the lower eyelid measuring 9 mm x 15 mm on the lower lid with lashes growing through the masses. There was extension of the mass into the palpebral conjunctiva. The third case presented with a 23 x 18 mm hyperpigmented, well-circumscribed, verrucated mass at the medial half of the upper eyelid crossing the eyelid margin, and a 15 x 13 mm lesion at the medial third of the lower lid with the same characteristics, with small crusty lesions and clotted blood. All three patients underwent excision biopsy with lid reconstruction using full thickness skin grafts from the supraclavicular area. Six months post-operatively, the first case underwent a repeat full thickness skin graft due to graft contraction, and also received two sessions of fractional carbon dioxide (CO_2) laser, two sessions of intralesional triamcinolone injections, and silicone gel application with further improvement of graft healing and scarring. The second case also underwent two sessions of intralesional steroid injection for scar management. During follow-up, which spanned 13 months for the first case, 10 months for the second case, and two months for the third case, improved functional and cosmetic outcomes were observed.

This case series highlights the outcomes of the most common surgical technique done for congenital divided nevi of the eyelids. Congenital divided nevi are usually diagnosed clinically and malignant degeneration is rare, hence lid reconstruction may be done without frozen section. The cases in the series were treated due to cosmetic and functional purposes, hence the importance of continuous post-operative follow-up to monitor for graft dehiscence, scar development, recurrence of the mass, malignant degeneration, and development of lid malposition. Additional procedures for scar management, such as CO_2 laser and intralesional steroid injections, may be necessary to further enhance outcomes in complex cases. All three cases in this series exhibited improved functional and cosmetic outcomes post-operatively, with significant reduction in ptosis and scarring. Long-term follow-up revealed satisfactory recovery with minimal complications, with no recurrence nor malignant degeneration.

Keywords: kissing nevus, congenital melanocytic nevus, divided nevus

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INTRODUCTION

Congenital divided nevus of the eyelids is a rare form of melanocytic nevus which usually involves contiguous portions of the upper and lower eyelid margins unilaterally, hence the term 'kissing nevus'.[1] First described by Fuchs in 1919, fewer than 40 cases have been reported in literature.[1,2] These lesions are generally asymptomatic and spare other ocular structures such as the conjunctiva, cornea, and sclera.[1] Though present at birth in most cases, divided nevi of the eyelids may also appear later in life.[2] The growth rate is very slow and may halt at any age.[2]

Enlargement of the mass may lead to functional issues such as mechanical ptosis, ectropion, epiphora, or even amblyopia if the visual axis becomes obstructed.[3,4] Exophytic marginal growth can cause corneal irritation since the nevi may have an irregular surface.[5] With a fast rate of growth, malignant transformation of divided nevi may occur.[2] However, malignant transformation is rare with only two cases documented in literature – one observed spontaneously and one after multiple surgical interventions.[6,7]

We report three cases of congenital divided nevus of the eyelids that were managed with excision biopsy and lid reconstruction, and full thickness skin grafts. All three cases were treated to address cosmetic and functional concerns. Two cases required further post-operative management to improve the consequences brought about by scarring. This case series presents the outcomes of congenital divided nevus of the eyelids treated with a combination of excision, skin grafting, and scar management techniques, including carbon dioxide (CO_2) laser and intralesional steroid injections. Unlike other case reports and studies, which have focused on single-stage excisions or non-surgical interventions, our series was able to integrate a comprehensive approach to both functional and cosmetic recovery, providing long-term follow-up on scar management.

This case series stands out from other published reports due to several distinguishing features. First, the series focuses on Filipino patients, providing valuable demographic and geographic perspectives on the presentation and management of this rare condition. The surgical technique employed – using full-thickness skin grafts from the supraclavicular area – is less commonly reported in other case series, offering another option for eyelid reconstruction in patients with congenital melanocytic nevi. Additionally, post-operative management in this series included strategies such as CO_2 laser treatments, intralesional steroid injections, and silicone gel application to improve scar healing and functional outcomes. Additionally, variations in clinical presentation, including differences in the size, location, and complications of the nevi, further distinguish these cases from others in the literature. In light of the condition's rarity and the absence of local case series, this study contributes to the growing body of literature by documenting clinical patterns, reconstructive techniques, and surgical outcomes in three Filipino patients.

CASE 1

A 27-year-old female presented with hyperpigmented left upper and lower lid masses present since childhood. The masses slowly increased in size until it obscured her vision on the left. On examination, the hyperpigmented, thickened, cutaneous mass involves the inner half of the upper eyelid, extending inferiorly, crossing the medial canthus, to encompass the medial two-thirds of the left lower eyelid. The lower eyelid portion also extends to the cheek adjacent to the nasolabial fold, covering majority of her left cheek. The upper lid mass measured 11 mm x 19 mm, while the lower lid mass measured 55 mm x 47 mm (Figure 1A). Both masses involved the eyelid margins and there was extension into the palpebral conjunctiva - 3 mm on the upper lid, 2 mm on lower lid (Figures 2A and B). No madarosis was observed. Both puncta were not visualized. The upper lid mass caused severe ptosis (a margin-reflex distance 1 of -3 mm). Levator function was good at 10 mm. The patient's vision on the left was 20/60 which improved to 20/30 on pinhole. Conjunctival injection, diffuse punctate uptake, inferior corneal haze, and neovascularization were observed on the left eye due to chronic irritation from the mass (Figure 3) hence the patient was started on tobramycin-dexamethasone eye drops, olopatadine eye drops, and sodium

