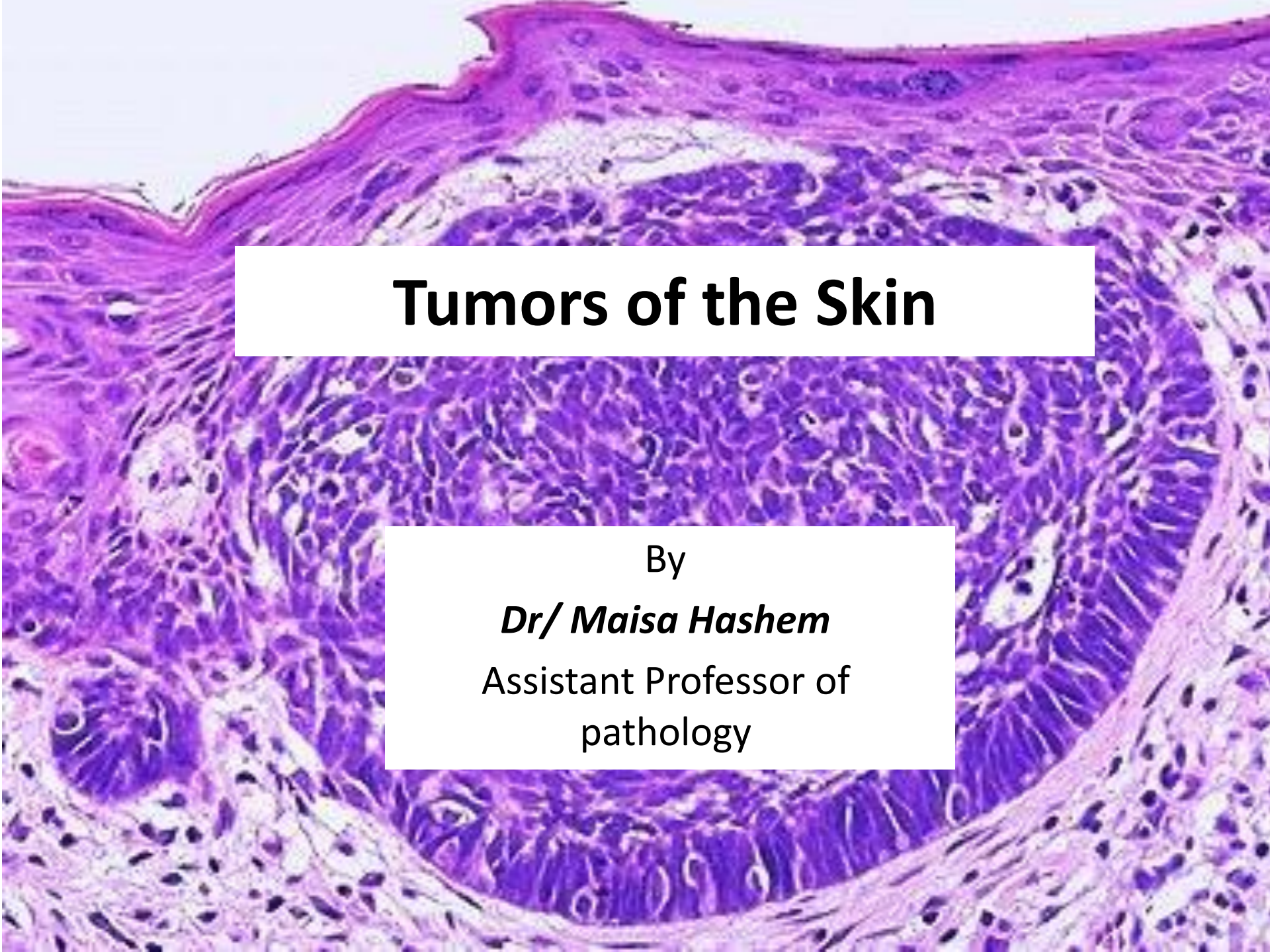

Tumors of the Skin

By

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Aims of this lecture:

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- Discuss squamous cell carcinoma.
- Discuss basal cell carcinoma.
- Describe pathological features of melanocytic nevi.
- Describe pathological features of melanoma.

Non melanocytic skin tumors

- Basal cell carcinoma.
- Squamous cell carcinoma.

Basal cell carcinoma (Rodent ulcer):

- Basal cell carcinoma is a locally malignant cutaneous neoplasm.
- It is a slowly growing tumor that rarely metastasize.
- Basal cell carcinoma occurs in sun-exposed areas of the skin.
- Most cases of basal cell carcinoma occur in the face; basal cell carcinoma occurs above a virtual line drawn between lobule of the ear to angle of the mouth (on eye lids, forehead and scalp).

