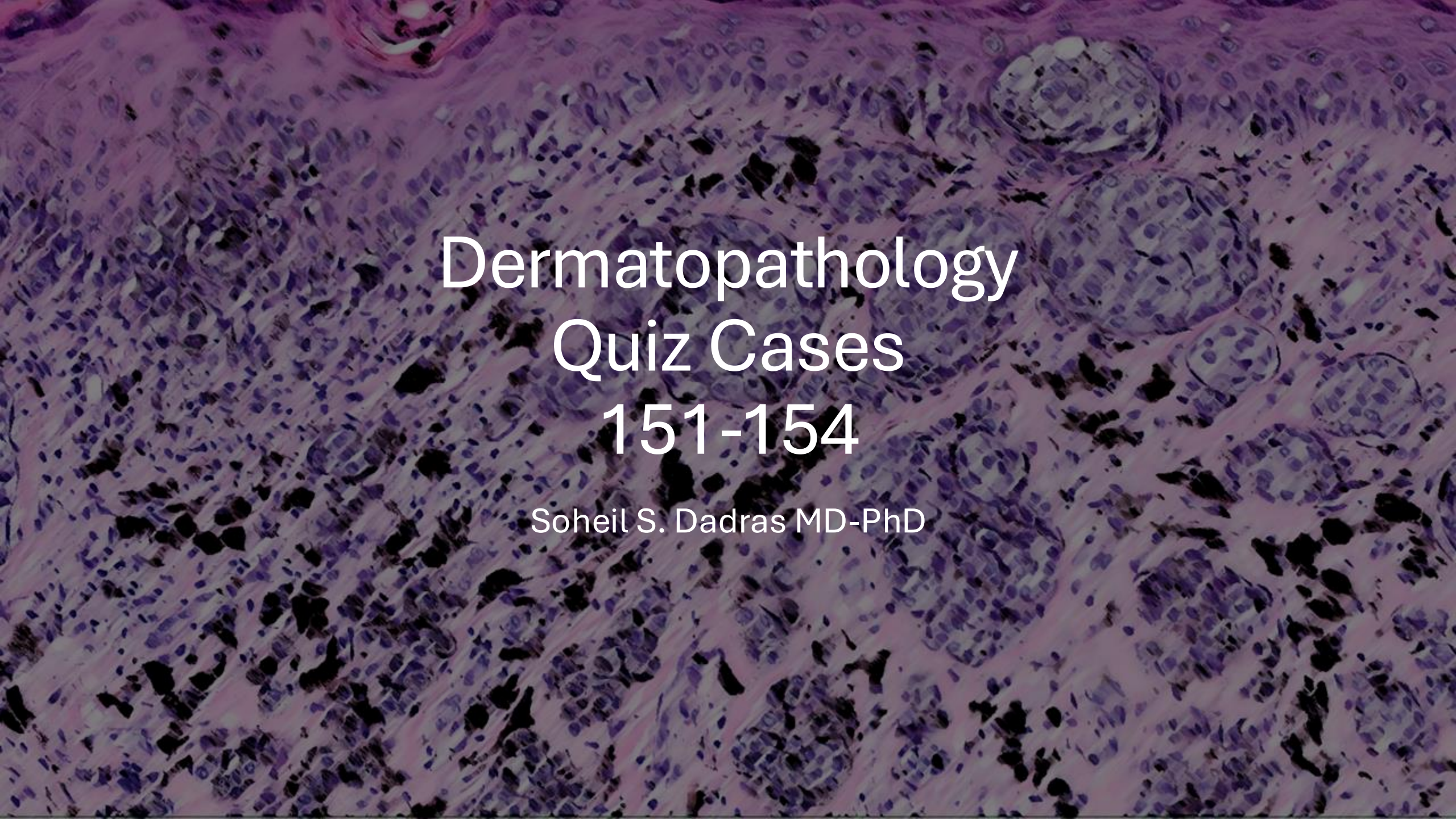


The background of the slide is a histological image of tissue, likely skin, stained with hematoxylin and eosin (H&E). It shows a dense population of cells with prominent nuclei (stained dark purple) and surrounding connective tissue (stained pink). There are some larger, more rounded structures that could be glandular or cystic in nature.