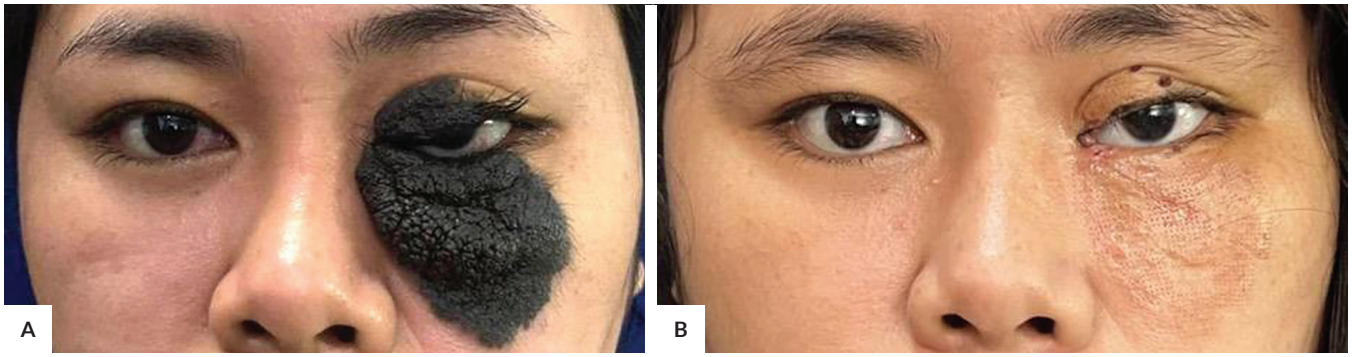

Figure 1. ***Case 1:*** Congenital divided nevus of the left upper and lower eyelid preoperatively **(A)** and 13 months after excision biopsy and skin grafting (seven months after the repeat skin graft, excision of residual and migratory nevi) **(B)**.

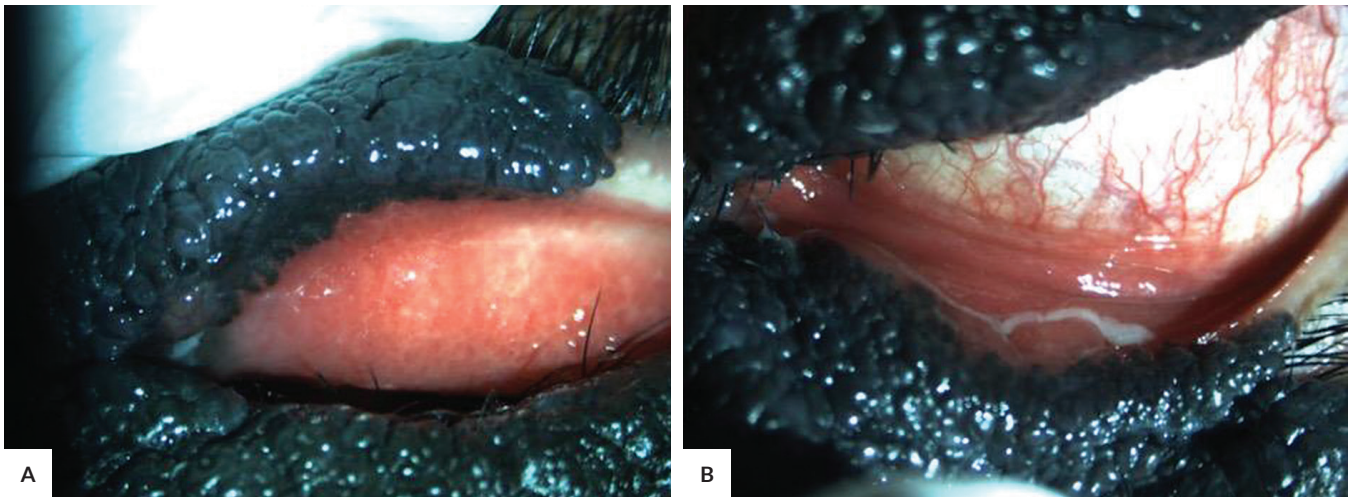

Figure 2. ***Case 1:*** Extension of the mass into the palpebral conjunctiva on the upper **(A)** and lower lid **(B)**. Eyelashes were present. Both upper and lower puncta cannot be visualized.

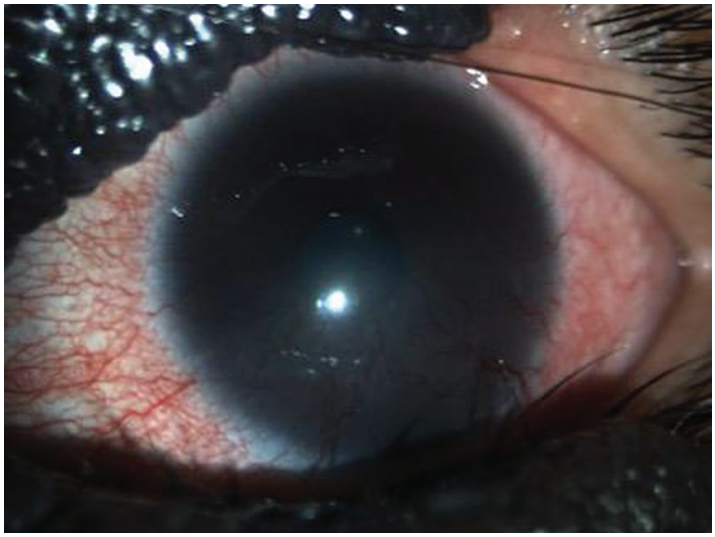

Figure 3. ***Case 1:*** Corneal involvement of the left eye. The cornea was hazy inferiorly, with overlying pannus.

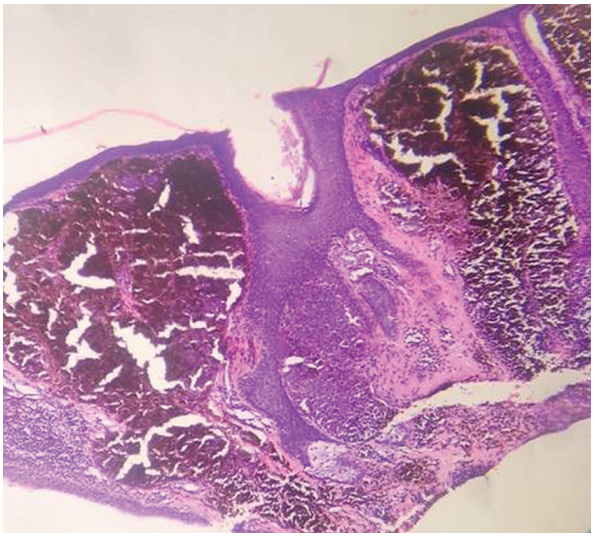

Figure 4. ***Case 1:*** Melanocytic intradermal nevus. Histopathologic analysis with hematoxylin and eosin at 10x magnification staining showed stratified squamous epithelium with multiple melanin-laden cells arranged in nests in the dermal layer.