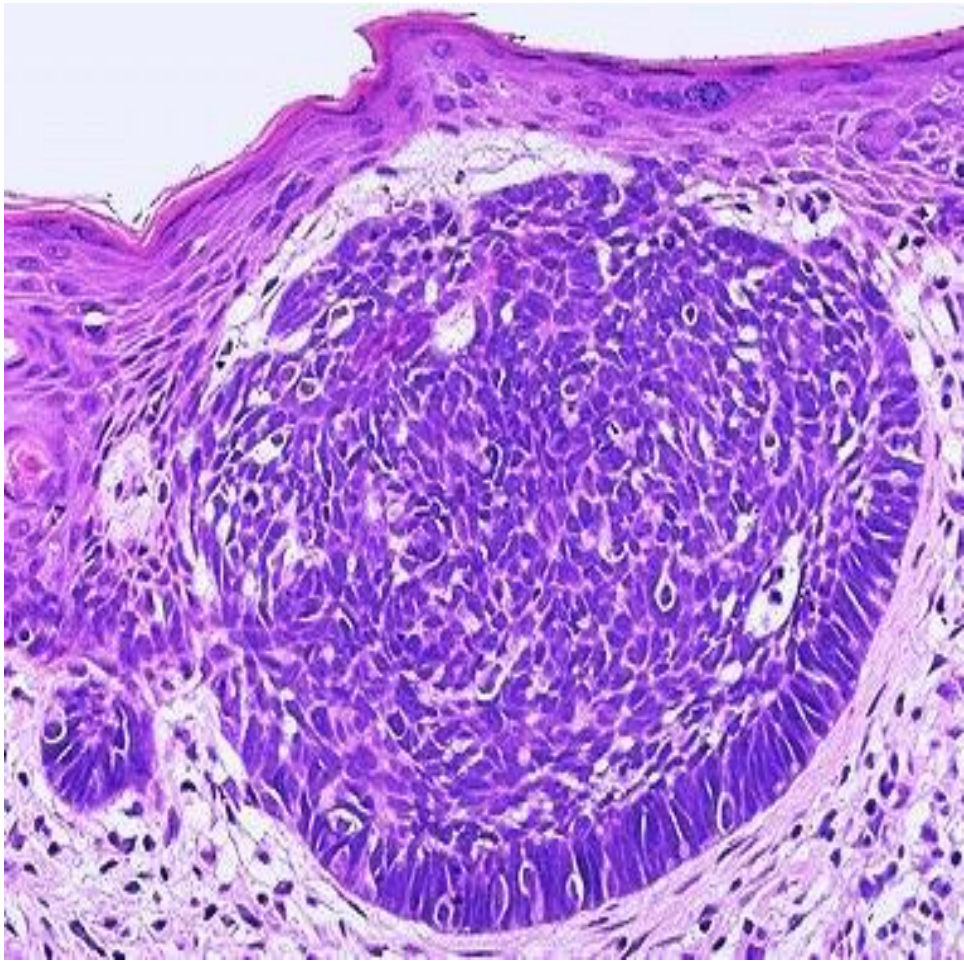
Gross picture

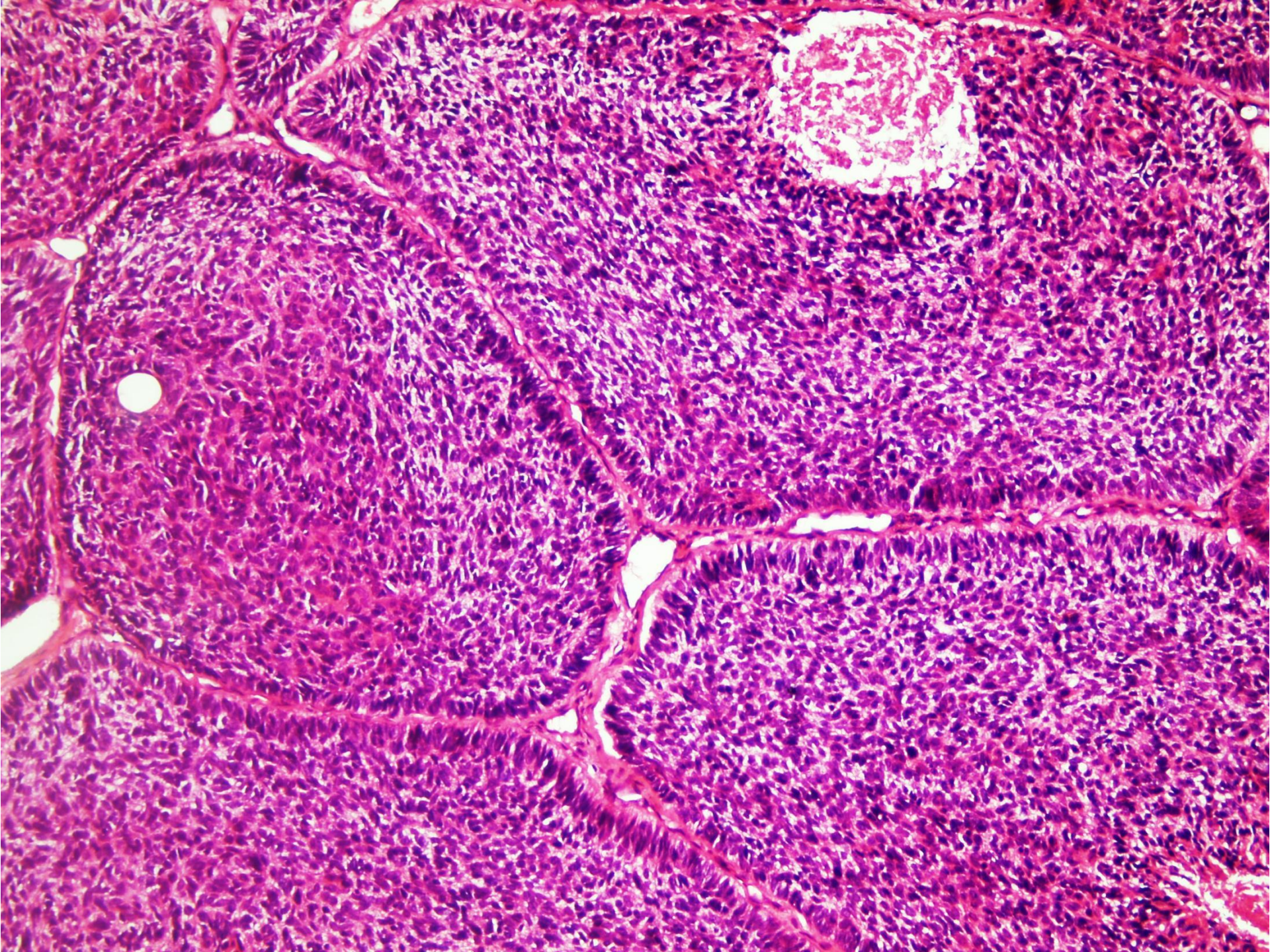
Basal cell carcinoma usually presents as papules containing prominent dilated subepidermal blood vessels. Some tumors contain melanin and resemble melanocytic nevi or melanomas. Advanced lesions may ulcerate or locally invade underlying bones and/ or fascial sinuses.

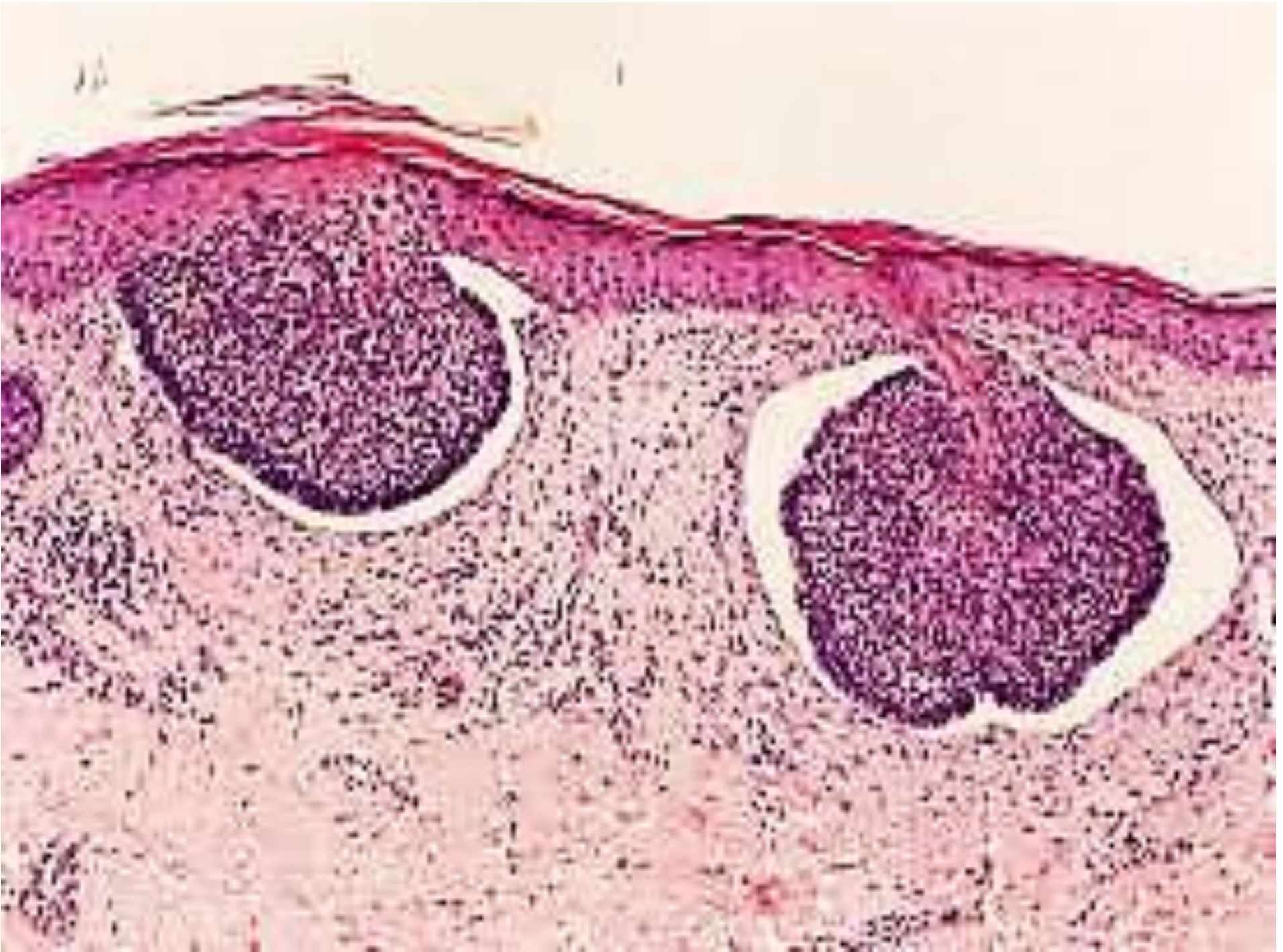
The ulcer has rolled, beaded edges, fixed indurated base and necrotic floor