Dermatopathology Quiz Cases 151-154

Soheil S. Dadras MD-PhD

Test your knowledge of diagnostic skin pathology



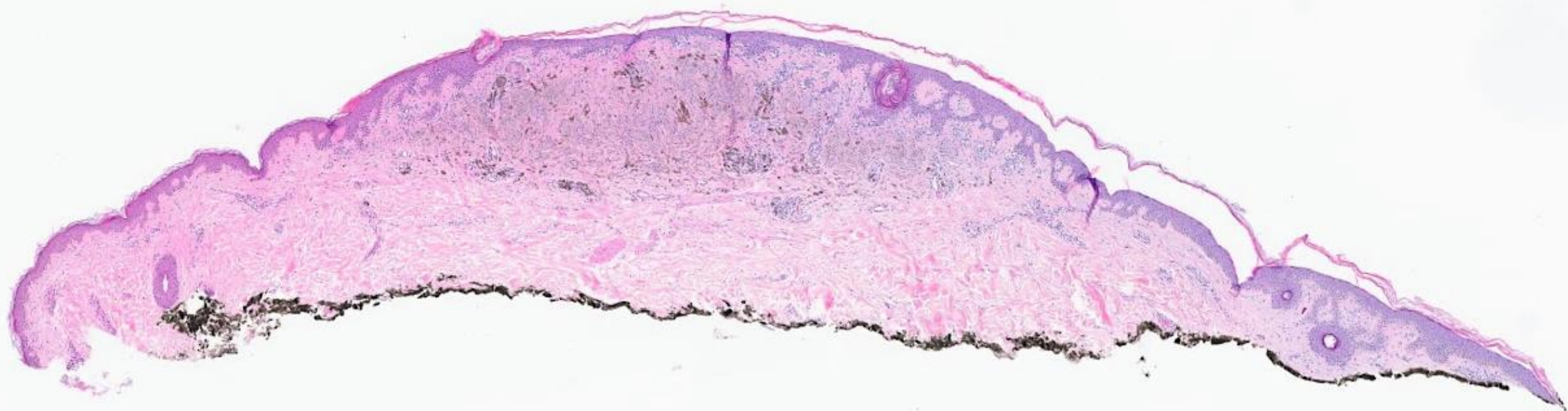
EXAMINE THE UNLABELED
IMAGES

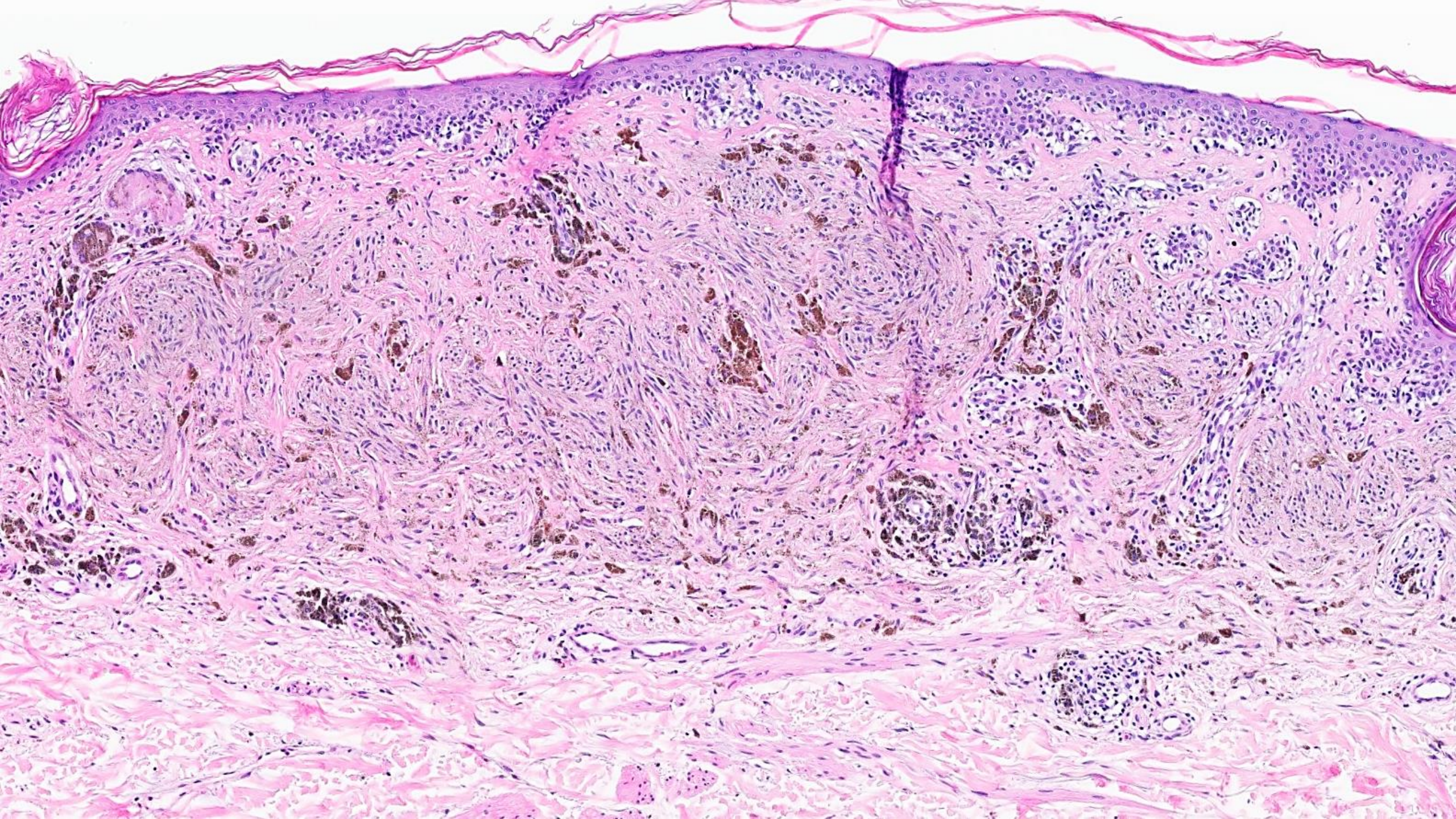


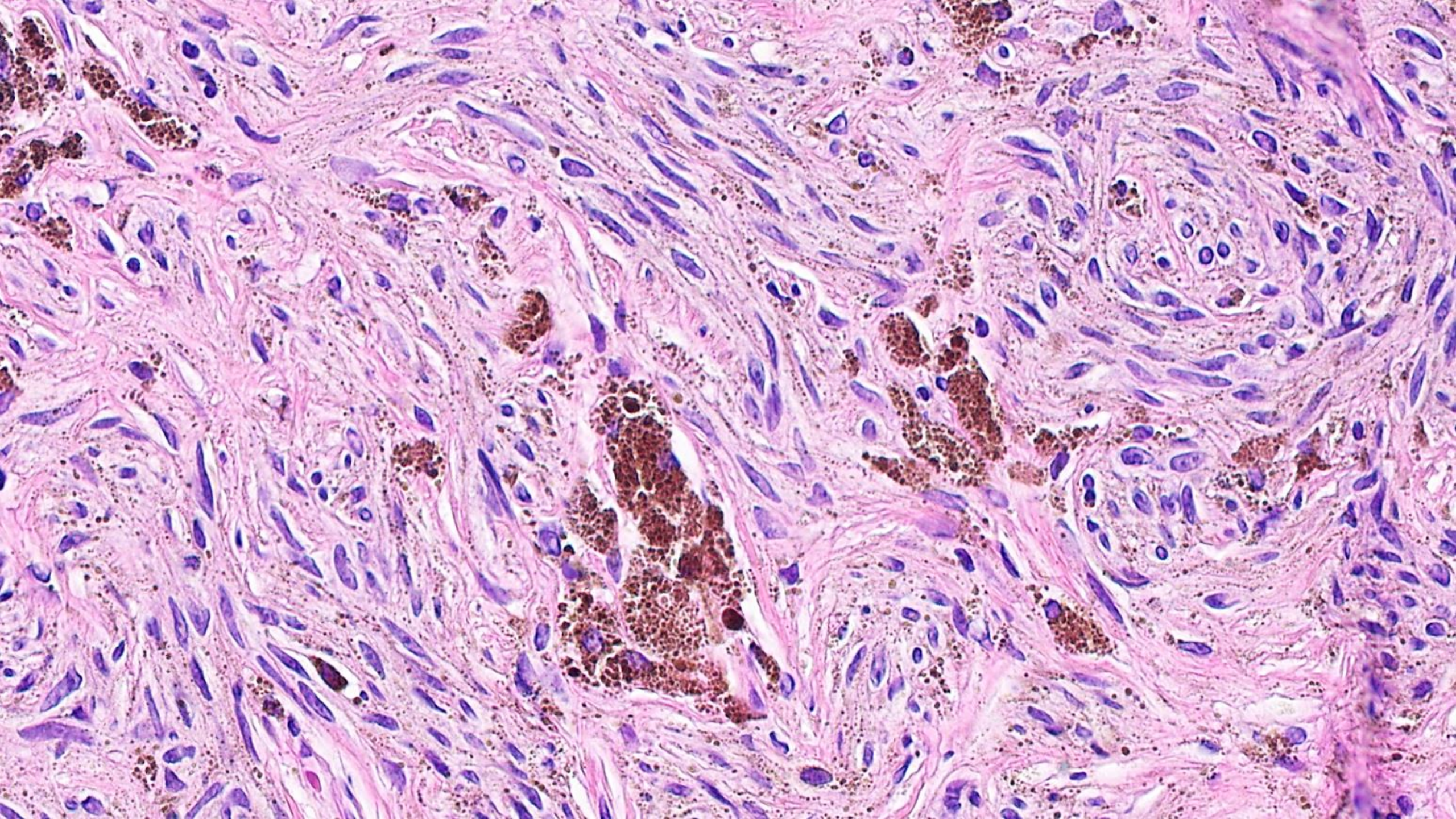
ANSWER THE QUESTIONS

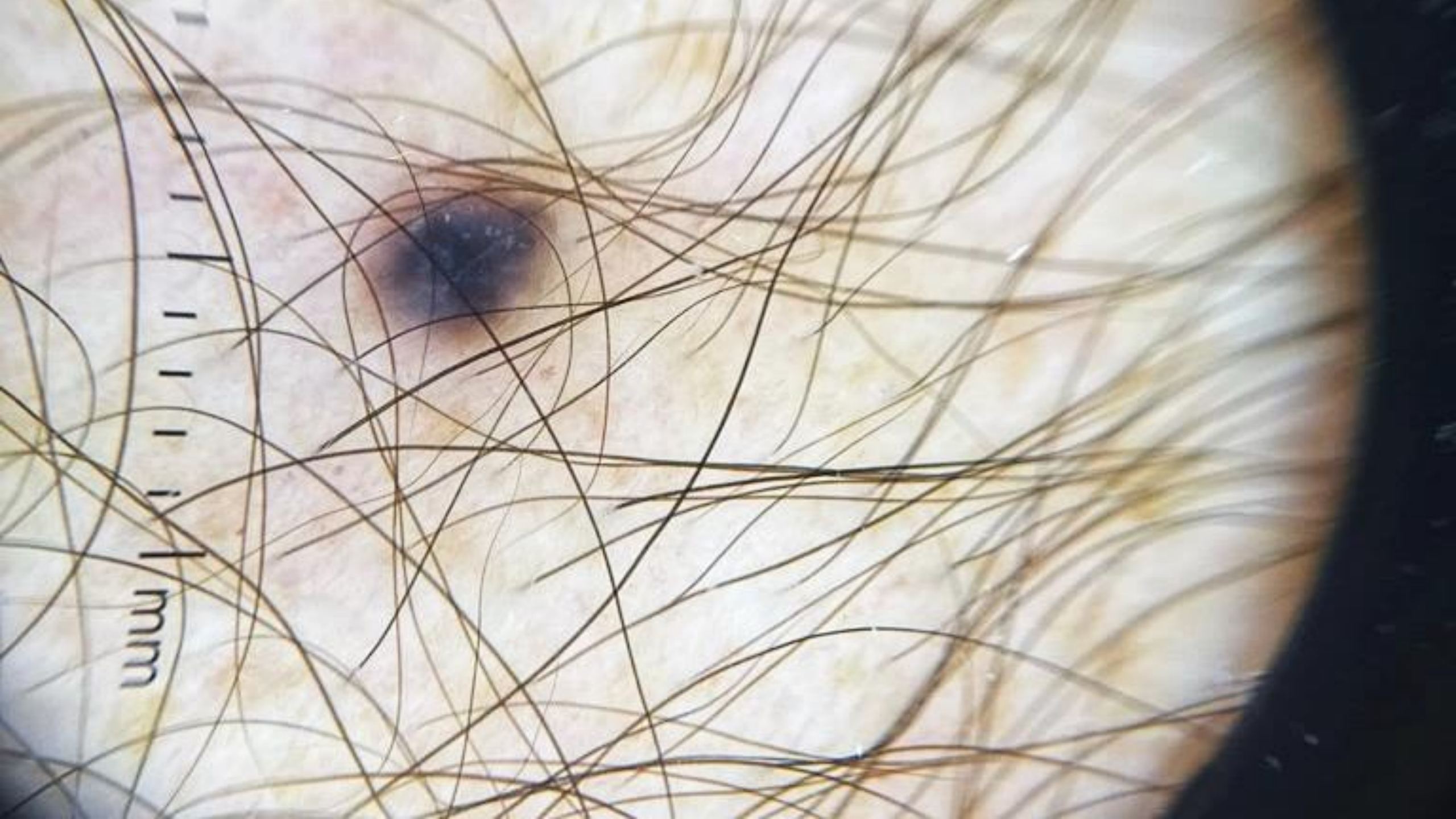


FIND THE ANSWER KEY
AND SUMMARY









Case 151. 55M, 4-mm dark brown papule with atypical gray pigmentation and regression on the left scapular back. What is your diagnosis?

A. Desmoplastic melanoma with lentigo maligna melanoma in situ

B. Pigmented spindle cell nevus with regression

C. Blue nevus

D. Combined compound and blue nevus

E. Cellular blue nevus

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A. Desmoplastic melanoma with lentigo maligna melanoma in situ

