e-ISSN 3050-8460
Journal of Dermatology Research

ATHENAEUM SCIENTIFIC PUBLISHERS

Case Report

Agminated and Eruptive Blue Naevi of the Upper Extremities in a Middle-Aged Woman: Case Report and Review of the Literature

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Citation: Sharara Z, et al. Agminated and Eruptive Blue Naevi of the Upper Extremities in a Middle-Aged Woman: Case Report and Review of the Literature. J Dermatol Res. 2026;7(3):1-5.

https://doi.org/10.46889/JDR.2026.7302

Received Date: 25-04-2026

Accepted Date: 26-08-2026

Published Date: 03-09-2026

Abstract

Blue naevi are benign dermal melanocytic lesions that are usually solitary and stable. Eruptive multiple blue naevi, particularly with upper limb predominance, are rare and can clinically mimic melanoma or accompanying in-transit metastases. We report a 55 year old woman with progressive development of multiple blue grey macules on both forearms, arms and shoulder, dermoscopically showing homogeneous, structureless blue pigmentation. Histopathology of the largest lesion confirmed a common dendritic blue naevus without atypia. We briefly review the literature on eruptive and disseminated blue naevi, including cases with upper limb involvement, highlighting their typically benign course but important overlap with melanoma in terms of clinical pattern. This case underlines the need for careful clinical and dermoscopic assessment, selective biopsy of atypical or changing lesions and ongoing surveillance despite the overall excellent prognosis.

Keywords: Common Blue Naevus; Dermal Dendritic Melanocytic Naevus; Naevus of Jaddassohn; Melanoma Mimickers; Agminated Blue Naevi; Upper Extremities; Melanoma Mimickers; Dermoscopy

Introduction

A blue naevus is a benign population of melanin-producing dendritic melanocytes located in the dermis, are formed by collections of dermal melanocytes that failed to complete their migration from the neural crest to the dermo-epidermal junction, usually presenting as solitary, bluish, asymptomatic macule or papule [1,2]. In WHO classification of skin tumours, blue naevus subtypes are Cellular Blue naevus and dendritic blue naevus [3].

Pathophysiology and Demographics

Blue naevi are thought to result from the incomplete migration of melanocytes from the neural crest to the epidermis during embryonic development, leading to their presence in the deeper layers of the skin (dermis) [4]. The characteristic blue colour is an optical effect. While classically attributed to the Tyndall effect (preferential scattering of shorter, blue wavelengths of light by the dermal melanin), more recent theories suggest that the dermal melanin absorbs longer wavelengths (red light), making the lesion appear blue in perception what is called "subtractive colour mixing", Blue naevi are twice as common in women as in men and typically appear during childhood or adolescence, though they can be congenital a relatively common finding, occurring in approximately 1-2% of Caucasian adults and 3-5% of Asian adults [4].

Plaque type blue naevus is usually present at birth or at early childhood and may enlarge during puberty, it is several centimetres in diameter. Can be confluent papules or macules or as single plaque [3].

A much rarer variant is the phenomenon of eruptive multiple blue naevi, characterised by the sudden and rapid appearance of numerous blue naevi. Linear or targetoid blue naevi are also rare variants [3]. Eruptive blue naevi may develop due to various triggers, including physical trauma, severe sunburn, hormonal changes during puberty, pregnancy and oral contraceptives, medical conditions like vesiculobullous dermatoses, immunosuppression and syndromes such as the Carney complex/LAMB syndrome [5,6].

Diagnosis and Histopathology

The diagnosis of blue naevi is primarily clinical, based on the characteristic appearance and history of onset. Dermoscopy is a crucial tool, typically revealing a structureless, homogenous steel-blue pattern, which supports a benign diagnosis [7]. The primary concern with any new pigmented lesion is the possibility of melanoma, the differential diagnosis may also include; Spitz nevus, Traumatic tattoo.