Microscopic picture

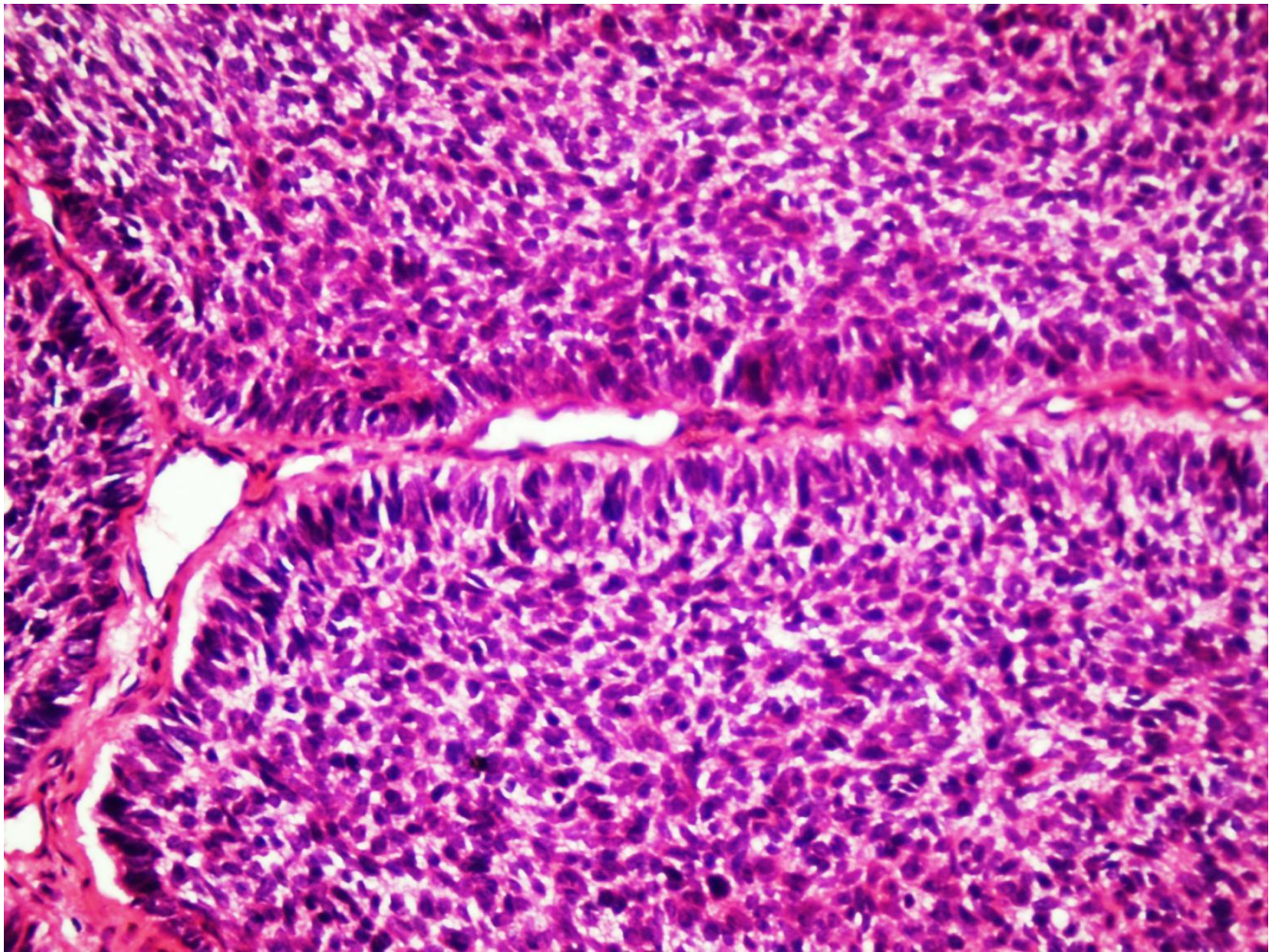
- The tumor resembles those in the normal basal cell layer of the epidermis.
- They arise from the epidermis or follicular epithelium.
- Two patterns are seen; multifocal pattern in which the tumor cells extends over square centimeters on skin surface. The other pattern is the nodular pattern in which the tumor cells grow deeply downwards into the dermis.







The neoplastic cells are basophilic cells with hyperchromatic nuclei embedded in mucoid matrix and surrounded by many lymphocytes and fibroblasts. the cells at the periphery of the tumor nests tend to arranged radially, **in a palisading pattern.** The stroma **retracts away** from the tumor nests.



Spread:

- Basal cell carcinoma is **a locally malignant tumor.** So, it spreads only locally by infiltration; destroying the surrounding structures. There is no distant metastasis.
- The tumor may change to squamous cell carcinoma.

Squamous cell carcinoma

- It is a malignant tumor of stratified squamous epithelium.
- Squamous cell carcinoma is the second most common tumor arising on sun exposed sites in older people, exceeded only by basal cell carcinoma.

Sites:

(l) Surfaces covered by stratified squamous epithelium as the skin, lip, tongue, oral cavity, pharynx, larynx, oesophagus, cervix uteri, vagina and anal canal. The tumor may arise de novo or on top of squamous cell papilloma.

(2) Surfaces covered by transitional and columnar epithelium after squamous metaplasia e.g. in the urinary bladder, bronchi and gall bladder.

Predisposing Factors for squamous cell carcinoma

(l) Exposure to bright sunlight.

(2) Chronic irritation to skin or mucous membranes.

(3) Occupational exposure to carcinogenic substances.

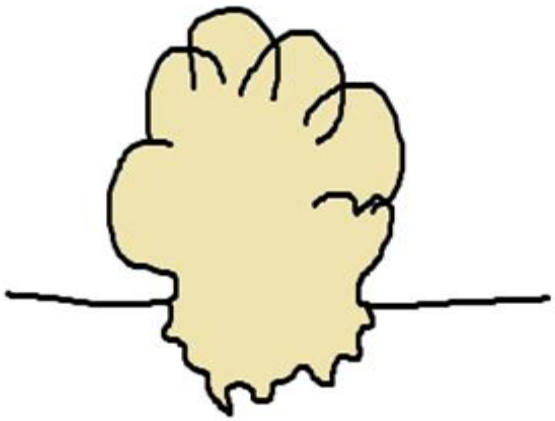
(4) Exposure to radiation.

(5) Leukoplakia (when the non-keratinized stratified squamous epithelium of oral cavity, tongue or cervix uteri acquire keratin layer).

Gross Picture

The tumor starts as a hard nodule in the epithelium which grows and infiltrates the surrounding tissue and takes one of the following shapes:

- **Polypoid or fungating carcinoma:** The proliferating malignant cells push their way through the surface and form an irregular polypoid mass with a wide base. The mass may show surface ulceration, necrosis and hemorrhage.



- **Ulcerative carcinoma:** The commonest type. The malignant cells break through the surface epithelium forming a malignant ulcer. The ulcer has a raised everted edge, necrotic floor and fixed indurated base.