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Summary: Combined compound and blue nevus

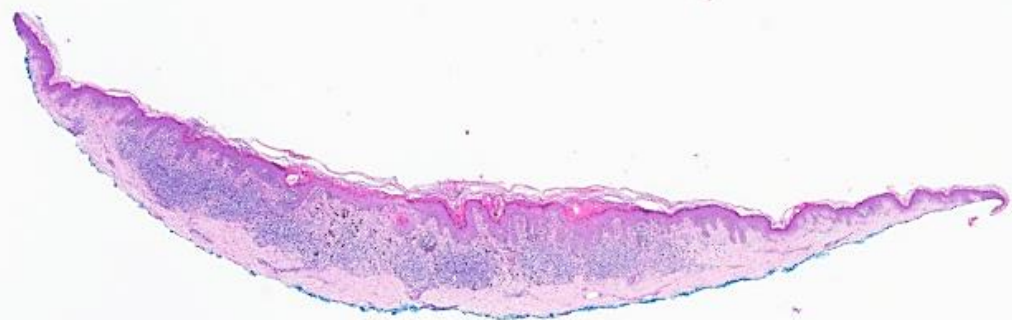
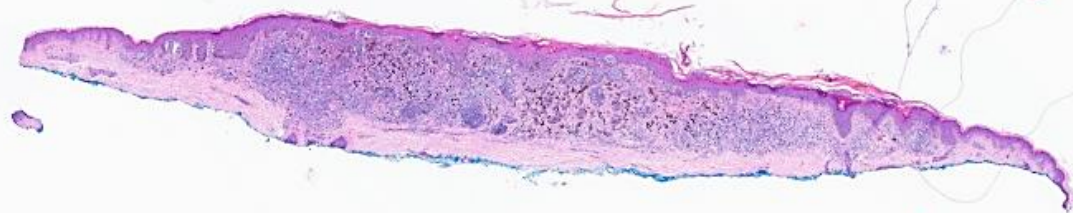
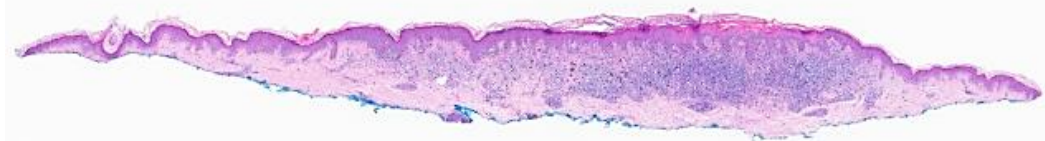
- Architecture:
 - Two components: adjacent but distinct.
 - Blue nevus component: darkly pigmented, wedge-shaped area underlying or adjacent to the compound component.
- Compound Nevus Component:
 - Junctional & Intradermal Nests: Nests of epithelioid or conventional nevomelanocytes at the dermo-epidermal junction and within the superficial dermis
 - Maturation: Nevus cells show maturation (decreasing size and nesting with deeper dermal descent).
 - Cytology: Cells have round to oval nuclei, inconspicuous nucleoli, and abundant cytoplasm with fine melanin.

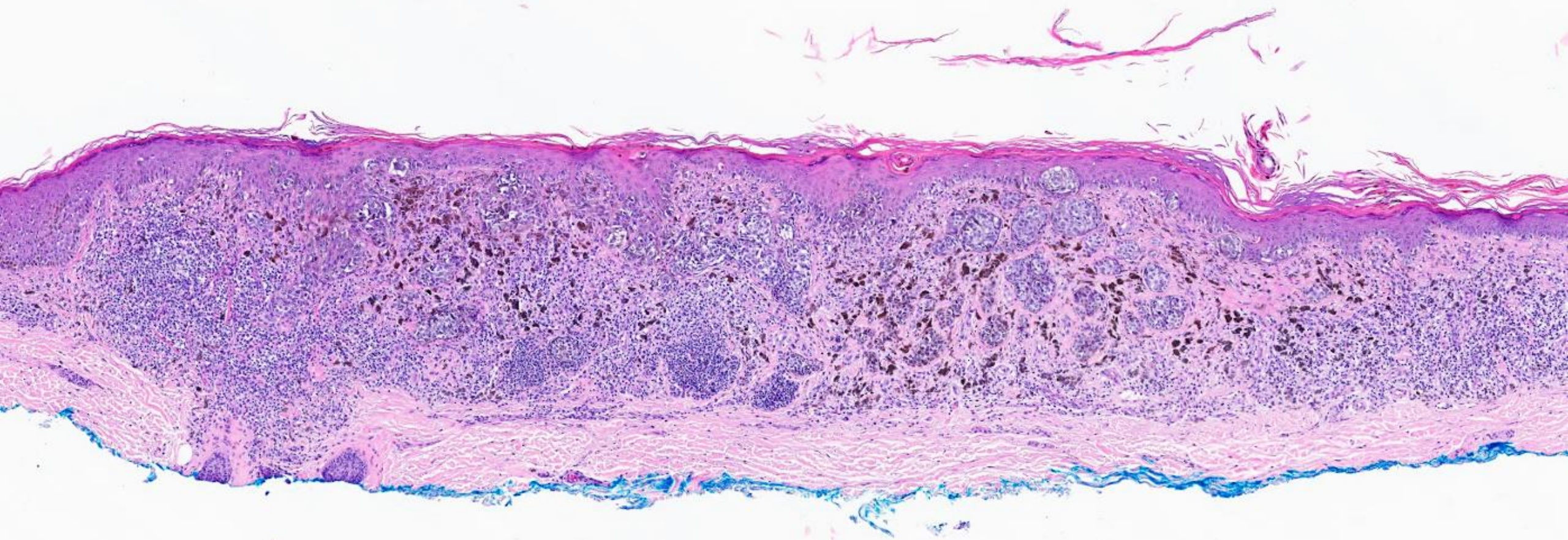
Blue Nevus Component:

