

## Eruptive blue nevi

Sir,

A 56-year-old male was referred to our clinic for skin tag removal. During examination, multiple (more than 20) dark blue macules were noted on his balding scalp [Figures 1 and 2]. He denied any itching, ulceration, or other symptoms related to these macules. He had

noticed the spots on his scalp, approximately 10 years prior to this visit. Notably, a few months before the patient noticed the blue macules, he was involved in a motor vehicle accident in which his head impacted the roof. There were no penetrating injuries or lacerations, however, at the time of the accident. In addition, the patient denied any history consistent with accidental tattooing of his scalp. The clinical features and histopathologic exam of a skin biopsy from the scalp were consistent with eruptive blue nevi [Figure 3].

Blue nevi are melanocytic neoplasias of pigmented spindle and/or epithelioid melanocytes in the mid-dermis.<sup>[1]</sup> They appear as blue, blue-gray, or blue-black and are present in 0.5–4.0% of healthy white adults.<sup>[1]</sup> Most blue nevi are acquired; however, approximately 1 in 3000 newborns are born with congenital blue nevi.<sup>[1]</sup> The blue-gray color is due to the optical effect, named the Tyndall effect, of backscatter of blue light from the skin over dermal melanin.<sup>[1]</sup> Multiple blue nevi can present as part of the Carney complex/LAMB (lentiginos, atrial myxomas, blue nevi) syndrome, along with lentiginos, atrial myxomas, and mucocutaneous mastocytosis.<sup>[2]</sup> Evaluation for the above condition in patients with blue nevi is therefore warranted. However, our patient had no clinical features apart from blue nevi; therefore, further work-up was not done.

The differential diagnosis of blue nevi includes pigmented spindle cell nevus, traumatic tattoo, primary or metastatic melanoma, pyogenic granuloma, glomus tumor, sclerosing hemangioma, dermatofibroma, and ochronosis.<sup>[1]</sup> The differential diagnosis for other blue lesions includes Spitz nevi, seborrheic keratosis, hemangioma, Kaposi sarcoma, and dermatofibroma.

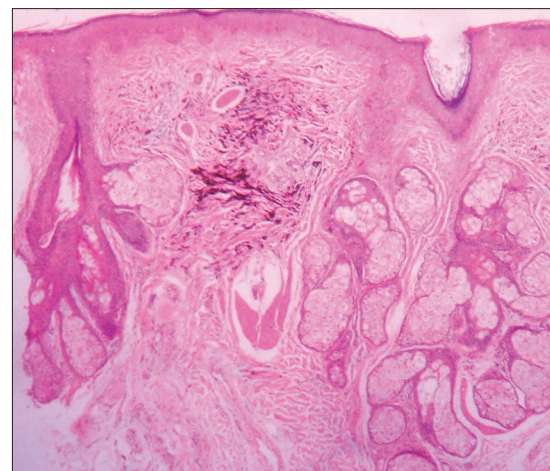
There are multiple types of blue nevi, including common blue nevus, cellular blue nevus, malignant blue nevus, large patch/plaque lesions, combined blue nevus, and atypical nevus.<sup>[2]</sup> Common blue nevi, as found in our patient, usually consist of a single lesion, less than 10 mm in diameter. The common blue nevi can appear anywhere, but approximately half of the reported cases are on the dorsa of the hands and feet.<sup>[1]</sup> Common blue nevi are also reported to occur in oral mucosa, uterine cervix, vagina, spermatic cord, prostate, and lymph nodes.<sup>[1,3]</sup> The cellular blue nevus usually presents as nodules or plaques 1–3 + cm in diameter. They can have a smooth or irregular surface, and 50% of cases are found on the sacrum or buttocks [Table 1].<sup>[1]</sup> Malignant blue nevi are associated with



**Figure 1: Multiple blue-gray macules on the scalp**



**Figure 2: Close-up image of eruptive blue nevi**



**Figure 3: Dermal collection of elongated melanocytes with abundant melanin pigment and intervening collagen bundles (hematoxylin and eosin,  $\times 100$ )**

cellular blue nevi, nevi of Ota, congenital blue nevi, or may arise without any underlying pathology. It has been suggested that malignant blue nevi are not a

**Table 1: Case reports of multiple eruptive cutaneous blue nevi**

Age at presentation (years)/sex	Location	Morphology	Reference
14/male	Upper sternum	>100 blue-brown to tan macules and papules	[4]
24/male	Left forearm	10×7 mm blue-black nodule with irregular border and more than three 1-2 mm guttate macular lesions	[5]
27/female	Diffuse distribution over the entire body, especially back and face	Hundreds of blue papules	[6]
31/female	Left forearm	5×4 mm blue-black papule with five surrounding 1-2 mm blue-black macules	[7]
35/male	Glans penis	Four blackish-blue blue nevi 2-4 mm in diameter	[8]
56/male	Epigastric region	Approximately 50 blue to black papules 2-5 mm in diameter	[9]
63/female	Dorsal right forearm and right hand	Multiple blue-black papules 0.5-1 cm in diameter	[10]
71/female	Tibial area of both lower legs	Approximately 40 gray to bluish papules 1-10 mm in diameter	[11]
71/female	Scalp	6 mm blue papule and 16 2-3 mm macules	[12]
71/female	Conjunctiva, upper and lower eyelids	Multiple darkly pigmented raised lesions	[13]
74/male	Scalp	Multiple blue-black nodules 4-6 mm in diameter	[14]
76/male	Left chest	Three dark blue papules	[15]

unique entity because they may be melanomas arising from a blue nevus.<sup>[1]</sup> Large patch/plaque blue nevi may be found in patients with a history of lentigo simplex.<sup>[1]</sup>

Once blue nevi appear, they typically remain stable and do not grow or change. Multiple cutaneous eruptive blue nevi are rare, with only 12 reports in the literature [Table 1]. There is no report of any associated abnormality (except for an association with Carney complex) or increased risk of malignancy with eruptive blue nevi.<sup>[1,16,17]</sup>

The etiology of common blue nevi is unknown.<sup>[1]</sup> Interestingly, a specific somatic mutation in the heterotrimeric G protein alpha-subunit, *GNAQ*, has been reported to occur in blue nevi that turns *GNAQ* into a dominant oncogene resulting in melanocytic neoplasia.<sup>[2]</sup>

Most blue nevi are stable for many years and require no therapy. Change is worrisome for melanoma development and warrants biopsy and further workup.<sup>[17]</sup> Histopathologic examination of a blue nevus is warranted in the following instances: sudden appearance of a blue nodule, expansion of a previously stable blue nodule, and a nodule or plaque greater than 10 mm in diameter.<sup>[17]</sup> Excision of blue nevi should include subcutaneous fat to ensure removal of deep dermal melanocytes.<sup>[1]</sup>

Diagnosis of blue nevi can be made by clinical presentation, but histopathologic examination may be needed for confirmation in some cases. The dermatopathologic findings of common blue nevi include the following: dermal melanocytes appearing

as melanin-containing fibroblast-like cells grouped in irregular bundles admixed with melanin-containing macrophages; groups of melanocytes with excess fibrous tissue in middle or upper reticular dermis, occasionally extending down to subcutaneous fat and up to papillary dermis; elongated melanin-producing dermal melanocytes lying with their long axis parallel to the epidermis; and normal appearing epidermis.<sup>[1]</sup>

We present this case of eruptive blue nevi on the scalp to highlight the rare location and the uncommonly high number of eruptive blue nevi in our patient.

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