



Accelerated Repigmentation of Halo Nevus Following Excision: A Case Report

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Abstract

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BACKGROUND: Halo nevus is a benign condition characterized by symmetrical oval-shaped and well-defined hypopigmented patch surrounding melanocytic lesions. Their sizes varies from a few millimeters to centimeters. A “wait and see” approach is usually preferred in most cases of halo nevus. However, the condition can cause severe psychological impact and impair patient’s quality of life, especially when it emerges on prominent areas such as the face. Surgical option can be utilized for removal of melanocytic lesions and accelerate regression of the halo.

CASE PRESENTATION: We report a case of a 25-year-old woman with white patches around two moles on her face who was diagnosed as halo nevus. Surgical excision was performed and a 12-week follow-up showed reduction in diameter of the halo nevus.

CONCLUSION: Large halo nevus can cause significant esthetic burden that may affect patient’s quality of life. A more invasive approach such as excision of underlying nevus may be used to achieve more rapid results.

Introduction

Melanocytic nevus, either congenital or acquired, is a common cutaneous disorder that usually arises in the first three decades of life. The condition usually persists, however in some cases, it can also regress spontaneously [1]. Melanocytic nevus can be further classified into junctional, intradermal, and compound types based on the depth of the lesion [1], [2].

Halo nevus is a condition where a symmetrical hypopigmented patch surrounds a melanocytic nevus. The size of the halo varies from a few millimeters to centimeters and although the condition is benign, it can cause severe psychological impact especially when it is located on prominent areas such as the face. Some synonyms for halo nevus include leukoderma acquisitum centrifugum, Sutton nevus, leukopigmentary nevus, perinevoid vitiligo, and perinevoid [3], [4], [5].

Halo nevus most commonly occurs in adolescents and young adults in the second to third decades of life. No gender preference was found. It is estimated that 1% of the global population is affected, with the back area being the most common area of emergence [1], [2], [6]. Aside

from melanocytic nevus, halo nevus was also reported to have occurred in other cases of nevus such as blue nevus, neurofibroma, and malignancies such as primary or secondary melanoma [1], [2], [5], [7]. We report a case of a 25-year-old female with compound nevus on the supraorbital and right malar area with large halo nevus that experienced clinical improvements after removal of the melanocytic lesions.

Case Report

A 25-year-old female patient visited the outpatient clinic presented with two moles on the upper right eye and cheeks 10 years before. The lesions were surrounded with large white patches that started to appear 4 years before. No enlargement in the moles was noticed, and the patient did not experience pruritus, pain, anesthesia, or bleeding. History of excessive UV exposure was unremarkable. The previous history and family history of vitiligo were not found. Physical examination revealed vital signs were within normal limits. Dermatological examination found two hyperpigmented papules measuring 0.5 cm

and 0.7 cm in diameters on the right supraorbital and malar areas surrounded with hypopigmented halos with a diameter of 3 cm and 6 cm, respectively. In addition, white macule on the nasal tip was also seen (Figure 1).



Figure 1: Nevus surrounded by hypopigmented patch on the right supraorbital and malar areas

Dermoscopy of the nevus showed pigmented network on the malar area, along with globules and homogenous pigmentation on the supraorbital area. Both lesions exhibited depigmenting zones surrounding them (Figure 2a-c). Excisional biopsy was then performed to remove the nevus on the supraorbital area, while punch biopsy was used for the malar lesion. Histopathology found epidermal hyperkeratosis along with melanocyte nest mixed with lymphocytes on the dermis and dermoepidermal junction and pigment incontinence suggestive of halo nevus (Figure 3a-c). A 12-week follow-up post-surgery found a size reduction of hypopigmented halo with diameter of 2.2 cm and 5 cm, respectively, along with repigmentation on the edges. No new lesions were observed (Figure 4).

Discussion

Hypopigmented halos are symmetrical with size ranging from a few millimeters to centimeters. There are

four phases of halo nevus. Initially, it starts as a slightly hypopigmented halo around a melanocytic lesion that gradually loses its pigment forming a hypopigmented patch, followed with loss of pigmentation in the nevus itself. In some cases, nevus can resolve spontaneously followed with repigmentation of the surrounding halo [2], [8].