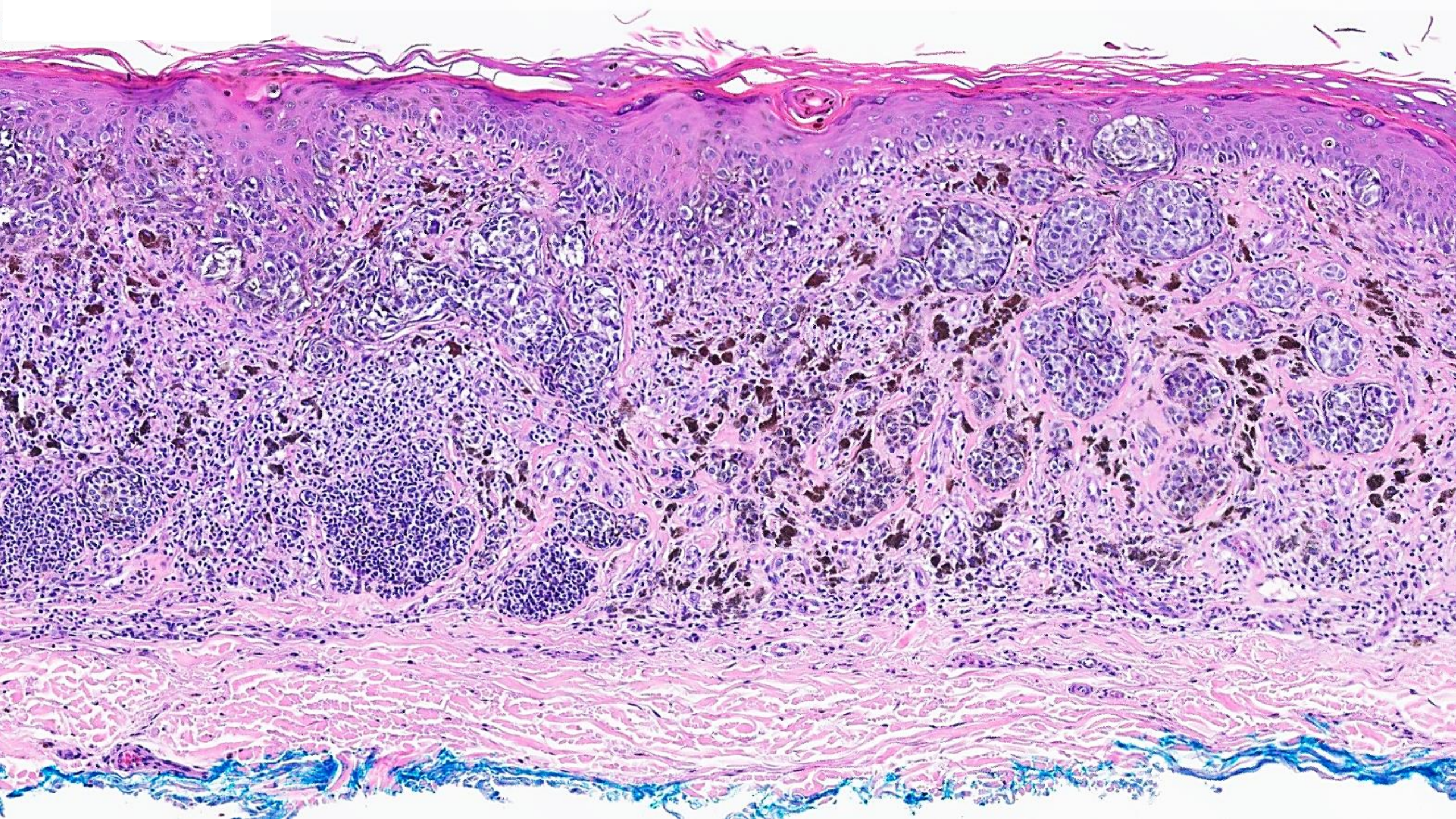
- Location: Primarily within the reticular dermis, often extending around adnexal structures and into the subcutis (sclerotic/deep penetrating pattern).
- Cell Type: Elongated, bipolar, heavily pigmented dendritic melanocytes interspersed with pigment-laden macrophages ("melanophages").
- Stroma: Associated with prominent sclerotic/fibrous collagen bundles.