The diagnosis of blue naevus will often require histological confirmation [8]. Subtypes to consider with this clinical presentation are common dendritic blue naevus and cellular blue naevus. Dendritic blue naevi are usually non-circumscribed dermal proliferation of bipolar and spindle shaped melanocytes. Whereas cellular blue naevi are often well circumscribed intradermal nodules of lightly pigmented, fusiform to ovoid melanocytes with melanophages. The case being presented is a dendritic blue naevus [9].

The common variant is usually smaller (<10 mm) and presents on the extremities, buttocks, scalp and face, while the cellular variant is usually larger (>10 mm) and predominantly found on the buttocks and sacrococcygeal region with less common presentation on the scalp, face and extremities [10].

Histologically, a blue naevus is located within the dermis and comprised of a population of pigmented spindle shaped melanocytes with associated collagenisation and fibroblastic changes, with melanophages present throughout. The lesion tends to aggregate around blood vessels, nerves or cutaneous appendages [11,12].

Case Report

A 55-year-old woman with no significant medical history presented with a blue lesions on her both upper limbs. The patient reported that the lesions had been present on her forearms for many years but had started growing and more appearing on arms and shoulders progressively. The lesions were asymptomatic and the patient denied any additional complaints, she as well denied any history of trauma on sunburn, she is office base and denied exposure to chemicals and tattoos.

Clinical examination revealed a well-circumscribed, macules ranging between 2-6 mm in diameter, blue-grey macules on the posterior forearms, arms and right shoulder, around 20 lesions counted (Fig. 1). Dermoscopic examination revealed structureless, blue, symmetrical lesions, with a homogenous pattern. The largest lesion in a cluster was planned for excision, as satellitosis was suspected clinically in 2 areas on the posterior aspect of the forearm. Histopathological examination confirmed the clinical suspicion of dendritic blue naevus, sections show skin containing a pigmented spindle cell lesion with associated dense collagenous stroma lying within the upper dermis. Melanophages are present and spindle cells lack atypia. This case is an example of a common dendritic blue naevus, (Fig. 2). Concurrently, the patient was under investigation by the Gastroenterology team for benign colonic polyps and the diagnostic work-up revealed no concerning findings. The patient declined HIV testing; however, her Full Blood Count (FBC), Erythrocyte Sedimentation Rate (ESR), C-Reactive Protein (CRP), reticulocyte count, Liver Function Tests (LFTs) and serum ferritin levels were all within normal reference ranges. Furthermore, stool investigations for parasitic infections and pathogenic colonic bacteria were negative.

Patient was reassured and schedules for 6 months follow up, when she reported appearance of more lesions on the shoulder (Fig. 1). Then another review in 18 months, where no new lesions detected.