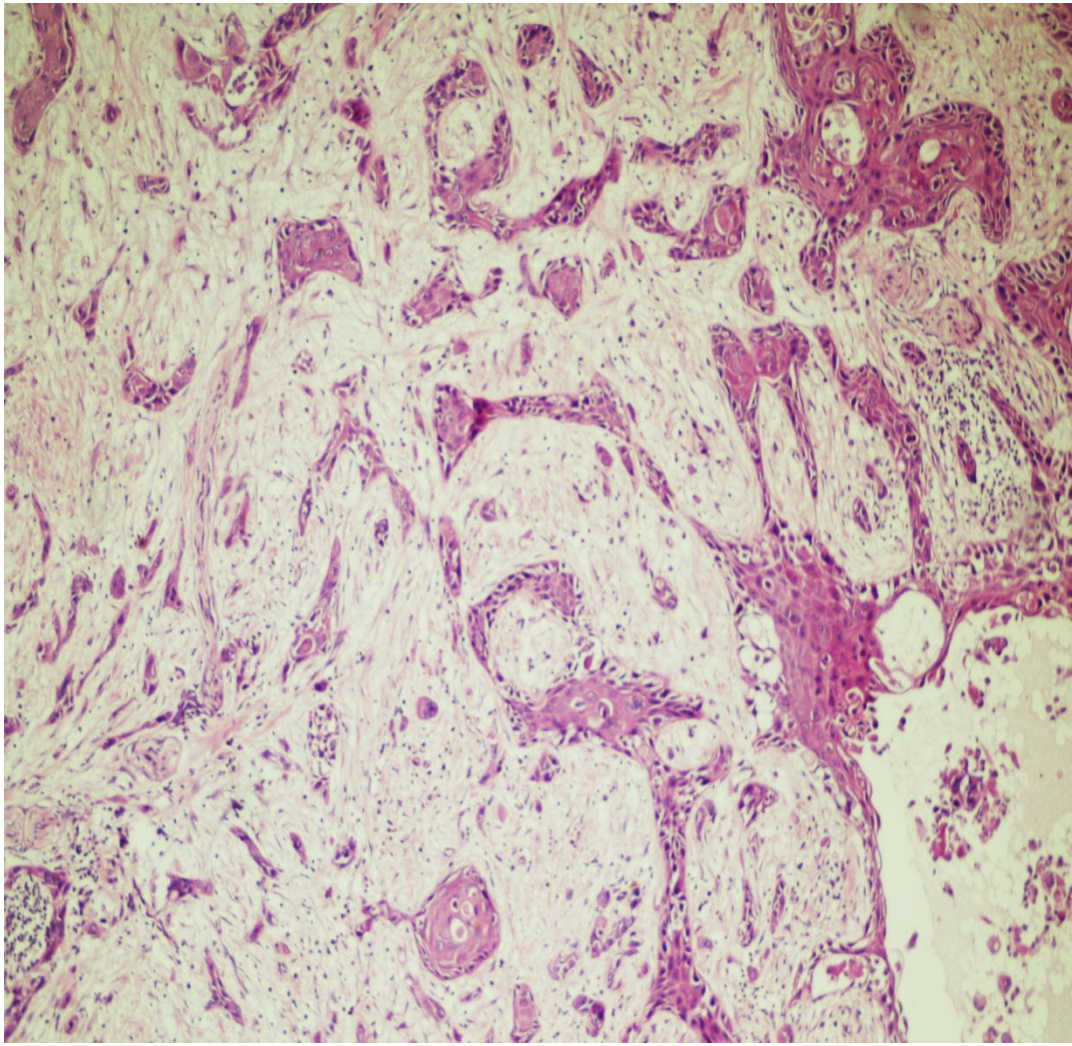
Malignant Ulcer

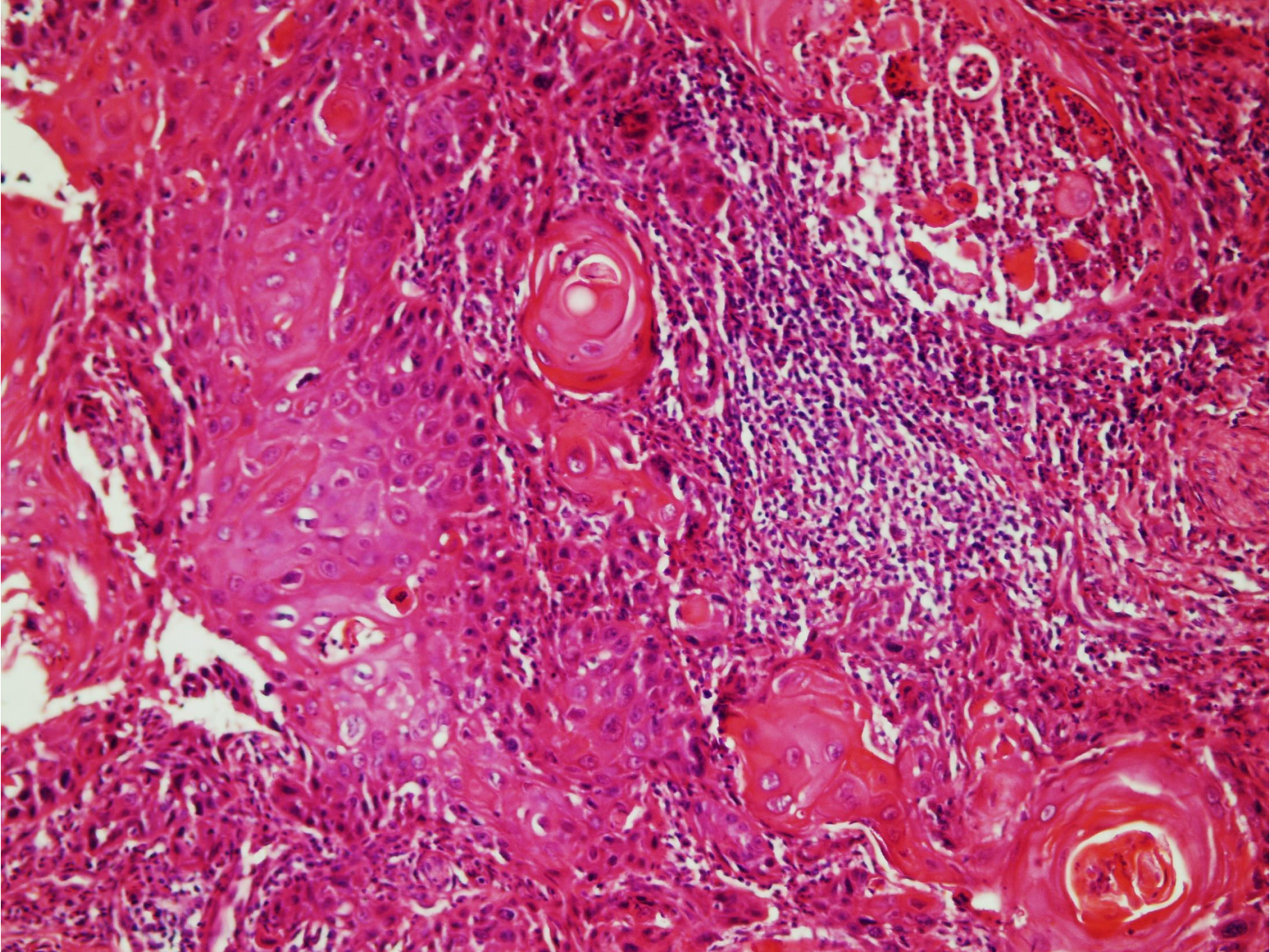
- **Infiltrating carcinoma:** The malignant tissue infiltrates more to the deeper structures with little surface ulceration.