hyaluronate eye drops which resolved the corneal uptake and improved the conjunctival hyperemia after a month. Excision biopsy of the upper and lower lid masses up to the lid margin was done, followed by reconstruction with a 60 mm x 60 mm full thickness skin graft from the left supraclavicular area. The skin graft was used to cover the eyelid and the cheek defect. A tarsorrhaphy was done to immobilize the area for better healing and to prevent contraction of the graft. Histopathologic examination of the masses revealed stratified squamous epithelium with multiple melanin-laden cells arranged in nests in the dermal layer, consistent with a melanocytic intradermal nevus (Figure 4). Two weeks post-operatively (Figure 5A), the medial and lateral tarsorrhaphy were in place and the graft was mostly flat. Two to four months post-operatively, graft contraction and lower eyelid ectropion were noted (Figures 5B and 5C). By four months post-operatively, graft color and texture improved, with some pigment migration observed (Figure 5D). Six months post-operatively (Figure 5E), a repeat full thickness skin graft was done on the lower lid, and residual and migratory nevi were excised. Two months after the repeat skin graft, lid retraction and cicatricial ectropion had resolved (Figure 5F), and the patient had mild residual ptosis (margin-reflex distance 1 of 2 mm) with good levator function at 8 mm. To maximize scar

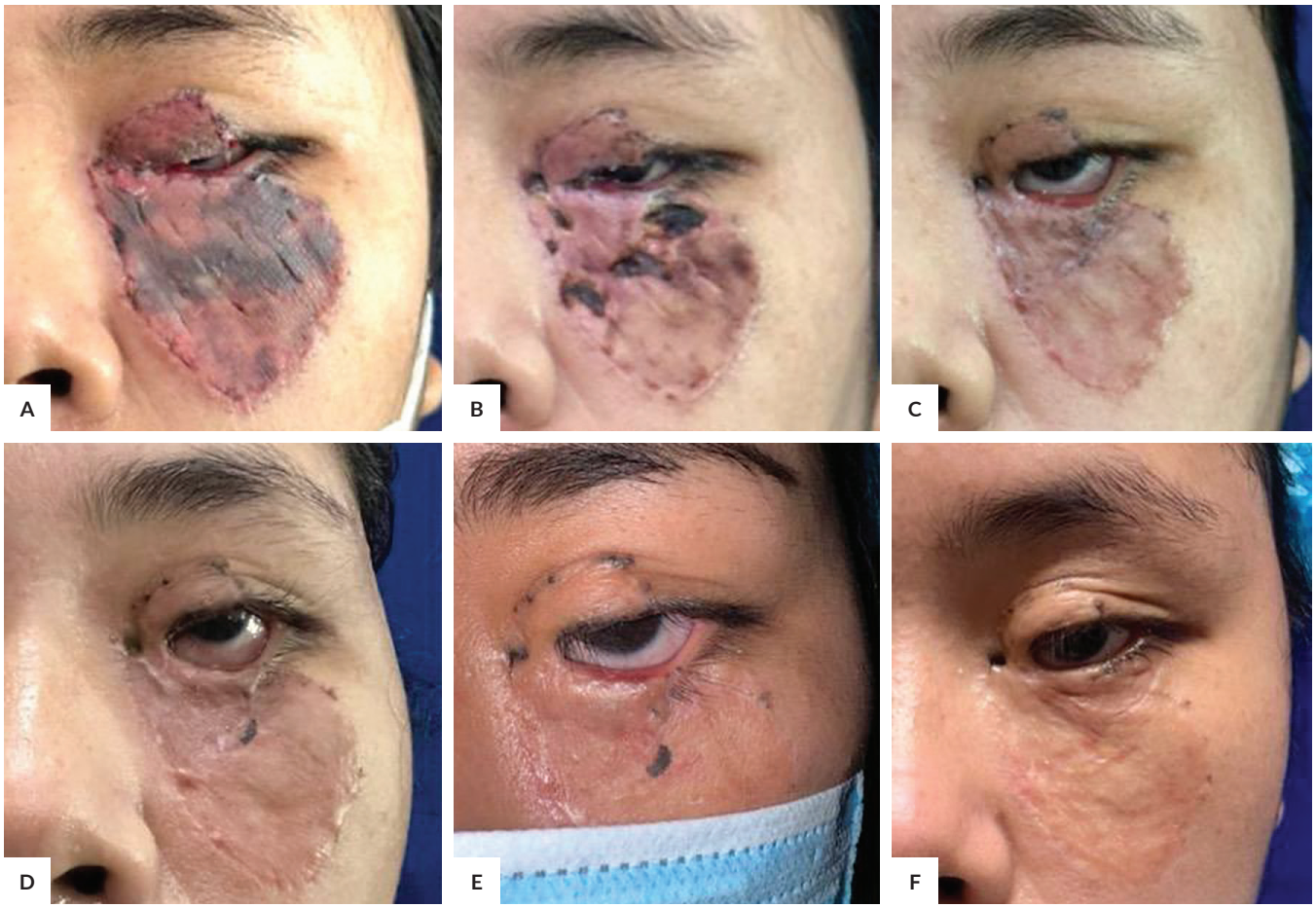

Figure 5. ***Case 1:*** Post-operative appearance after excision of lid masses and lid reconstruction using full thickness skin grafts from the left supraclavicular area after two weeks **(A)**, three weeks **(B)**, two months **(C)**, four months **(D)**, six months **(E)**, and eight months **(F)**. Residual and migratory nevi were observed, and graft contraction and lower eyelid ectropion developed.

management, two sessions of fractional CO_2 laser (Figure 6) and two sessions of intralesional triamcinolone injections were done. Silicone gel was also applied twice daily for six months to further improve the scar's appearance. While the cornea no longer exhibited any dye uptake on follow-up consults, inferior stromal scar and corneal neovascularization persisted without resolution, and the patient's best corrected visual acuity remained status quo. After a total follow-up period of thirteen months (Figure 1B), the patient had improved functional and cosmetic outcomes.