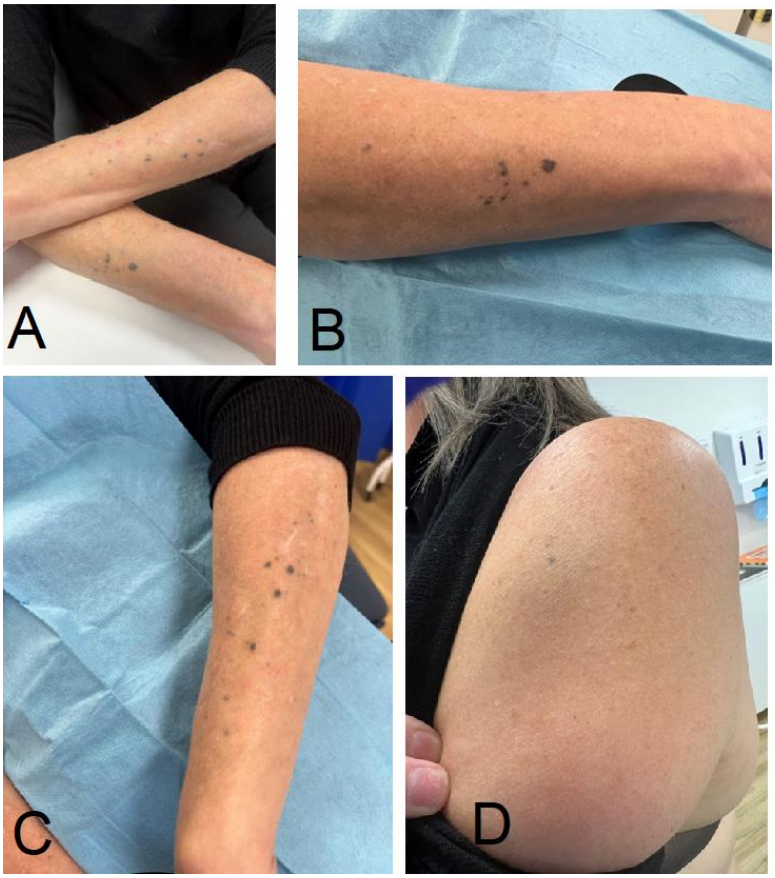

Figure 1: Clinical images. A) both forearms; B) Rt Forearm; C) Left forearm; D) Left Shoulder.

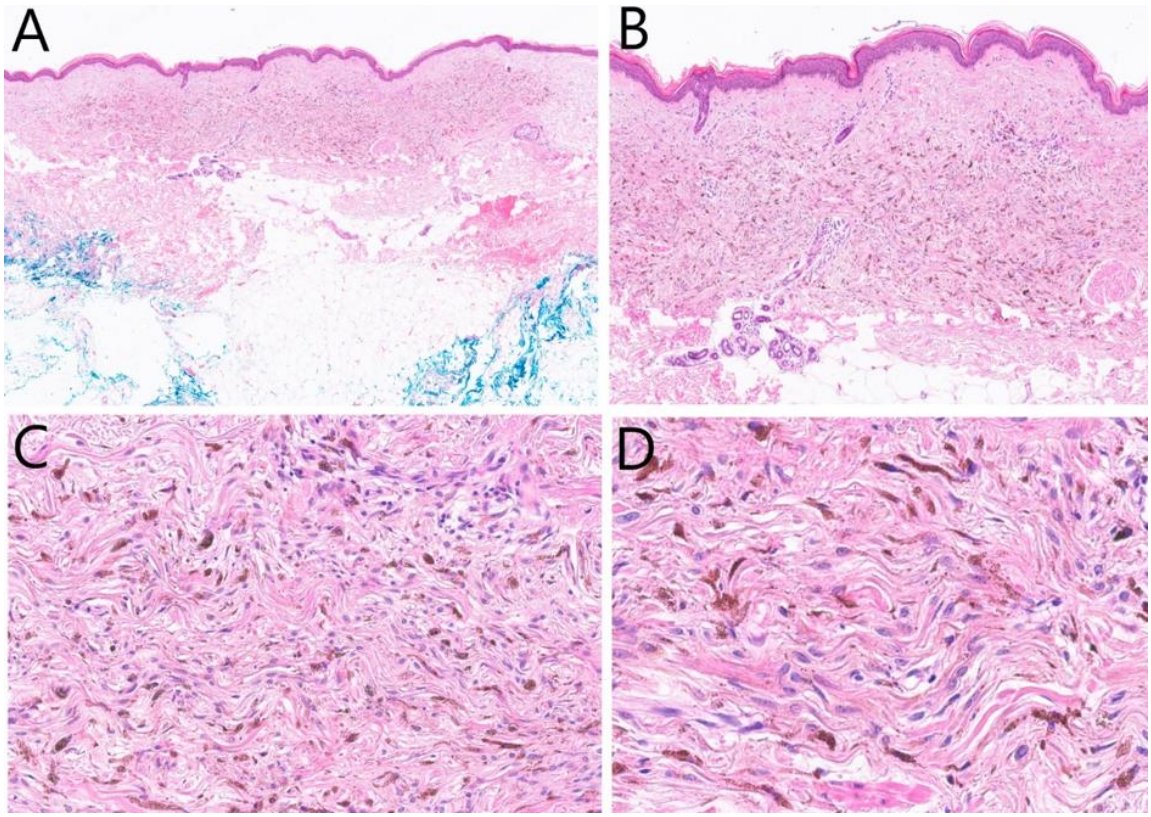

Figure 2: Histology images. A -(x2): Pigmented dermal spindled cell lesion; B -(x10): Prominent collagenisation and wrapping of adnexal structures; C- x20: Conspicuous heavily pigmented melanophages; D-(x40): Spindled melanocytes amidst collagenous stroma.