Infiltrative

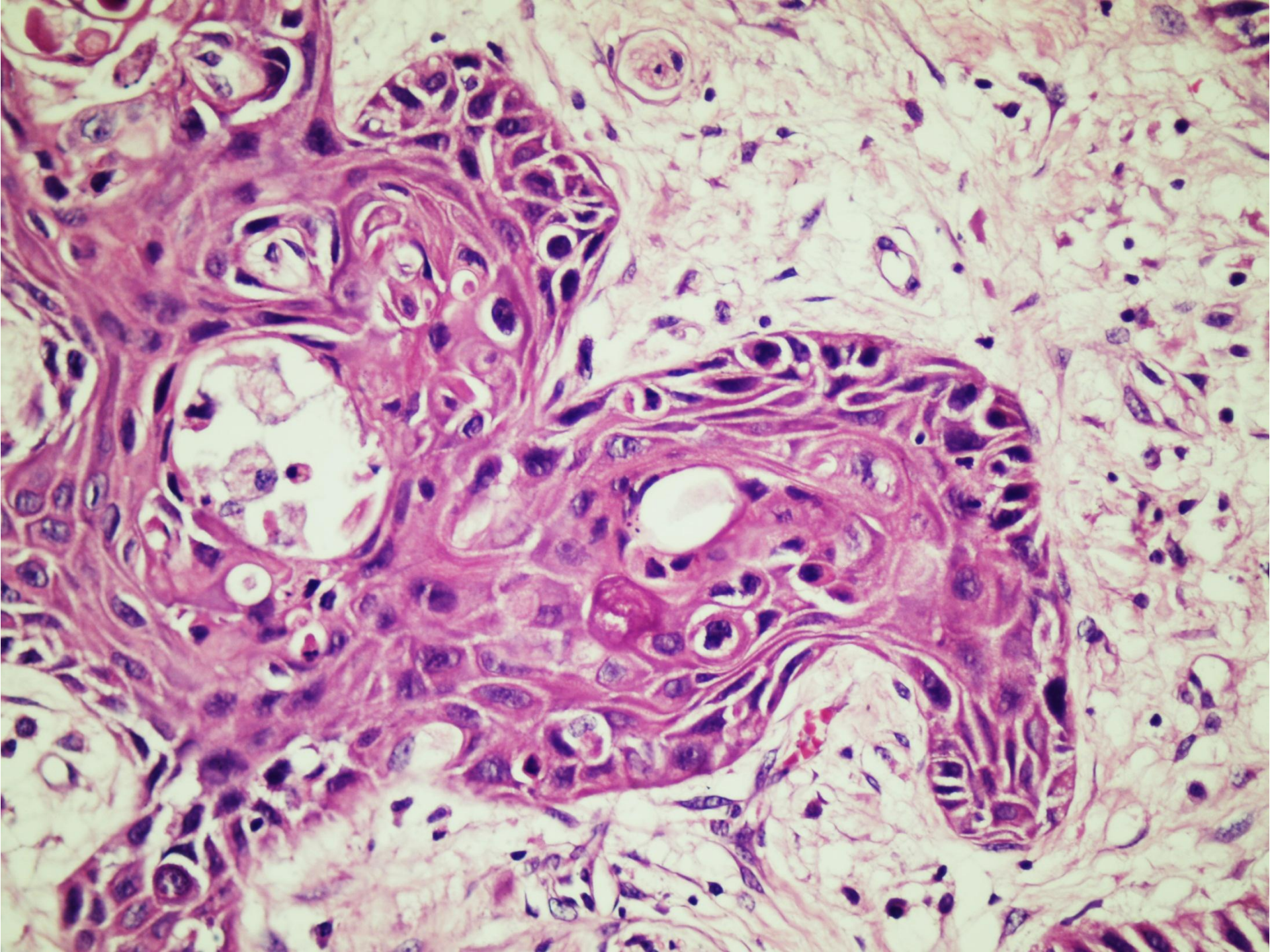
Microscopic Picture of Squamous cell carcinoma

- Carcinoma cells are arranged in groups, masses or columns separated by fibrous stroma. Within each group; the individual cells are in contact with each other with no intercellular substances in between.
- The cells shows all malignant criteria; pleomorphism, hyperchromatism, abnormal mitosis, increased N/C ratio).
- The blood vessels are confined to the stroma. They are less numerous than in sarcoma.





- In well differentiated tumors each mass shows the same layers as the normal stratified squamous epithelium with keratin inside and basal cells outside. So the outer cells in the masses are rounded with hyperchromatic nuclei (basal cells).
- Inner to this polyhydral cells with intercellular bridges and pale nuclei form the main bulk of the masses (prickle cells). Next the cells are flattened with granular cytoplasm and small darkly stained nuclei (granular cells). The centre of the masses shows red stained laminated keratin. These cell masses with central keratin are called **cell nests or epithelial pearls.**



Broder's classification is used in squamous cell carcinoma and depends upon the number of cell groups with cell nest appearance:

Grade I: 75-100% keratinized groups.

Grade II: 50-75% keratinized groups.

Grade III: 25-50% keratinized groups.

Grade IV: 0-25% keratinized groups.

Spread: Squamous cell carcinoma has a relatively slow rate of growth and spreads by local infiltration and by lymphatics to the regional lymph nodes. Blood spread is delayed.

Melanocytic Skin Tumors
I- Melanocytic Nevus

- Nevus is a Benign tumor of the melanocytes.
- Nevi are present in nearly every individual and usually date since birth, so many consider nevi as hamartomatous malformations rather than a true neoplasm.

Gross Picture:

- ✓ Nevi are variable in size but usually small.
- ✓ The color ranges from light brown to black.
- ✓ The surface is either flat, slightly elevated or papillary.
- ✓ Naevi are usually hairless, but sometimes fine hairs are present.

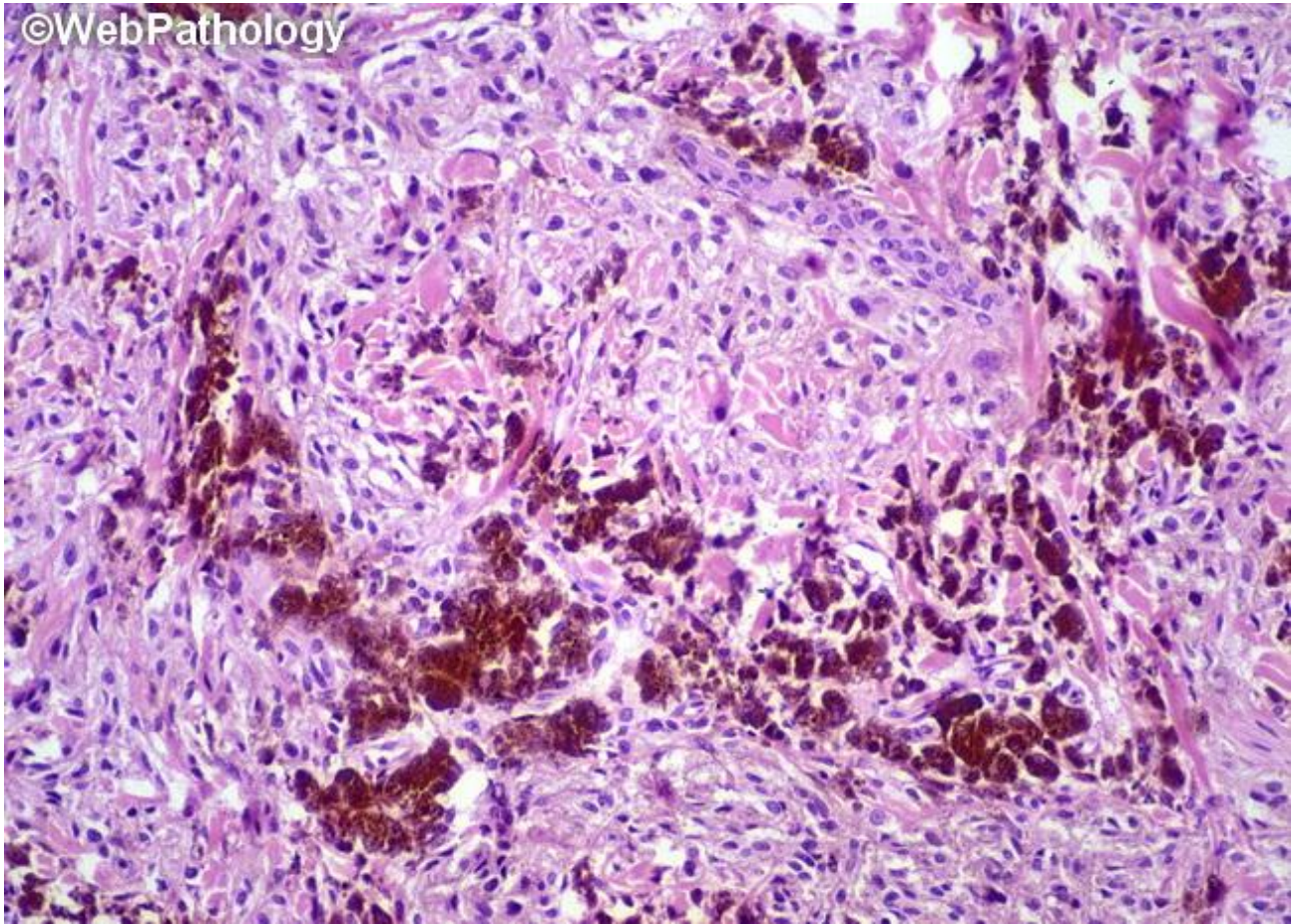
Microscopic Picture:

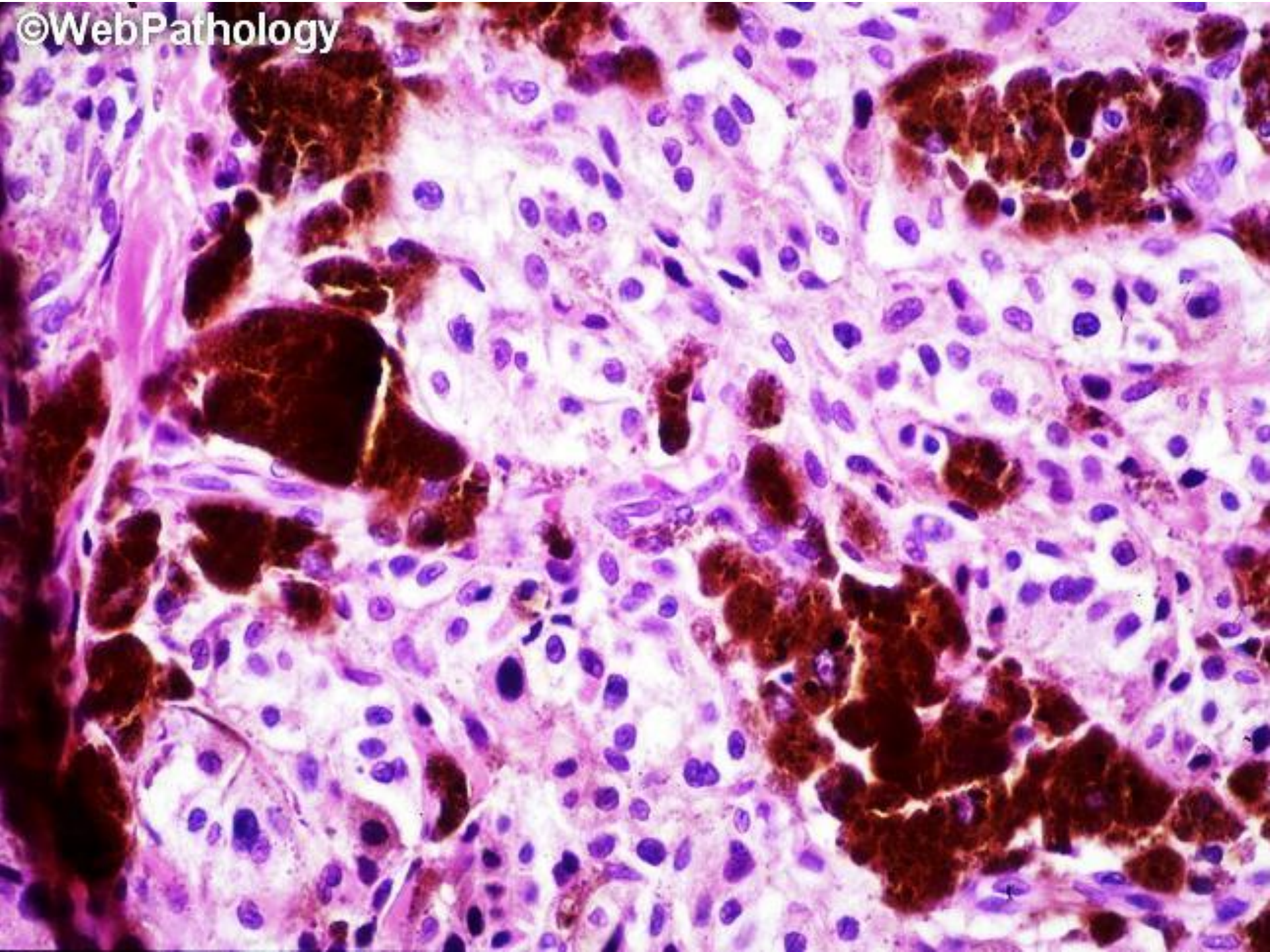
The nevus cells are cubical, round, or oval and collected in small groups.

The cells show indistinct cell borders and pale cytoplasm containing dark brown melanin pigments.

The nucleus is large and vesicular.

The position of the nevus cells vary according to the type of the nevus.

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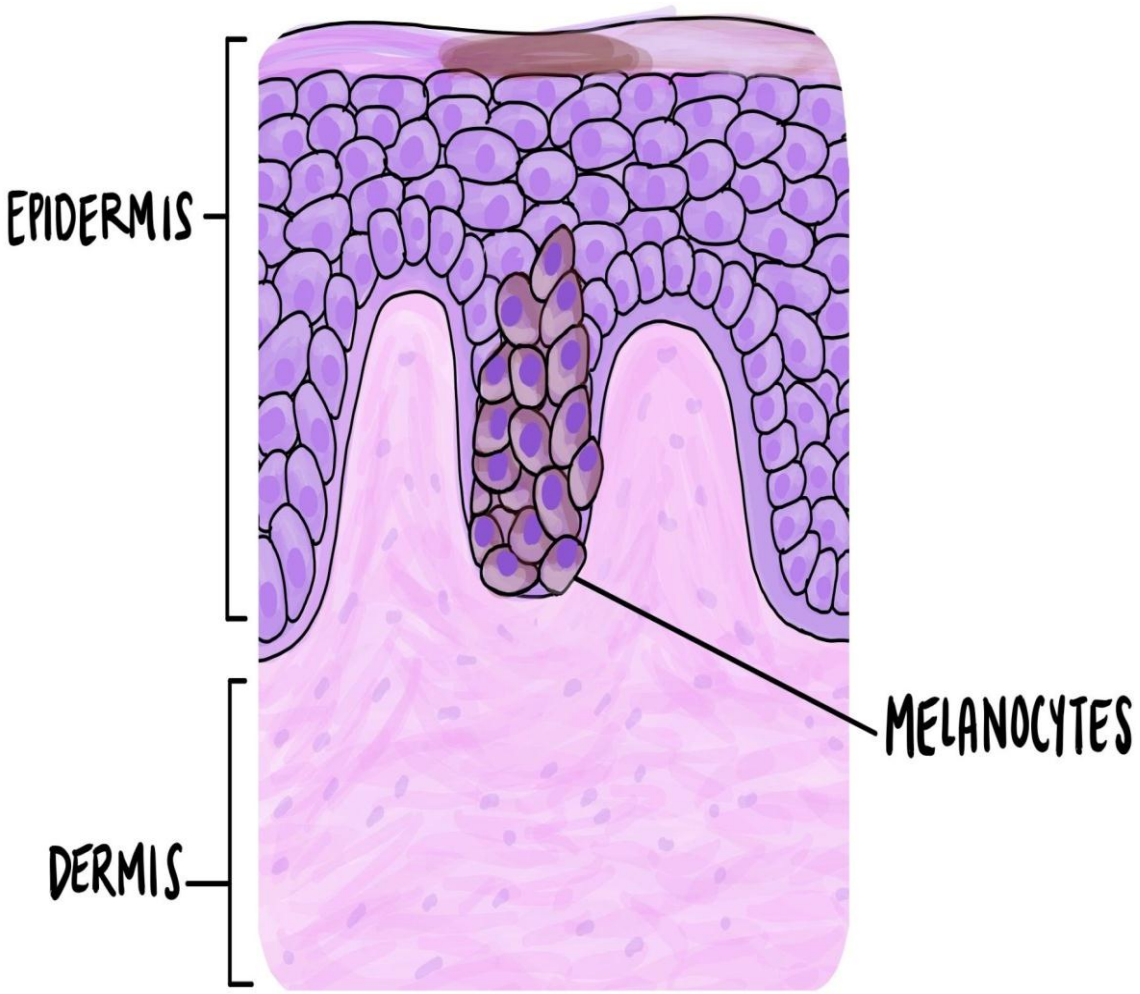
Types of melanocytic nevi