Figure 1A shows hyperpigmented, thickened masses involving the inner half of the upper eyelid. It extends inferiorly, crossing the medial canthus, to encompass the medial two-thirds of the left lower eyelid, with extension to the cheek area. Figure 1B shows the post-operative appearance at 13 months. Two sessions of fractional CO_2 laser and two sessions of intralesional triamcinolone injections were also done by one month after the repeat skin graft. There was resolution of the cicatricial ectropion, with better color matching of the graft to the surrounding area. The patient also applied silicone gel twice daily over the graft area.

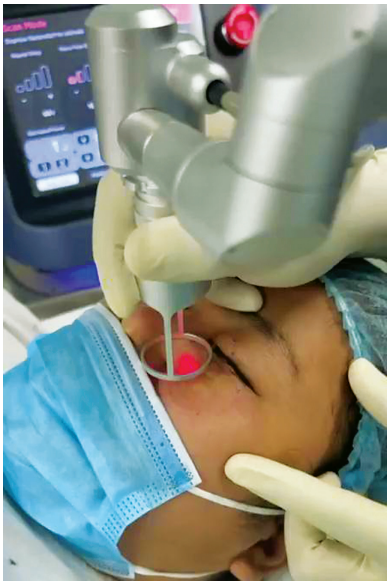

Figure 6. ***Case 1:*** Fractional CO_2 laser. Two sessions were done to aid in scar management.

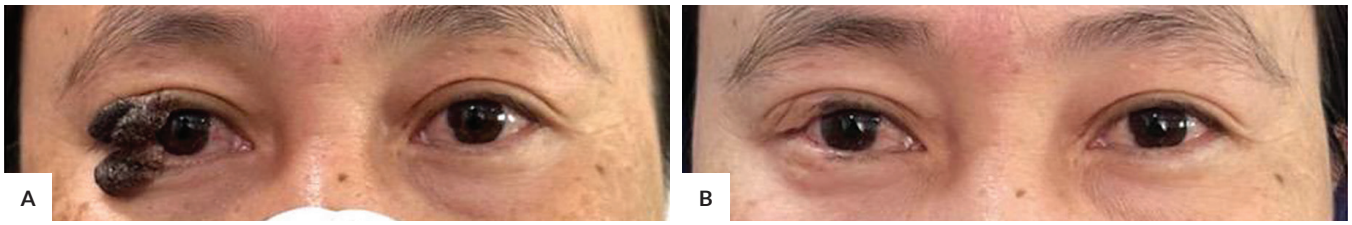

Figure 7. ***Case 2:*** Congenital divided nevus of the right upper and lower eyelid preoperatively **(A)** and eight months after excision biopsy and full thickness skin graft **(B)**. **(A)** shows the rough, hyperpigmented masses which are in contact with each other even with the eye opened. **(B)** shows the post-operative appearance. Madarosis is observed at the area of the grafts, but there are no obvious pigmentary changes.

CASE 2

A 38-year-old female presented with a 30-year history of gradually enlarging masses at the lateral thirds of both the upper and lower eyelids. The patient had no other ophthalmologic complaints. Upon examination, the hyperpigmented masses measured 8mm x 17 mm on the upper lid and 9 mm x 15 mm on the lower lid (Figure 7A). Both masses involved the lid margin, with eyelashes growing through it, and extended into the palpebral conjunctiva (Figures 8A and B). The lateral canthus was spared. The patient had no ptosis (margin-reflex distance of 4 mm) and had good levator function of 13 mm. The cornea was clear and unaffected by the masses. Excision biopsy followed by reconstruction using full thickness skin graft from the right supraclavicular area was done. The skin graft measured 20 x 20 mm and it was split into two to cover both the upper and lower eyelid defects. A tarsorrhaphy was also placed. Histopathological analysis revealed hyperkeratosis with numerous hair follicles, as well as epithelioid cells arranged in nests with melanin-laden cells at the dermo-epidermal junction, consistent with an intradermal nevus (Figure 9). At one month post-surgery (Figure 10A), the graft had good take, good color, with slight bulkiness and areas of induration, mostly on the upper eyelid. At five months post-surgery (Figure 10B), the graft appeared flatter with a better color match with the surrounding skin. Eight months post-surgery (Figure 10C), complete healing of the graft was observed. There was madarosis at the post-operative area, but eyelid function was normal. Further scar management was done, and the patient underwent two sessions of 0.5 mL intralesional triamcinolone injections at 10mg/mL concentration (Figure 11). Topical antibiotic-steroid (tobramycin + dexamethasone) ointment was also applied to the graft areas as part of the regimen. After a total follow-up period of 10 months (Figure 7B), there were no obvious pigmentary changes and the patient was satisfied with the functional and cosmetic results.

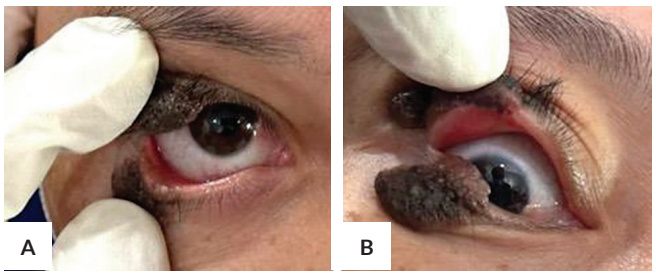

Figure 8. ***Case 2:*** Extension of the masses into the palpebral conjunctiva on the upper **(A)** and lower lid **(B)**. Eyelashes grew through the mass. The lateral canthus was not involved.