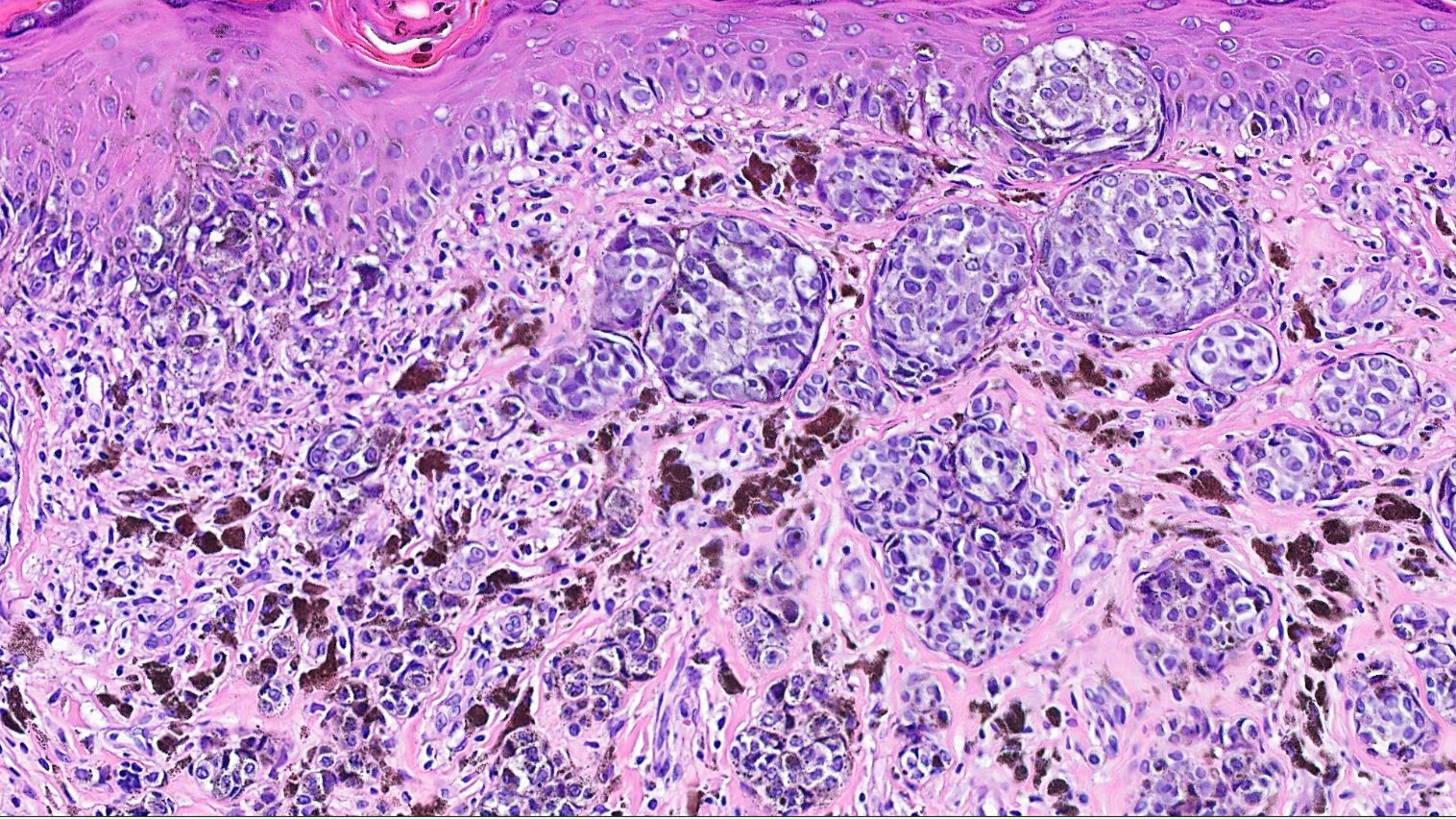
Diagnostic Key Takeaway

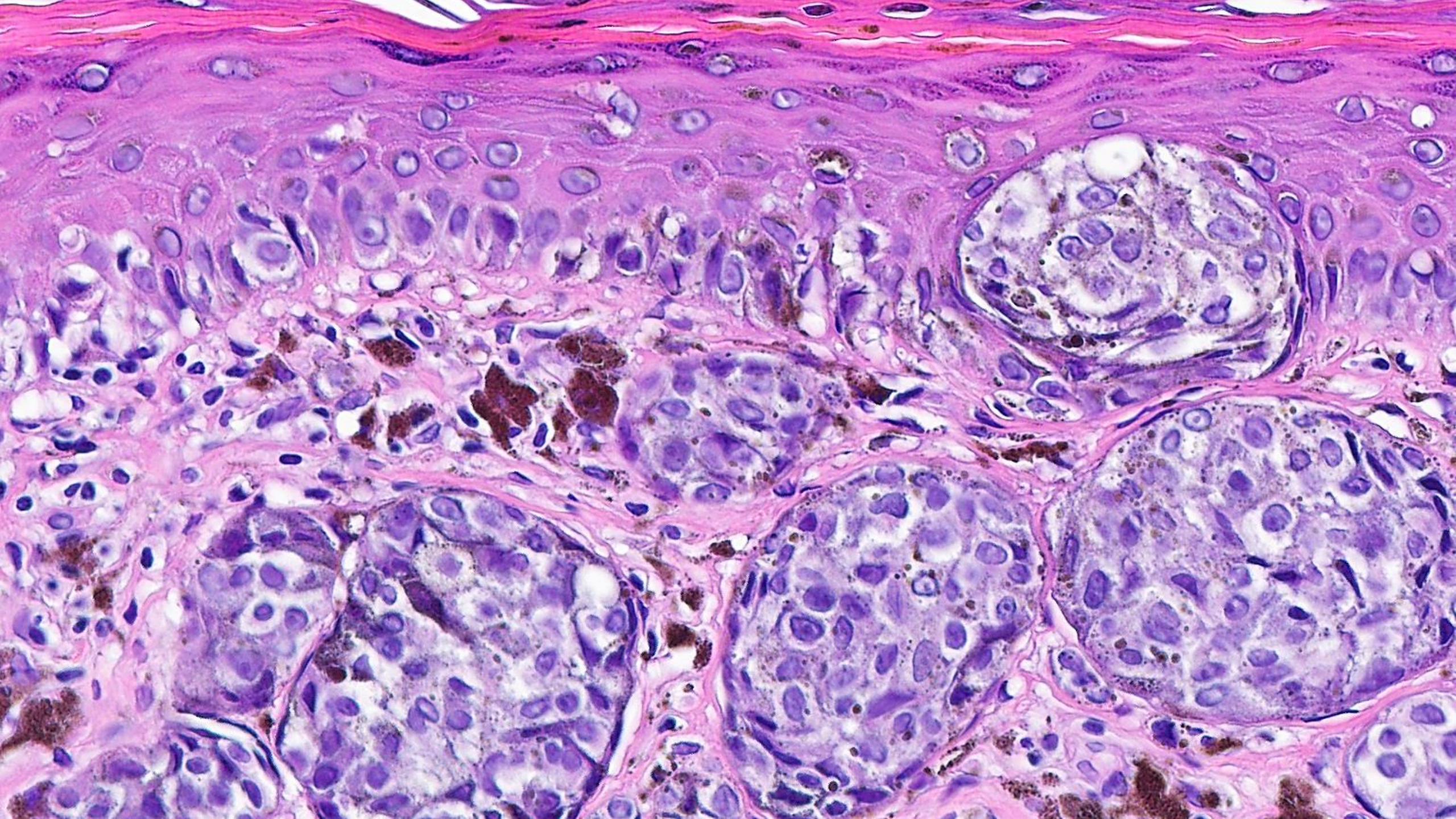
- A **benign, biphasic lesion**
- Recognize the two benign, well-demarcated populations: the **superficial, nested epithelioid cells** of the compound nevus and the **deep, dendritic, pigmented cells within sclerotic stroma** of the blue nevus
- Absence of high-grade atypia, mitotic activity

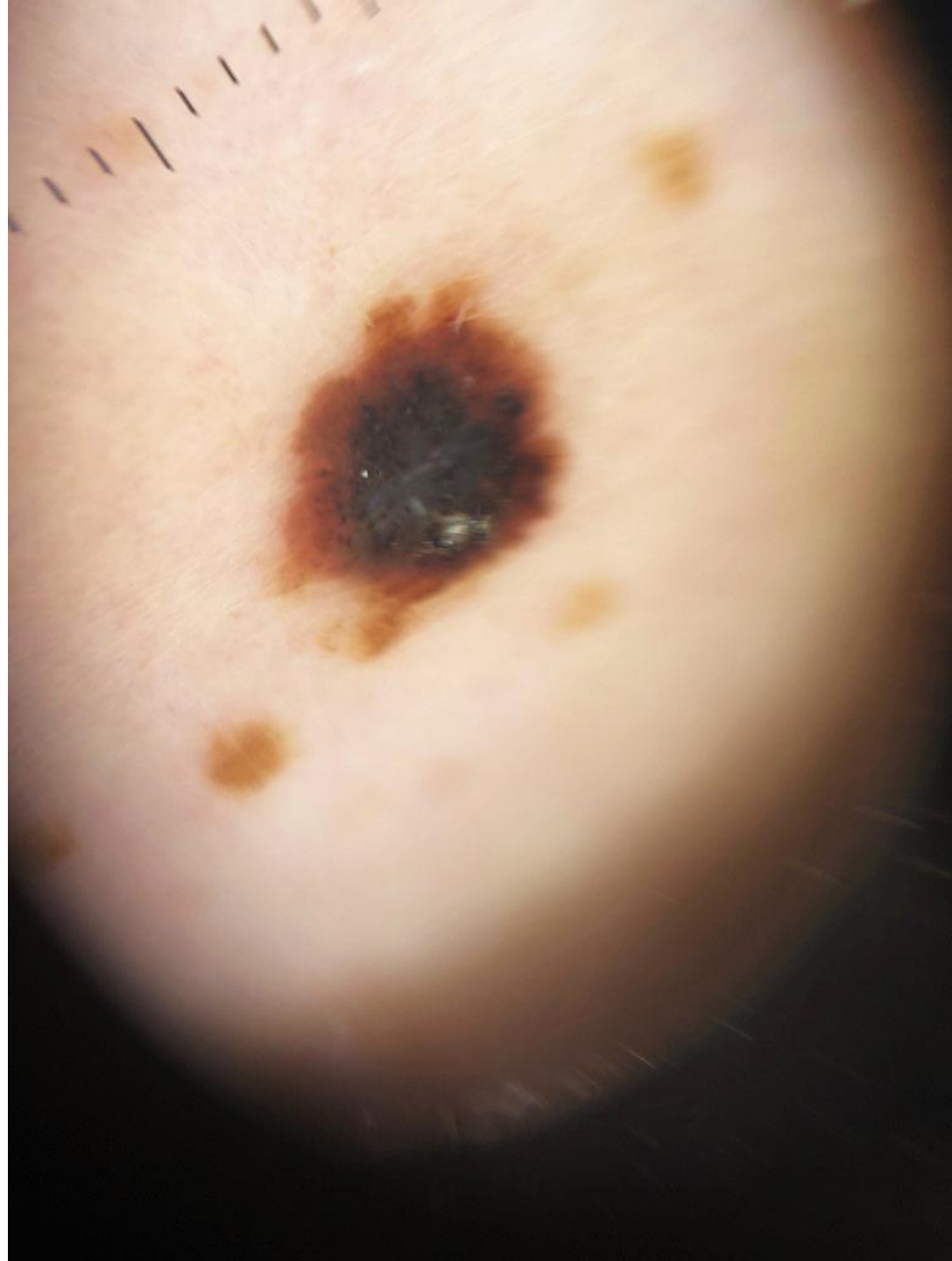












Case 152. 64F, 7-mm irregular dark brown papule on the right lateral thigh. What is your diagnosis?

A. Compound dysplastic nevus

B. Compound nevus, Halo-type

C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ

Case 152. 64F, 7-mm irregular dark brown papule on the right lateral thigh. What is your diagnosis?

A. Compound dysplastic nevus

B. Compound nevus, Halo-type

C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ

Summary: Melanoma, in situ

Architectural Pattern:

Poorly Circumscribed Lesion: Asymmetrical, jagged nests with poor lateral circumscription.

Confluent Growth: Nests of melanocytes along the dermo-epidermal junction that merge and become continuous, replacing the basal layer.