Halo nevus is thought to be immune-mediated and occurs in benign melanocytic lesions. Nevus cells that comprised of melanocytic cells can induce an immunological process that involves various CD8+ cytotoxic T-cells and CXCL10-CXCR3 chemokines induced by IFN- γ [1], [9]. This can be proven with the abundant lymphocytes in histopathology results. A study by Yang *et al.* found that there was an increase in T-cell response marked with CD8+ T-cells infiltrating the dermis confirmed using immunohistochemistry. The study also used quantitative real-time polymerase chain reaction (qRT-PCR) to confirm the increased expression of the chemokines CXCR3 and CXCL10 in halo nevus [10].

Dermoscopy can aid in distinguishing benign and malignant melanocytic lesions, where in the latter, homogenous patterns, and colors are seen. In our case, we found brown pigmented and globular patterns on lesions on the malar and supraorbital areas, which along with histopathology results helped to confirm the diagnosis of compound nevus [11], [12]. In most cases, a “wait and see” approach is done in halo nevus cases and requires no invasive treatments, except when the underlying lesions have the possibility of malignancies. However, due to cosmetic consideration with such prominent hypopigmented patches on the facial area, we decided to perform punch biopsy and excision [2], [13].

As previously mentioned, in some cases melanocytic lesions can regress spontaneously followed with resolution of the surrounding halo. However, this is uncertain and may take years to complete. Therefore, surgical excision of both lesions was performed in the hopes that it can promote and accelerate resolution of the hypopigmented patch. A case report by Awad *et al.* reported the use of split thickness skin graft along with dermabrasion on a halo nevus with the central melanocytic lesion that was excised. A Thiersch graft was obtained



Figure 2: Dermoscopy findings on the malar (a) Supraorbital (b) and hypopigmented halo (c)

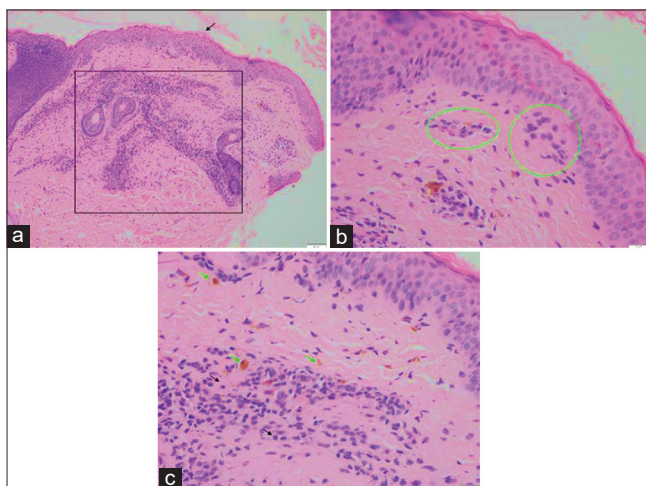


Figure 3: Hyperkeratosis on the Epidermis (a); Nevus Nest along with Lymphocytes on the Dermis (b); Pigment Incontinence (c)

from the gluteal area. 1 week after skin graft, the patient undergone phototherapy of narrow band-UVB (NB-UVB) twice weekly for 3 months. Improvements were seen 2 weeks post-operation and total repigmentation was achieved at the end of treatment [7].



Figure 4: Reduction in hypopigmented halo size within 12-week post-surgery

Another case report by Shah *et al.* (2019) reported the successful treatment of halo nevus using 308 nm excimer laser twice weekly [14]. In our case, on a 12-week follow-up of the patient found that there was reduction in the diameter of the halo nevae from 3 cm and 6 cm to 2.2 cm and 5 cm, respectively.

Conclusion

Large halo nevus can cause significant esthetic burden that may affect patient's quality of life. A more

invasive approach such as excision of underlying nevus may be used to achieve more rapid results.

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