

Incisional biopsy-induced spontaneous regression with halo phenomenon in a congenital melanocytic nevus

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Congenital melanocytic nevus (CMN) is a hamartoma derived from neural crest appearing at birth. CMN has a dynamic course and may show various changes even spontaneous regression. CMN may grow in size during childhood and show pigmentary regression with increasing age and develop a hypopigmentation halo and regress spontaneously after halo formation, or undergo malignant transformation resulting in melanoma.

A 9-year-old boy presented with solitary brownish to blackish patch on right forearm which had appeared since birth (Fig. 1). We performed incisional biopsy from the brownish patch and nests of nevus cells were observed in the entire dermis (Fig. 2A, B, C). Infiltration of melanocytes in adnexal-centric fashion was also shown. From these findings, the patient was diagnosed as CMN. Staging operations were additionally performed 5 times more to remove the lesion. After the first incisional biopsy, the brownish patch showed spontaneous regression with a halo phenomenon, especially around the suture sites. From the histologic findings, the regressed skin lesion showed perivascular cellular infiltration composed of lymphohistiocytes and decreased nevus cells (Fig. 2D, E, F). After the sixth incisional biopsy, the patch was completely removed, remaining halo around the suture sites (Fig. 3).

- Histopathology-

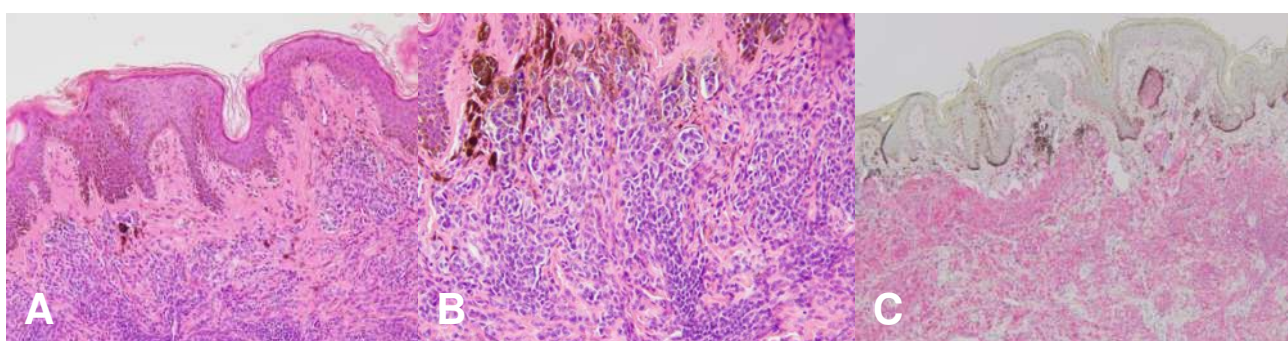
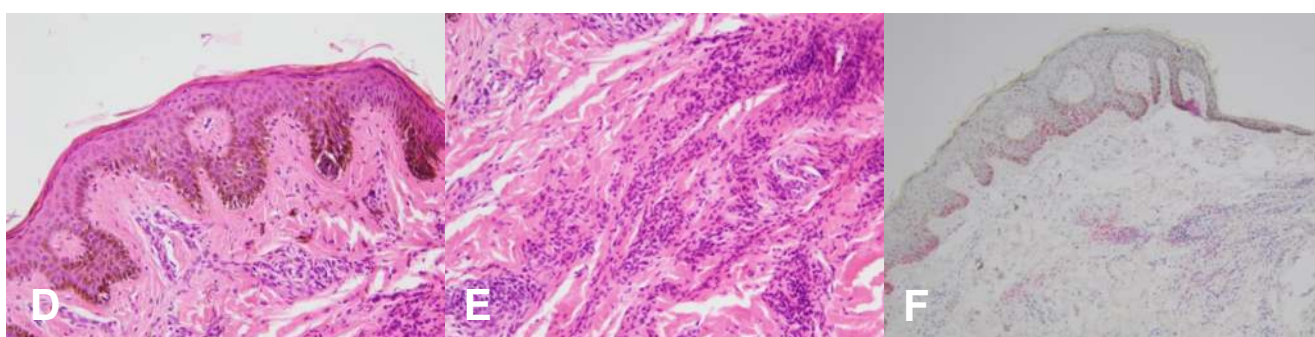


Figure 2. (A) There was many nevoid cells in upper dermis (A: H&E, x100). (B) Epithelioid nevus cells were observed in upper dermis. Sheets of melanocytes were placed in reticular dermis (B: H&E, x200). (C) Immunohistochemical staining revealed that the cells were positive for Melan-A (C: Melan-A staining, x100).