"Buck Shot" Scatter (Pagetoid Spread): The hallmark feature. Single melanocytes are present throughout all levels of the epidermis (stratum spinosum and granulosum), well above the basal layer. This is most prominent in the center of the lesion.

Nesting: Nests are variable in size and shape (irregular, "bizarre"), often fusing with adjacent nests. They are unevenly spaced and may show clefting artifact from the surrounding keratinocytes.

Cytologic Features (of the Intraepidermal Melanocytes):

Pleomorphism: Marked variation in the size and shape of melanocytes.

Nuclear Features: Nuclei are large, hyperchromatic (darkly stained), and often have prominent, eosinophilic (red) nucleoli.

Cytoplasm: Abundant, often dusky or finely pigmented. Some cells may have a "pagetoid" appearance with ample cytoplasm.

Summary: Melanoma, invasive

Presence of an Invasive Component:

Dermal Nests & Cells: Malignant melanocytes, either in nests or as single cells, are present below the basement membrane zone in the dermis.

Lack of Maturation: This is a critical diagnostic feature. Unlike a benign nevus, the melanocytes do not become smaller or more neurotized with deeper descent into the dermis. The deep dermal cells are just as large and atypical as the superficial ones.

Cytology of Invasive Cells:

The cells can be epithelioid (most common in SSM), spindled, or a mixture.

Epithelioid Cells: Large, polygonal cells with abundant cytoplasm, large nuclei, and prominent nucleoli. Mitotic figures, including atypical forms, are often present.

Host Response: There is typically a lymphocytic host response (tumor-infiltrating lymphocytes - TILs) and dermal regression (fibrosis, melanophages, telangiectasia) may be seen.

Reporting Key Parameters: Breslow Thickness; Ulceration; Mitotic Rate; Margins.

Diagnostic Key Takeaway

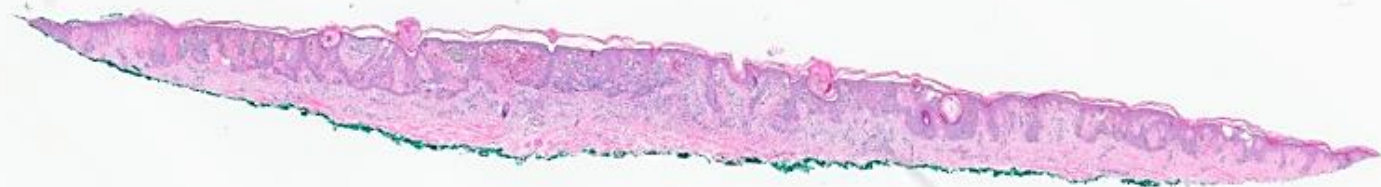
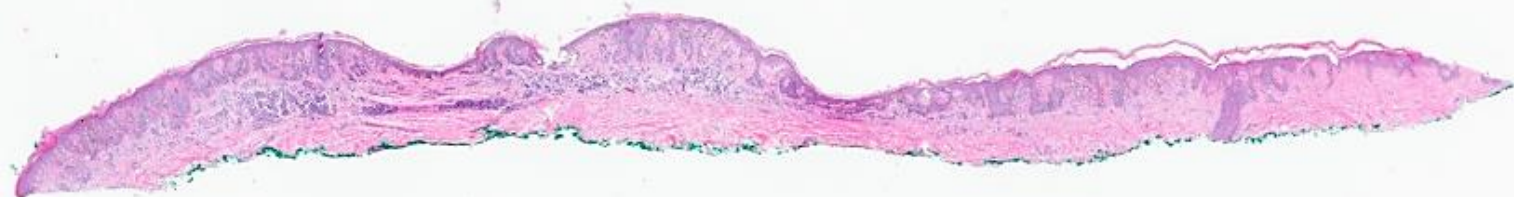
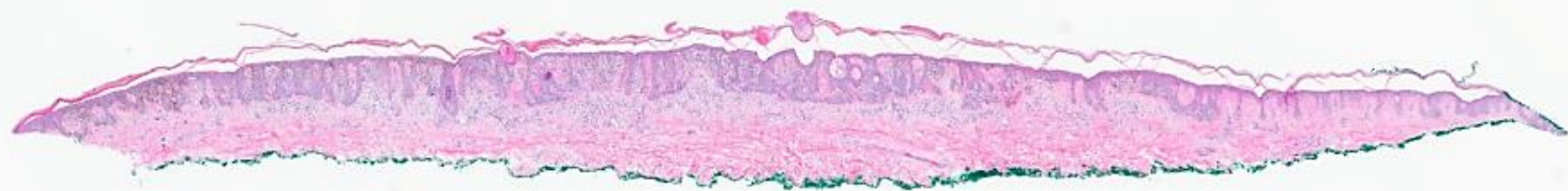
"Pagetoid Spread Up, No Maturation Down."

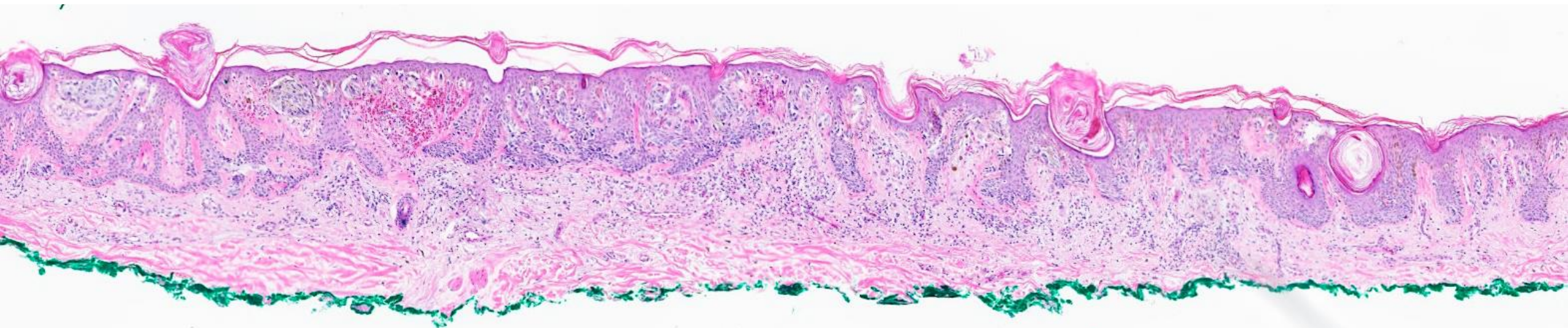
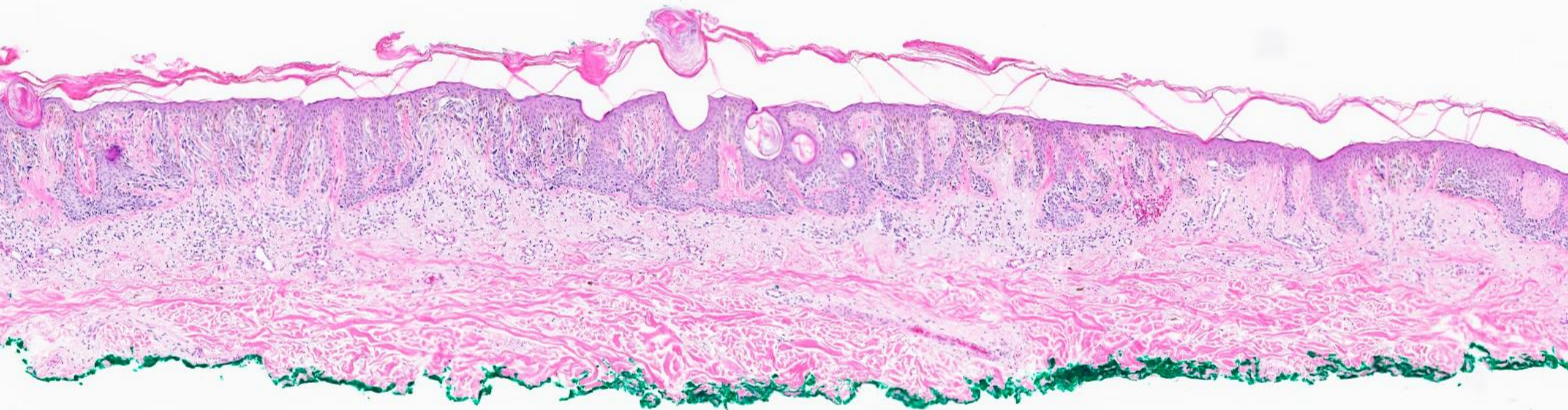
"Pagetoid Spread Up": The hallmark of the in-situ component is the widespread, "buck-shot" scatter of severely atypical melanocytes upward through all levels of the epidermis.