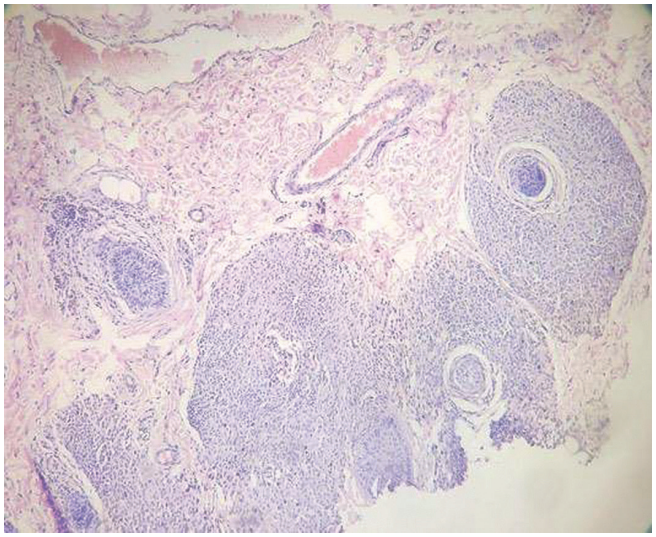

Figure 9. ***Case 2:*** Intradermal nevus. Histopathologic analysis with hematoxylin and eosin staining at 10x magnification showing epithelioid cells arranged in nests with melanin-laden cells at the dermo-epidermal junction.

CASE 3

A 22-year-old male presented with a hyperpigmented mass on the left upper lid which has been present since birth. It was noted to gradually enlarge over time and was occasionally associated with crusting and bleeding upon manipulation. The patient was noted to have a 23 mm x 18 mm hyperpigmented, well-circumscribed, verrucated mass at the medial half of the upper eyelid, extending across the eyelid

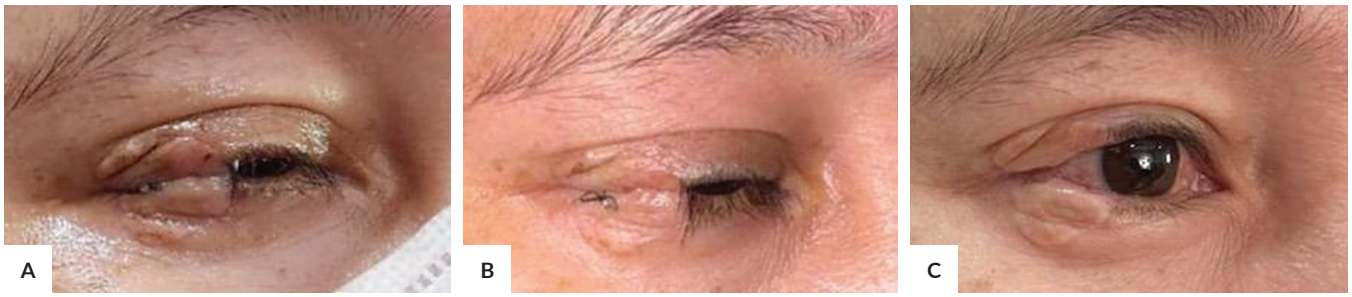

Figure 10. ***Case 2:*** Post-operative appearance after excision of lid masses and lid reconstruction using full thickness skin grafts from the right supraclavicular area after one month **(A)**, five months **(B)**, and eight months **(C)**. There was good take of the graft and a good color match with the surrounding skin.

Figure 11. ***Case 2:*** Intralesional injection of triamcinolone. The patient underwent two sessions for scar management.

margin (Figure 12A). There were lashes growing through the mass and there were small crusty lesions and clotted blood (Figure 13A). There was also a 15 x 13 mm lesion at the medial third of the lower lid with the same characteristics (Figures 13B-D). Both puncta were visualized, and nasolacrimal ducts were patent on irrigation. The patient had no ptosis (margin-reflex distance 1 of 4 mm) and levator function was good at 13 mm. While the lesions extended beyond the lid margin and into the palpebral conjunctiva, there was no corneal involvement (Figure 14). The patient underwent excision biopsy, lid reconstruction with a full thickness skin graft from the left supraclavicular area. A temporary tarsorrhaphy was also done. Histopathologic analysis revealed the mass to be a dysplastic nevus (Figure 15). In the post-operative period of up to seven weeks, the graft was well-coaptated with no active bleeding, swelling, or discharge (Figure 12B and Figures 16 A-D). However, the patient passed away due to a motor vehicular accident before further follow-up could be completed.

DISCUSSION

Congenital divided nevi of the eyelids are very rare, with a risk of malignant transformation in cases characterized by rapid growth and large size.[2] In these cases, the goal of treatment is to remove the lesion without affecting much of the function, to improve cosmesis, and to reduce the risk of malignancy.[8] Surgical removal of the mass is considered in cases with an unfavorable appearance, recent change in the color of the lesion, a melanoma-like appearance or irregular shape and variegated color, and rapid increase in size of the lesion.[8] In small nevi, the lifetime risk of malignant degeneration has not been clearly established, but large nevi (>40 mm) has a risk of 4.6% of giving rise to melanoma over a 30-year period.[9]

Treatment is challenging since it must meet an acceptable functional and cosmetic outcome.[10] In our cases, all patients had lesions causing cosmetic concerns. However, our patient in case 1 also had functional problems since the

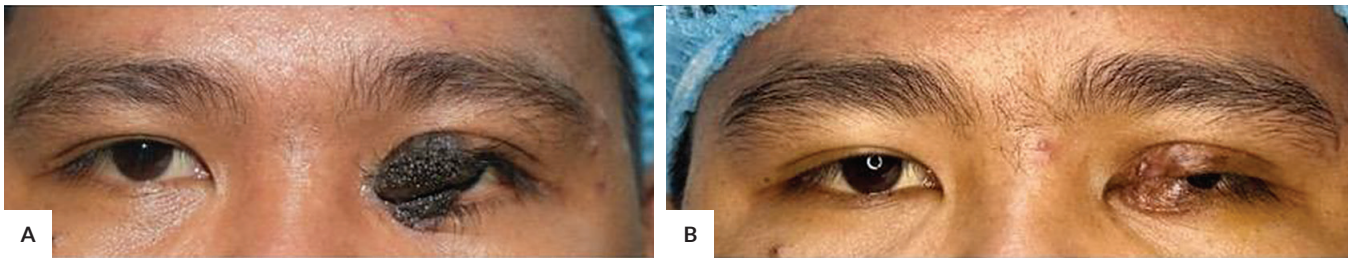

Figure 12. ***Case 3:*** Congenital divided nevus of the left upper and lower eyelid preoperatively **(A)** and one month after excision biopsy and full thickness skin graft **(B)**. **(A)** shows a hyperpigmented, well-circumscribed, verrucated mass at the medial half of the upper eyelid and the medial third of the lower eyelid. **(B)** shows the post-operative appearance at seven weeks. The graft was well coaptated.