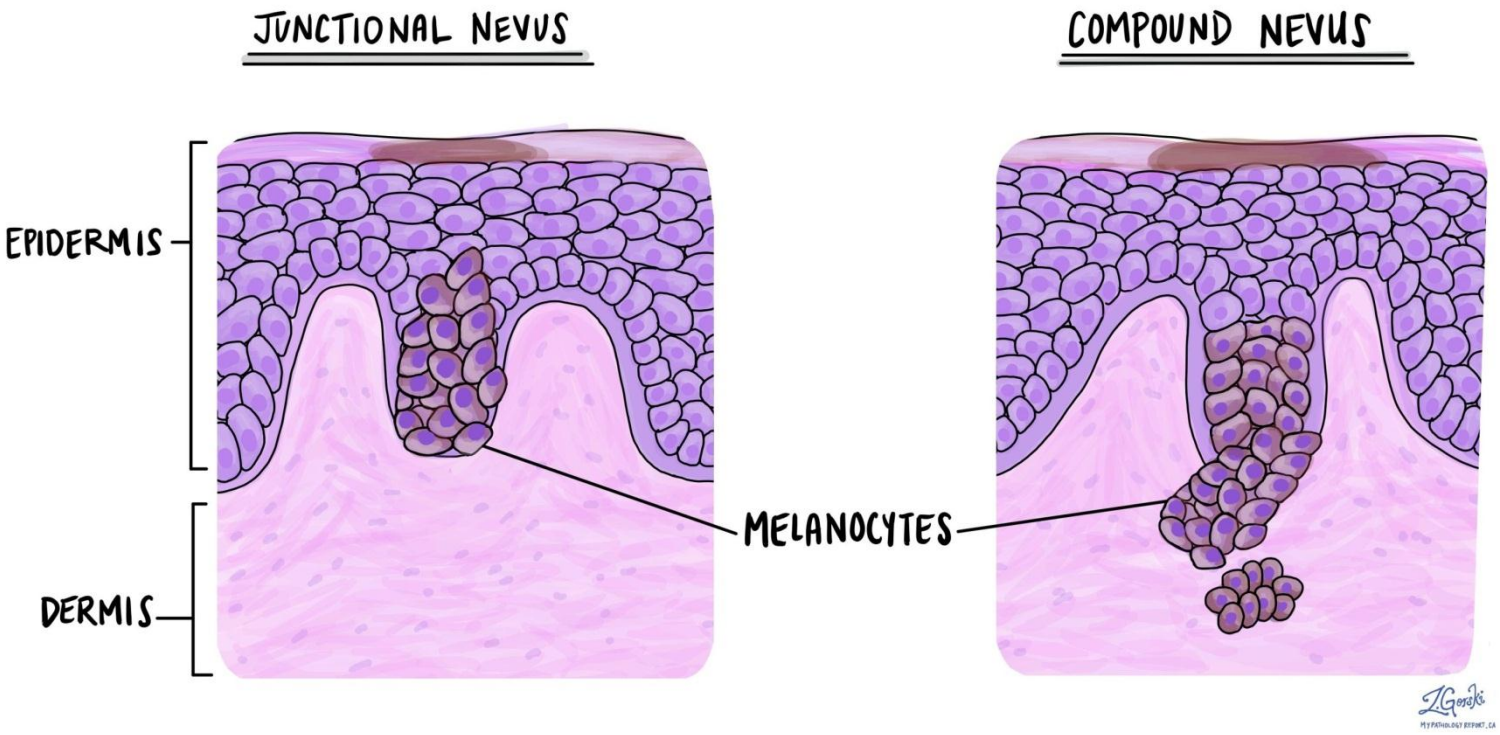
(1) Junctional nevus: The nevus cells are found at the junction of the epidermis and dermis. This type is common in children where it is strictly benign even if it shows microscopic features of activity. Junctional nevi in adults are found on the scrotum, sole of the foot and palm of the hand.

JUNCTIONAL NEVUS



(2) Intradermal nevus: Clusters of nevus cells drop from the epidermis and collect in the dermis. The epidermal covering is either hyperkeratotic or atrophic. This type occurs in adults and its chance for malignant transformation is extremely rare.

(3) Combined nevus: A combination of the junctional and intradermal nevus commonly found in children.



(4) Blue nevus: A special type of melanotic nevus which is intradermal from the start, and blue in colour because its melanocytes are deeply situated in the skin. The nevus cells are spindle shaped and scattered in the deep layers of the dermis. The covering epidermis is normal. Malignant change in blue nevus is very rare.

Melanocytic Skin Tumors
II- Melanoma

- Melanoma is a malignant tumor derived from melanocytes and may arise de novo or on top of pre-existing junctional naevus in adult commonly in sites of continuous irritation as the nail of big toe, palm, sole, scrotum, head and neck.
- Melanoma may also affect the pigmented cells of the eye specially the choroid and the juxta-cutaneous mucous membranes of the oral cavity, rectum and vagina.

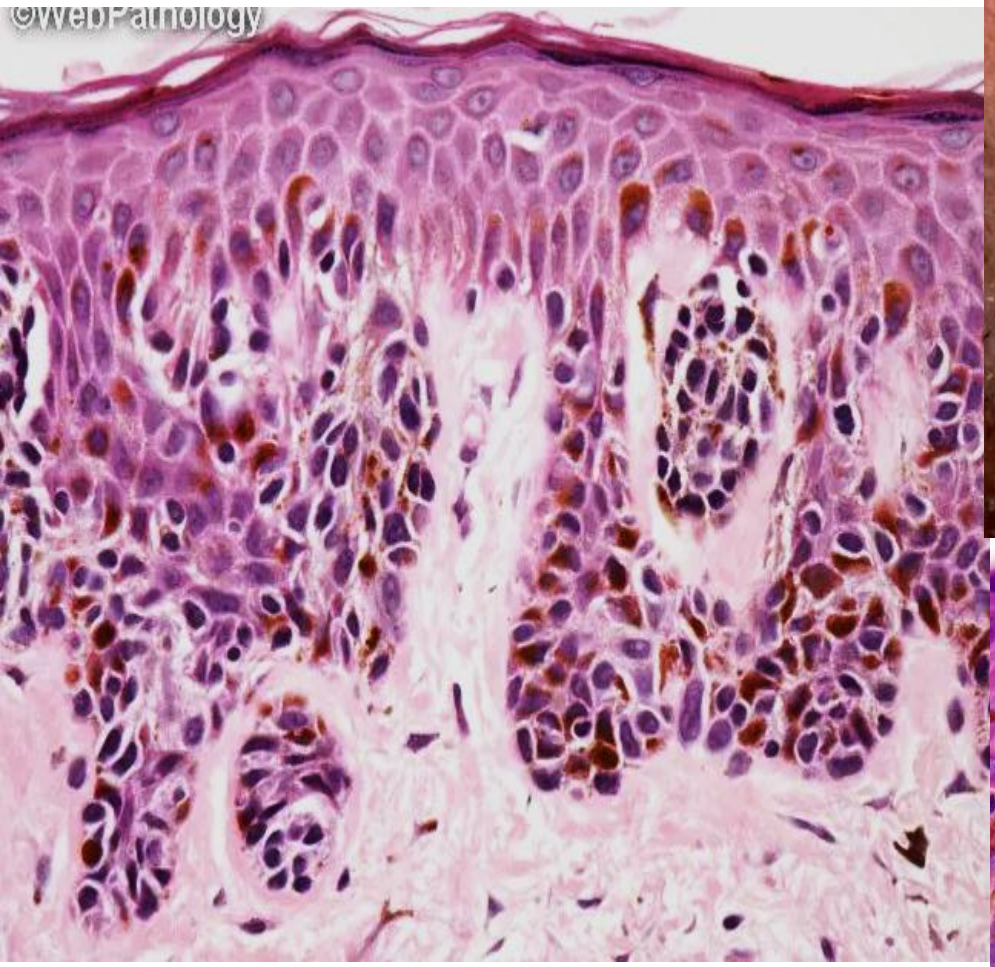
- Malignant change in a nevus should be suspected if it shows increase in size, induration, change in color whether darker or lighter, ulceration, bleeding and enlargement of the regional lymph nodes.