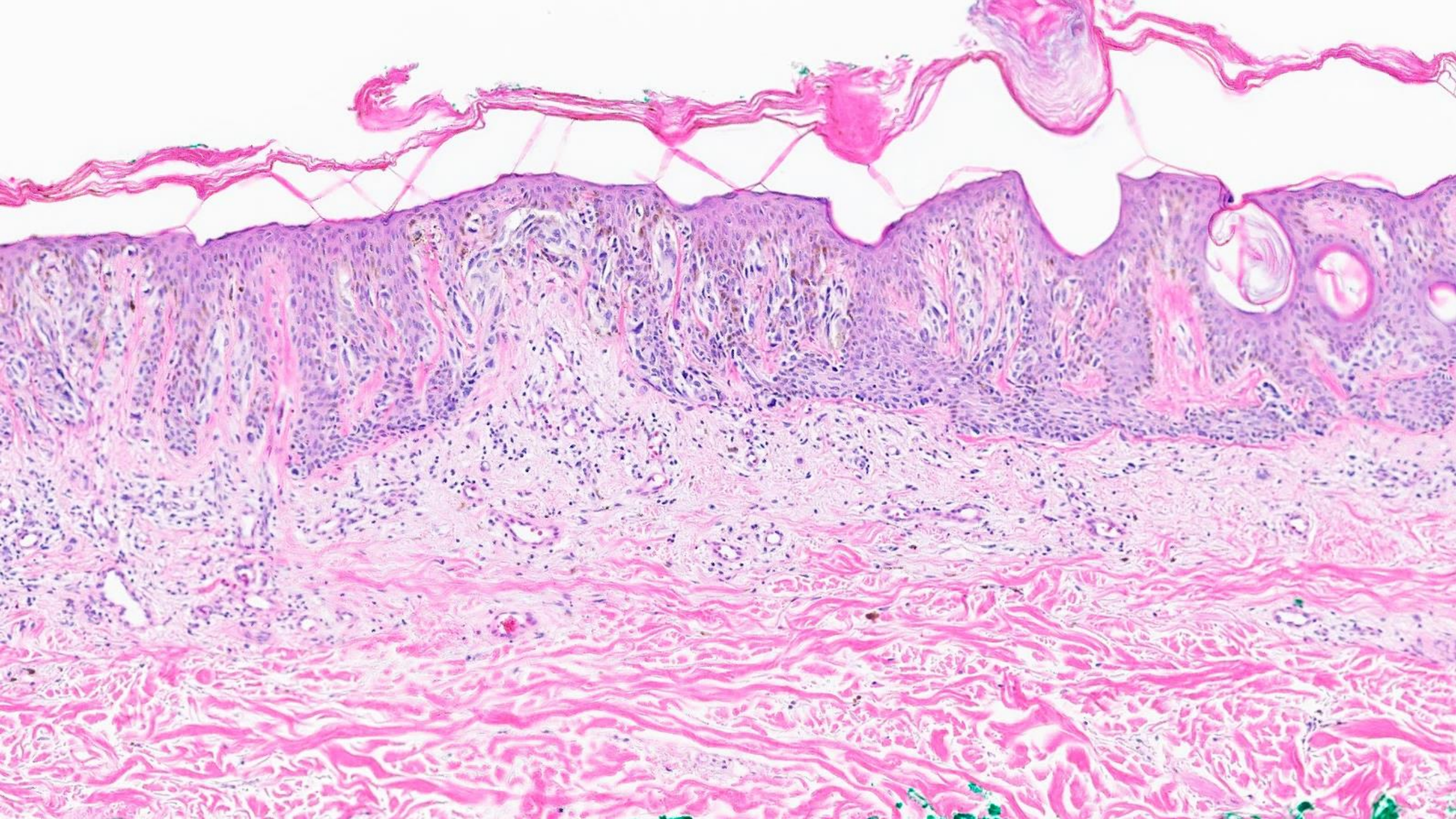
"No Maturation Down": The hallmark of the invasive component is the complete lack of maturation—the malignant melanocytes invading downward into the dermis remain just as large and atypical as those at the base of the epidermis.

Melanoma vs. Nevus

Feature	Superficial Spreading Melanoma	Compound Nevus
1. Overall Shape & Symmetry	Asymmetrical. The two halves don't match.	Symmetrical. The two halves are roughly mirror images.
2. Intraepidermal (Junctional) Pattern	"Buck-shot Scatter": Melanocytes are sprinkled upward throughout all layers of the epidermis (Pagetoid spread). Nests are irregular, confluent (merge together), and unevenly spaced.	"Orderly Row": Melanocytes and nests are confined to the bottom layer (dermo-epidermal junction). Nests are regular, similar in size and shape, and evenly spaced.
3. Cytology (Cell Appearance)	Severe Atypia: Cells are pleomorphic (vary in size and shape). Nuclei are large, dark, and have prominent nucleoli.	Mild, Uniform Atypia: Cells look very similar to each other. Nuclei are small, uniform, and lack prominent nucleoli.
4. Dermal Component (The Key to Invasion)	"No Maturation": The cells invading into the dermis do not get smaller. The deep cells are just as large and ugly as the superficial ones. Mitoses may be present, especially deep ones.	"Maturation": The cells get smaller and more neurotized as they go deeper into the dermis. The deep cells are tiny, resembling lymphocytes. Mitoses are absent or very rare.









Case 153. 30M, 8x5mm red-brown macule, asymmetric pigment pattern, irregular edges, left lower back; h/o melanoma (back). What is your diagnosis?

A. Compound dysplastic nevus

B. Compound nevus, Halo-type

C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ

Case 153. 30M, 8x5mm red-brown macule, asymmetric pigment pattern, irregular edges, left lower back; h/o melanoma (back). What is your diagnosis?