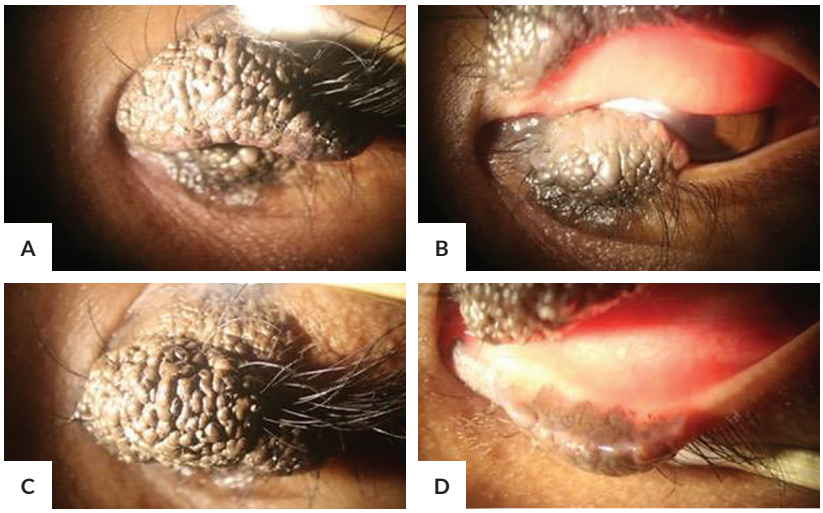

Figure 13. ***Case 3:*** Slit lamp photos of the upper **(A and B)** and lower **(C and D)** eyelid masses. Lashes were present on the mass. Small crusty lesions were observed. Both puncta were visualized. The masses extended beyond the lid margin and onto the palpebral conjunctiva of the upper and lower eyelids.

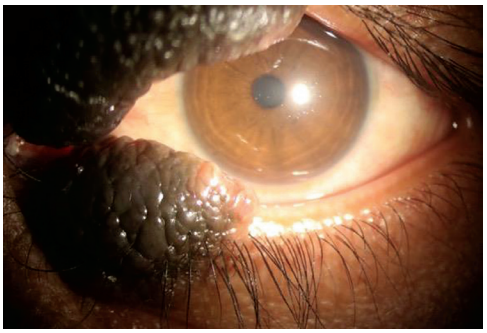

Figure 14. ***Case 3:*** Slit lamp photo of the left eye. The cornea was clear and there were no signs of corneal irritation.

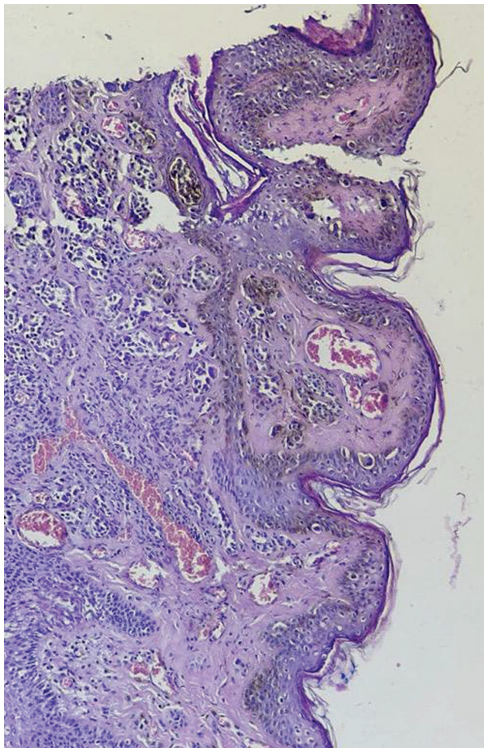

Figure 15. ***Case 3:*** Dysplastic nevus. Histopathologic analysis with hematoxylin and eosin staining at 40x magnification. The dermal-epidermal junction irregular nest showed bridging. Lamellar fibroplasia was present, and cytological atypia and prominent pigmentation were seen.

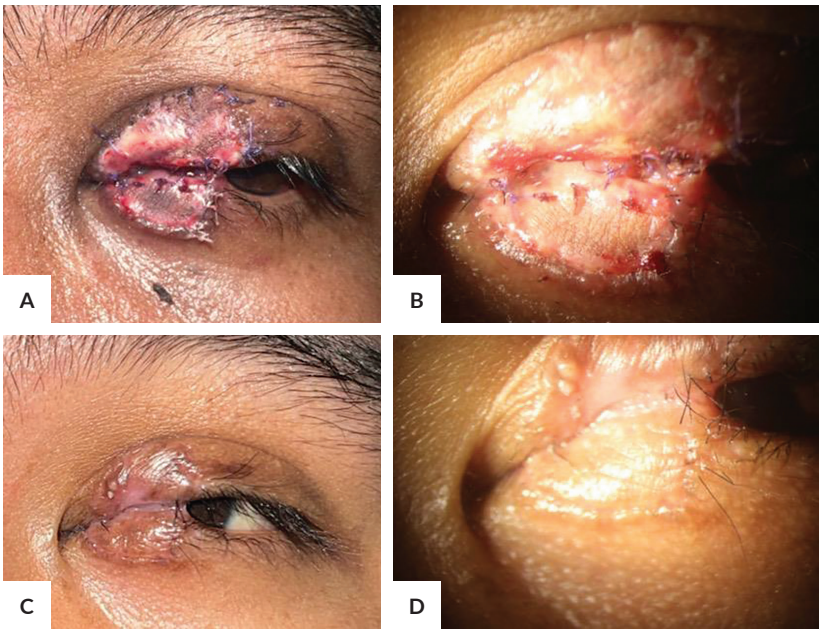

Figure 16. ***Case 3:*** Post-operative appearance after excision of the eyelid masses, lid reconstruction with full thickness skin graft from the left supraclavicular area, and tarsorrhaphy after 11 days **(A and B)** and after seven weeks **(C and D)**. The graft was well-coaptated with no active bleeding, swelling, or discharge.