Discussion

Multiple blue naevi in a single patient are unusual; most blue naevi are solitary, small (1–5 mm) and remain unchanged [11,12]. Eruptive patterns, with several lesions appearing or enlarging over a short period, have been described in limited case reports, with reported counts ranging from a few lesions to hundreds [10,11]. The reported patient has shown a progressive increase in the number of lesions over both upper limbs and shoulder fits within this eruptive/disseminated spectrum, even though the chronology is more indolent than the "sudden" onset emphasized in some reports.

The distribution in this case (dorsal forearms, arms, shoulder) is consistent with the published patterns. Eruptive disseminated blue naevi have been reported involving the buttocks, lower back and bilateral dorsal arms in a young adult, with around 30 macules [13]. Agminated and grouped blue lesions have also been well documented on the upper limb, including an extensive agminated plaque on the posterior arm and grouped lesions on the shoulder and dorsum of the hand [14,15]. Thus, although uncommon, upper limb–predominant eruptive/multifocal blue naevi are clearly within the known clinical spectrum, moreover the idiopathic eruptive nature mirrors the reported cases [14,15].

Histopathological assessment of the excised lesion revealed a common dendritic blue naevus which are similar findings in previously reported eruptive lesions and agminated plaques, [10,13,14]. The clinical impression of clustering and possible satellitosis in this case is important because blue lesions with satellitosis can closely mimic melanoma or its cutaneous metastases. Recent series of agminated blue lesions and blue lesions with satellitosis highlight that both benign blue naevi and melanoma may present with grouped or satellite blue macules, when dermoscopy is helpful but not definitive [16].

Malignant melanoma arising in blue nevus is well documented but remains exceptionally rare, typically presenting as a rapidly enlarging, often >1 cm, nodular lesion with clear cytologic atypia and deep dermal/subcutaneous extension [12,17]. None of these features are present in the current case.

Overall, this case represents a benign, disseminated form of multiple eruptive blue naevi with predominant involvement of the upper limbs. The presence of clinically indolent lesions, absence of identifiable triggers or syndromic associations and the homogeneous dermoscopic pattern support previously reported case series. Although malignant transformation is rarely reported, the recognised potential for melanoma to mimic such features warrants ongoing clinical and dermoscopic surveillance. Selective biopsy should be reserved for lesions that exhibit dynamic changes; such as irregular borders, colour variation, progressive growth or a diameter exceeding 10 mm in accordance with current evidence-based recommendations [10,12,16,17].

Conclusion

Eruptive multiple blue naevi, including presentations on the upper limbs, represent a rare but important clinical entity. They are characterised by the sudden appearance of multiple, benign melanocytic lesions. While their appearance can be alarming and necessitates differentiation from melanoma, the condition has a benign prognosis. Diagnosis is aided by dermoscopy and management typically involves clinical observation, with biopsy reserved for atypical or changing lesions. The documentation of eruptive blue naevi involving the upper limbs confirms that this presentation, while uncommon, is part of the clinical spectrum of this noteworthy condition.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding Statement

This research did not receive any specific grant from funding agencies in the public, commercial or non-profit sectors.

Acknowledgement

The authors have no acknowledgments to declare.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Ethical Statement

The project did not meet the definition of human subject research under the preview of the IRB according to federal regulations and therefore was exempt.

Informed Consent Statement

Informed consent was obtained from all participants included in the study.

Authors' Contributions

All authors contributed equally to this paper.

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