A. Compound dysplastic nevus

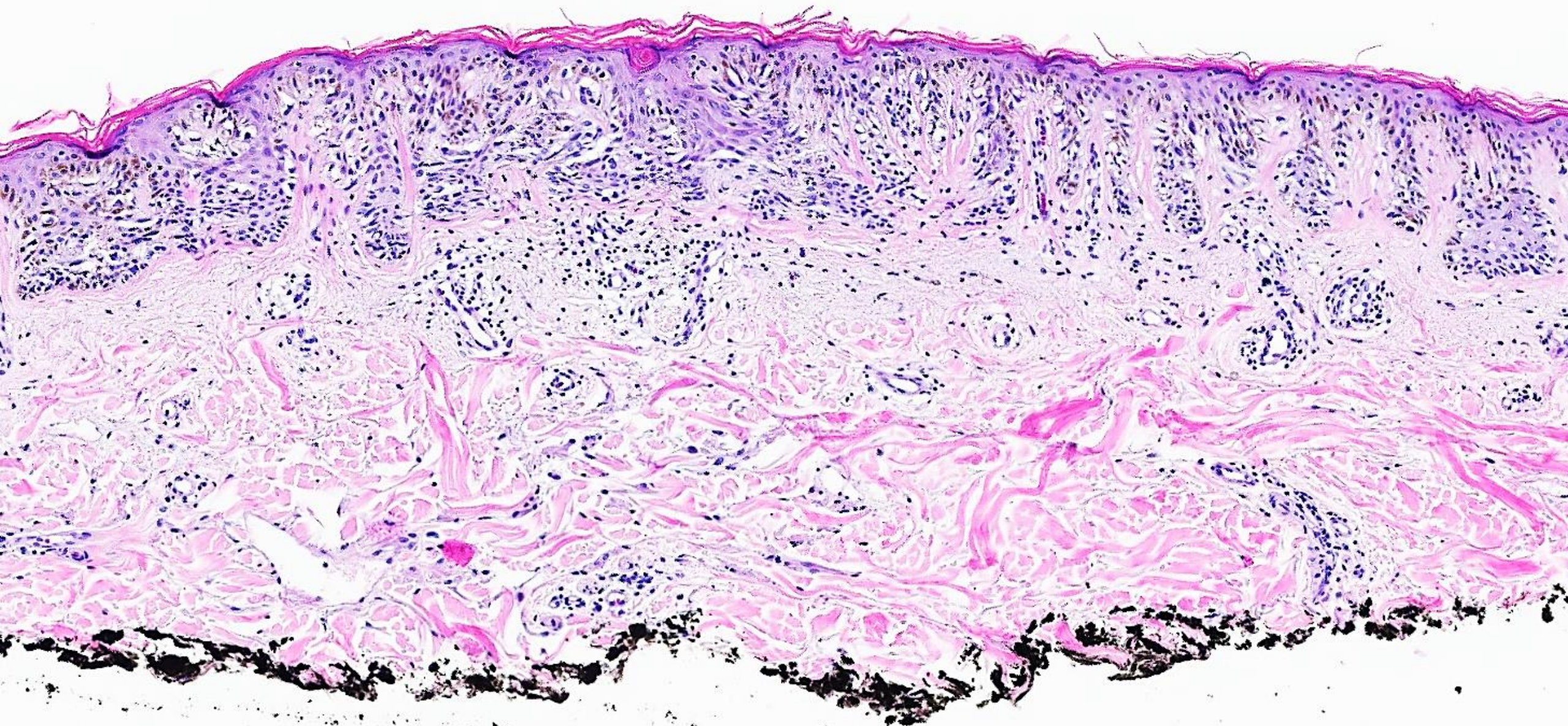
B. Compound nevus, Halo-type

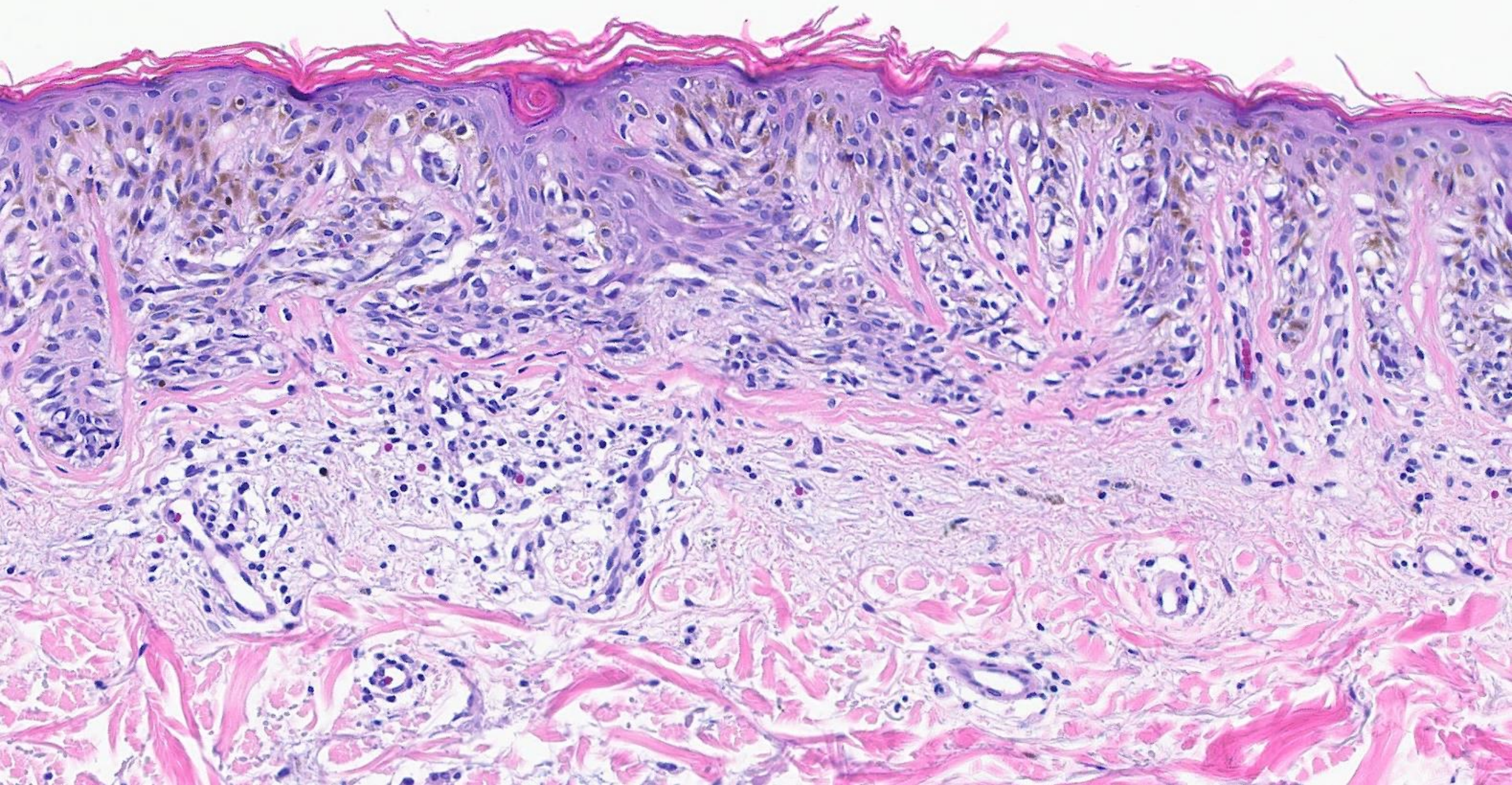
C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ







Case 154. 65M, 5-mm irregular brown macule on the mid spine. What is your diagnosis?

A. Compound dysplastic nevus

B. Compound nevus, Halo-type

C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ

Case 154. 65M, 5-mm irregular brown macule on the mid spine. What is your diagnosis?

A. Compound dysplastic nevus

B. Compound nevus, Halo-type

C. Combined compound and blue nevus

D. Melanoma, epidermotropic metastasis

E. Melanoma, invasive and in situ

Summary: Dysplastic nevus

Architectural Disorder (The Pattern)

Compound or Junctional Pattern: The nevus can be junctional (nests only at the dermo-epidermal junction) or compound (nests in both the junction and the dermis).

"Shouldering" or "Bridging": Junctional nests often extend beyond the dermal component ("shouldering"). Neighboring nests may fuse together horizontally ("bridging").

Asymmetry & Poor Circumscription: The lesion is often asymmetrical and may not have a sharp, well-defined border.

Lamellar Fibroplasia: Concentric, layered bands of pink collagen surrounding the junctional nests, like an "onion skin." This is a very characteristic feature.

Angioid Fibroplasia: Elongated, eosinophilic collagen bundles running vertically between rete ridges.

Lymphocytic Infiltrate: A superficial, patchy ("lichenoid") lymphocytic infiltrate is often present in the dermis beneath the lesion.

2. Cytologic Atypia (The Cell Appearance)

The atypia is graded as mild, moderate, or severe.

Nuclear Changes:

Nuclei are **enlarged** and **hyperchromatic** (darker staining) compared to a conventional nevus cell.

The nuclear membrane may have slight irregularities.

Nucleoli are usually inconspicuous or small.

Cellular Changes:

The melanocytes are typically **epithelioid**, **spindled**, or a mixture of both.

There is some variation in nuclear size and shape (**pleomorphism**), but it is not as severe or random as in melanoma.

Pagetoid Spread:

If present, it is **focal, sparse, and confined to the center** of the lesion. This is a key distinction from melanoma, where pagetoid spread is widespread and random.

3. Dermal Component

Maturation is PRESENT: The dermal component of a dysplastic nevus **shows maturation**. The nevus cells in the deep dermis become smaller, more neurotized, and lose their atypia. This is a critical feature confirming its benign nature.

No Dermal Mitoses: Mitotic figures are absent or extremely rare in the dermal component.

Diagnostic Key Takeaway: Dysplastic nevus

- A dysplastic nevus shows worrisome features (architectural disorder, cytologic atypia), but they are **restrained** by key benign characteristics:
- **Focal, central pagetoid spread** (not widespread).
- **Presence of maturation** in the deep dermis.
- **Absence of dermal mitoses.**