mass resulted in mechanical ptosis and corneal irritation. Several case reports have described treatment options for the management of congenital divided nevi. These include surgical techniques which were either single-staged or staged procedures. Commonly done surgical procedures were reconstruction via skin grafting and amniotic membrane grafting after excision. Other more conservative management options include cryotherapy, blepharoplasty, CO_2 laser, radiofrequency ablation, dermabrasion, and chemical peels.[4,8] However, conservative management techniques have been shown to result in inferior cosmetic and functional outcomes.[4]

The treatment plan for these patients involved a thorough preoperative clinical evaluation to assess the lesion's onset, progression, and functional issues (e.g., ptosis, corneal irritation, mechanical obstruction of the visual axis, mechanical ectropion), and extent of the lesion. Surgical excisions of the nevi were then performed with careful attention to the eyelid margin, followed by lid reconstruction using full-thickness skin grafts from the supraclavicular area. Postoperatively, patients were monitored for complications such as graft dehiscence, infection, scarring, eyelid malpositions such as ectropion, and recurrence of the nevus. Scar management included silicone gel applications, fractional CO_2 laser therapy, and intralesional steroid injections. Regular follow-ups were conducted to assess both functional recovery and cosmetic outcomes.

Congenital melanocytic nevi are classified based on their size. The Kopf system is currently the most widely accepted size-based standard for the classification of congenital melanocytic nevi. Small nevi are those less than 1.5 cm in diameter, medium nevi range from 1.5 to 19.9 cm in diameter, and large or giant nevi are those measuring 20 cm or more in diameter.[11] In a case report by Zeng, patients with small to medium sized nevi were treated with either CO_2 laser and CO_2 laser and Er:YAG laser simultaneously. Re-epithelialization was achieved after over a week, and there was no functional impairment after the procedures. Patients had good cosmetic results with only minimal post-inflammatory hyperpigmentation. They recommended CO_2 laser for small, superficial nevi.[12] A case series by Cho et al. utilized a staged mosaic punching excision, followed by using a CO_2 laser for the deeper nevus tissue that uses pulses of 500 mJ to remove the nevus gradually. Excision was done by removing at least 2 mm of the full thickness of the dermis and thin superficial fat layer. This was done to minimize functional deformity of the eyelid and to preserve the eyelash bearing area and the eyelid margin. A questionnaire given to the patients at the end of the study showed that all were satisfied with the functional and cosmetic results. All patients presented with partial loss of cilia, but no patient presented with hypertrophic scars, corneal erosion, trichiasis, or ectropion.[13]

A case series by Yap et al. used stage excision of the nevi according to clinical requirements and the extent of the nevi. Wedge excisions which appropriated the size of the nevi were done, followed by placing full-thickness skin grafts over the defects, and eventually using bipolar diathermy to debulk involved eyelid margins. All four cases produced a good outcome based on patient satisfaction, however, no other outcome measures were assessed in their study.[5] In another case series by Suzuki et al., they classified the nevi into three groups according to size: 1) small (if <1.5 cm in diameter), 2) medium (if 1.5 to 20 cm in diameter), and 3) large (if >20 cm in diameter). They also divided the periorbital area into five anatomical zones (1 – the eyebrow to the upper eyelid crease; 2 – the upper eyelid crease to the upper eyelid margin; 3 – the eyelash-bearing area; 4 – the lower eyelid margin to the lower eyelid crease; and 5 – the zygoma and the cheek) to make a systematic treatment plan. Using these five zones as a guide, they reconstructed the defects using adjacent skin flaps resulting in good color and texture matches.[10]

In our first case, the patient developed post-operative cicatricial ectropion and scarring, requiring secondary interventions. According to a systematic review and meta-analysis on the safety and effectiveness of surgical excision of congenital divided nevi, anatomical deformity developed in 54.2% of those who had eyelid involvement.[13] Another systematic review on treatments of palpebral congenital divided nevus by Camargo et al. found that those who underwent excision of the nevus, followed by a flap and/or a graft reported good to excellent results as noted by the patients. However, they noted one case which had epiphora post-operatively since the excision was close to the lacrimal apparatus.[9]

The patient in our first case underwent complete excision with reconstruction of the anterior lamella using a full thickness skin graft from the supraclavicular area. Excision of the mass involving the lid margin was done due to the bulky feature of the mass and the trauma it was causing to the cornea. In a study by Gout et al. on patients who underwent surgical repair at Moorfields Eye Hospital and The Childrens' Hospital of Philadelphia, all cases involved the anterior lamella of the upper and lower eyelids. Only in less than half was the posterior lamella involved. Postoperative complications included trichiasis, eyelid ectropion, lid retraction, and punctal ectropion. At the end of follow-up, 92% of patients were satisfied with the cosmetic outcome. Post-operative eyelid malposition was only found in patients whose surgical intervention involved the posterior lamella, hence, posterior lamella surgery should be done only for patients that require the procedure. Post-operative madarosis was observed in some cases, therefore meticulous attention must be given to the mucocutaneous junction and the eyelashes.[14] In all of our three cases, masses were excised up to the lid margin hence producing madarosis at the graft area post-operatively. For the lid margin and cilia to be preserved, staged excision techniques with CO_2 laser under the operating room microscope is suggested to avoid follicle destruction.[15]