(D-F) Biopsy specimen after surgical operation three times, showed basal pigmentation in epidermis and moderate lymphocytic infiltrations in dermis. Immunohistochemical staining showed that basal melanocytes and those in dermis were positive for Melan-A staining, which was relatively decreased compared to the previous histologic findings (D: H&E, x100, E: H&E x200, F: Melan-A staining, x100).

Spontaneous regression with a halo is a rare phenomenon in CMN. The mechanism is suggested to be a destruction of melanocytes by immune responses of CD 8+ T cells or IgM autoantibodies. There are some triggering factors that induce the process of halo phenomenon including UV radiation or local trauma. Also, inflammatory reactions associated with surgery may evoke the proliferation of CD8+ T cells targeting melanocyte. Herein, we report an interesting case in which surgical procedures act as a triggering factor to CMN regression with a halo phenomenon.

- Clinical findings -



Figure 1. (A, B) An oval shaped brownish to blackish patch on dorsal side of right forearm. The size was approximately 4.5 cm x 3 cm.

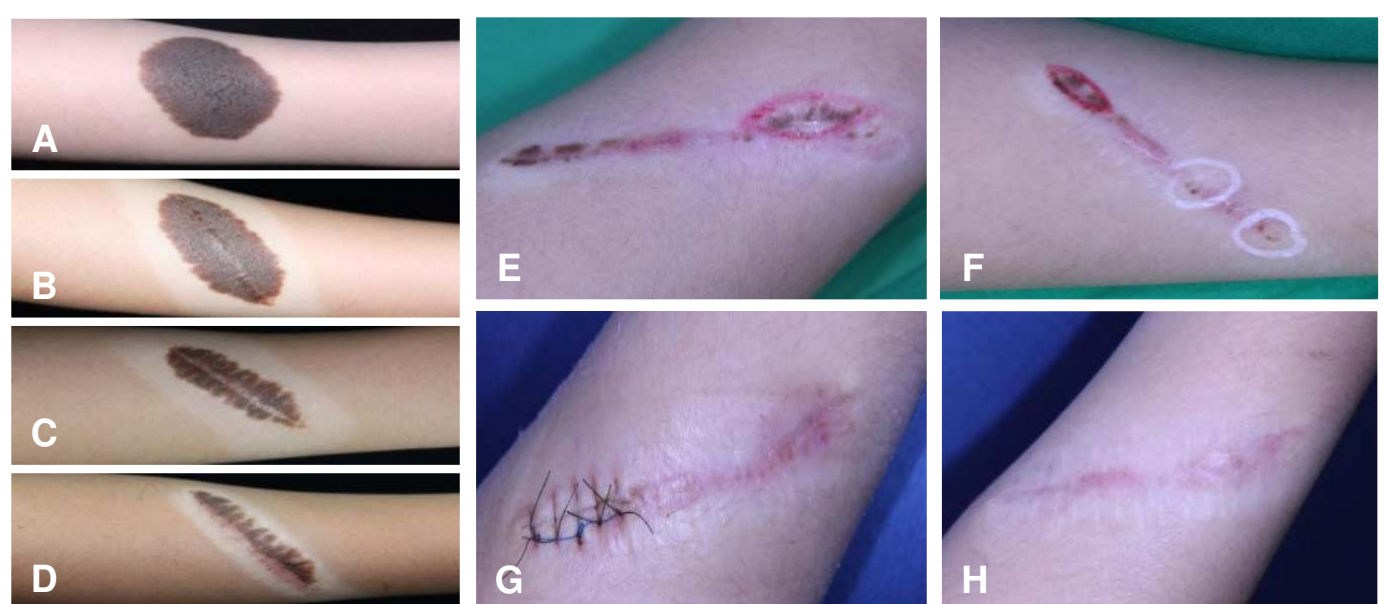


Figure 3. (A-D) The size of brownish patch decreased progressively after surgical procedures three times. The halo appeared around the suture sites since the first procedure. (E-H) After the incisional biopsy two times more, the lesion almost disappeared. Finally, the lesion was entirely removed, some halo phenomenon remaining around the suture sites.