Lesions should ideally be excised as completely as possible to prevent the risk of recurrence and malignant trans-formation.[16] However, malignant transformation is rare

and most patients would not require long term management other than that practiced for common nevi.[15] Also, the diagnosis of non-malignant congenital divided nevus is clinical, hence histopathological diagnosis should not withhold reconstruction.[15] In our third case, although the mass exhibited suspicious characteristics – such as crusting and bleeding on manipulation - that could suggest malignancy, the team proceeded with the excision with lid reconstruction without performing a frozen section. Congenital nevi may be junctional, compound or intradermal in type.[17] In our case series, histopathologic results of patients were intradermal nevus for the first and second cases, and dysplastic nevus for the third case. An intradermal nevus is the most common type of melanocytic nevi. These show no junctional activity, as nevus cells are confined to the dermis where they are arranged in nests and cords.[17] A dysplastic nevus, on the other hand, shares features of both nevus and melanoma. These may show basilar nevomelanocytic proliferation that would extend at least three rete ridges beyond any dermal nevocellular component, lamellar fibrosis or concentric eosinophilic fibrosis, neovascularization, inflammatory response, and fusion of rete ridges, as well as cytologic atypia which may be described as nuclear enlargement, pleomorphism, hyperchromatism, and prominent nucleoli.[18] The significance of these histopathologic findings lies in their ability to help guide clinical management. Intradermal nevi are typically benign and usually do not warrant further follow-up beyond excision. Dysplastic nevi, however, may require more careful surveillance and long-term monitoring due to their potential for malignant transformation, though this remains infrequent as malignant degeneration of congenital divided nevus is extremely rare.[19] Congenital nevi of any size may be precursors to cutaneous melanoma, however, the risk of melanoma increases with nevus size, ranging from 2.6-4.9% in small to medium nevi and 6-20% in giant nevi. The presence of regional lymph node metastases and ulceration also serve as significant prognostic indicators. Extracapsular extension further increases the risk of recurrence.[6] Ultimately, the decision to perform a frozen section prior to reconstruction depends on the clinical judgment of the surgeon, particularly if malignancy is suspected based on the lesion's appearance. Patients should also be followed-up post-operatively to monitor for recurrence and, although rare, malignant transformation.

In this case series, treatment success was defined as the resolution of functional problems (e.g., ptosis, corneal irritation) and significant improvement in cosmetic appearance brought about by the reduction or disappearance of the bulky, hyperpigmented masses, along with satisfactory healing of scars and color matching after surgery. Additionally, no recurrences or malignant transformation were observed during the follow-up period. Post-operative complications, which were observed in the first case, included graft contraction, ectropion, and in all cases, scarring. Graft contraction and ectropion in the first case were managed with repeat skin grafting to improve aesthetic results and restore eyelid function. Scarring was addressed by providing CO_2 laser treatment, intralesional steroid injections, and gel. The decision to perform these interventions was based on clinical judgment and aimed at optimizing both functional and cosmetic outcomes.

The primary challenge in managing congenital divided nevi is achieving both functional and cosmetic outcomes. The possibility of post-operative complications such as scarring, graft contraction, and lid malposition requires careful monitoring. In this case series, issues like graft contraction and ectropion, which required secondary interventions such as repeat skin grafts and scar management techniques, were effectively managed. The use of CO_2 laser, intralesional steroid injections, and silicone gel helped address these complications and improve patient outcomes. In order to prevent similar challenges, careful planning during the initial surgery – particularly in excising the mass and reconstructing the area – along with continuous post-operative care, is crucial. Since patients with congenital divided nevus seek treatment not only for functional, but also for cosmetic concerns, post-operative scar monitoring and management is appropriate. An ideal scar should appear thin and flat, with good color match with the surround skin. It should also be oriented along the relaxed skin tension lines, and should not produce any distortion of adjacent tissues.[16] In the first case, due to the development of cicatricial ectropion post-operatively, a repeat skin graft was performed along with excision of retained and migratory nevi producing improved cosmetic results. Additionally, CO_2 laser and intralesional steroid injections were done in several sessions resulting in a better cosmetic outcome. Silicone gel was also applied over the graft area twice daily for a period of six months. The second case also received two sessions of intralesional steroid injections to aid in scar management. Certain procedures and agents may be used during the early post-operative period to minimize scar formation. Scar massage may be done to decrease itching, redness, and pain in an immature scar and may eventually lead to a softer scar. Silicone gel causes reduced collagen deposition and reduces the thickness of the scar.[20] Lasers like the Neodynium:Yttrium-aluminum-garnet (Nd: YAG) laser and CO_2 laser can be used in multiple sessions to aid in flattening scars, improving texture, erythema, and pruritus.[20] These are usually done at weekly intervals for two to six sessions. Compared to other therapies, the risk of adverse effect with lasers are less. Intralesional steroid injections cause inhibition of keratinocyte proliferation and inflammatory compounds. Dosage of triamcinolone acetate injections vary between 1 and 40 mg/mL, with intervals of two to six weeks. Severe pain may be a hindrance to intralesional steroid injections, and adverse effects include skin atrophy, depigmentation, and delayed wound healing. Emerging therapies like 5-Fluorouracil injections, bleomycin injections, vitamin E, vitamin A, and imiquimod cream have also been reported in isolated case studies to be useful.[20]

CONCLUSION

The three cases highlighted the outcomes of the most common treatment modality used for congenital divided nevi and showed the outcome of scar management using fractional CO_2 laser, intralesional steroid injections, and silicone gel. Congenital divided nevi are usually diagnosed clinically, and malignant degeneration is rare, hence, lid reconstruction may be done without frozen section. Post-operatively, patients should be monitored for graft dehiscence, scar development, recurrence of the mass, malignant degeneration, and development of lid malposition. Additional less invasive procedures like CO_2 laser, intralesional steroid injection, and application of silicone gel to the scars may be done to provide better cosmetic and functional outcomes.

Ethics Statement and Informed Consent

This report was conducted in compliance with the ethical principles outlined in the Declaration of Helsinki of 1964, as revised in 2024. Written informed consent was obtained from the patients for the publication of the case series and accompanying images.

Statement of Authorship

All authors certified fulfillment of the ICMJE authorship criteria.

Author Disclosure

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