Clinicopathological types of melanoma

1) Lentigo maligna (Hutchinson Freckle).
2) Superficial spreading melanoma.
3) Nodular melanoma.
4) Acral lentiginous melanoma.

Lentigo maligna

- It is a flat, slowly growing, tan to black lesion occurs elderly persons.
- It is characterized by atypical melanocytic cells arranged individually or in nests and confined to basal layer of the epidermis.
- When the neoplastic proliferation is confined to the basal epidermis without derman invasion, it is called lentigo maligna (melanoma in situ).
- When there is dermal invasion, the lesion is called lentigo maligna melanoma.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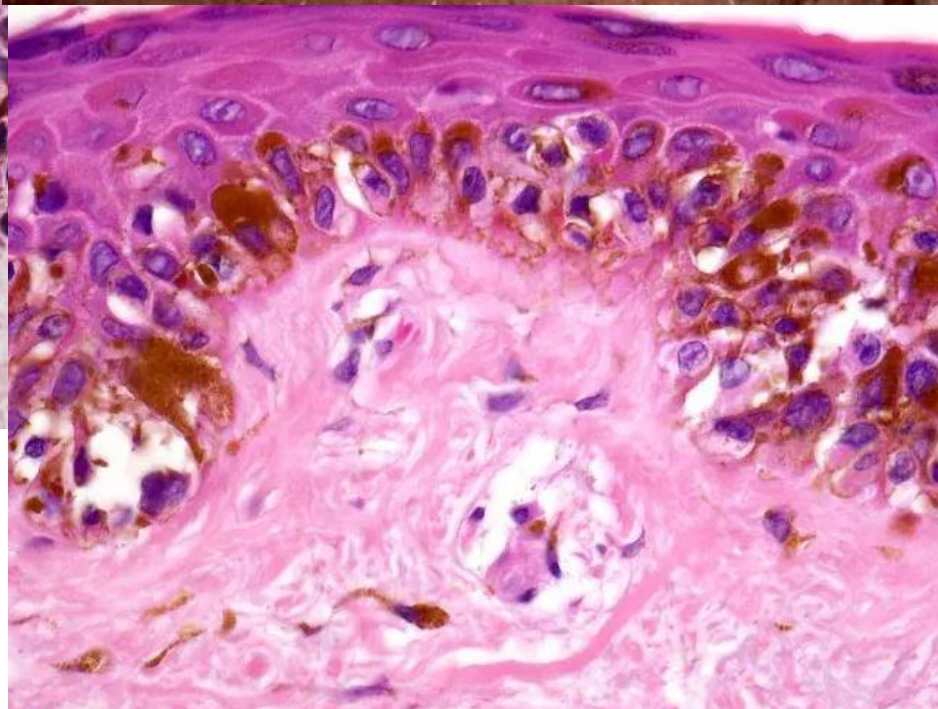


Superficial spreading melanoma

- It is the most frequent type of melanoma.
- Its color is varied (mixture of tan, blue, brown, white, pink and black).
- Surface is slightly elevated.
- Borders are irregular and notched.
- White and pink colors correspond to areas of spontaneous regression.
- Deep invasion is usually associated with appearance of elevated nodules on the surface.

Nodular melanoma

Acral lentiginous melanoma

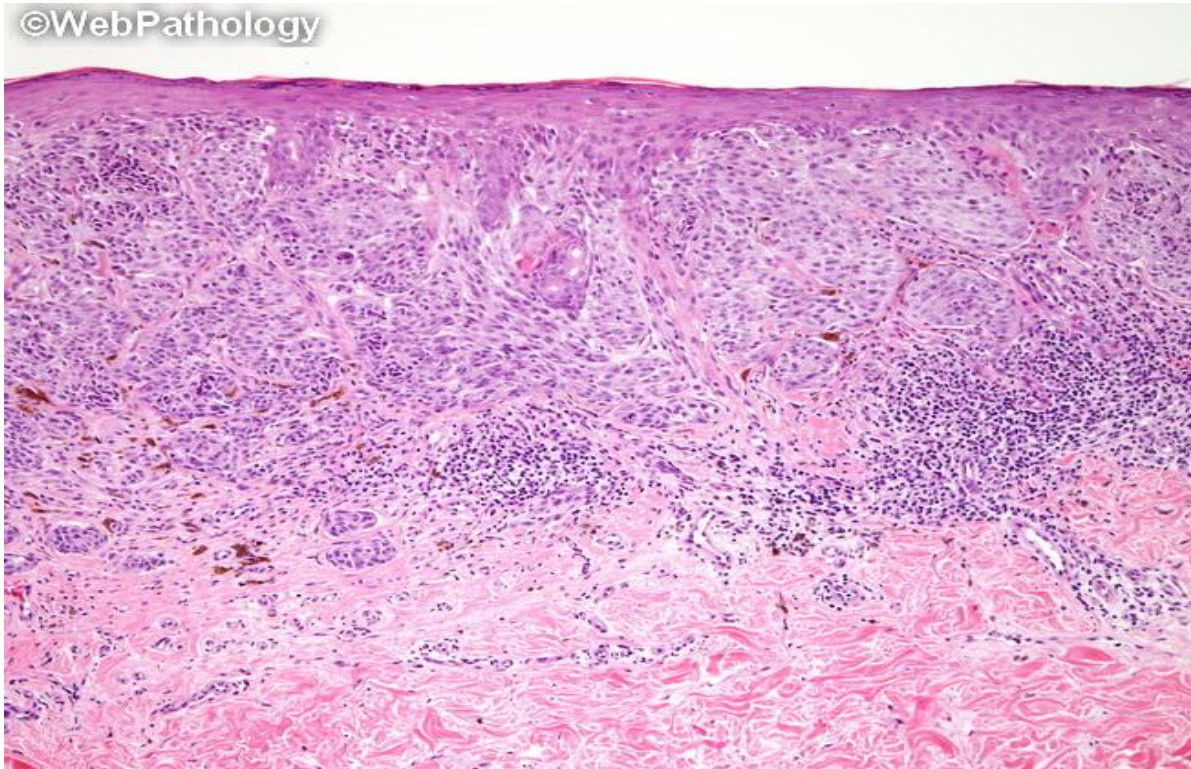
- This type is more common in black and Asian people.
- It occurs in palms, soles, subungual areas, mucocutaneous junction of oral and nasal cavities and anus.

Microscopic features:

Epithelioid/ spindle-shaped cells that showed criteria of malignancy (pleomorphism, hyperchromatism, increased nucleo-cytoplasmic ratio). Dusty pigmented cytoplasm

Stromal changes

- Variable inflammatory infiltrate.
- Dermal fibrosis
- Irregular distribution of pigment.

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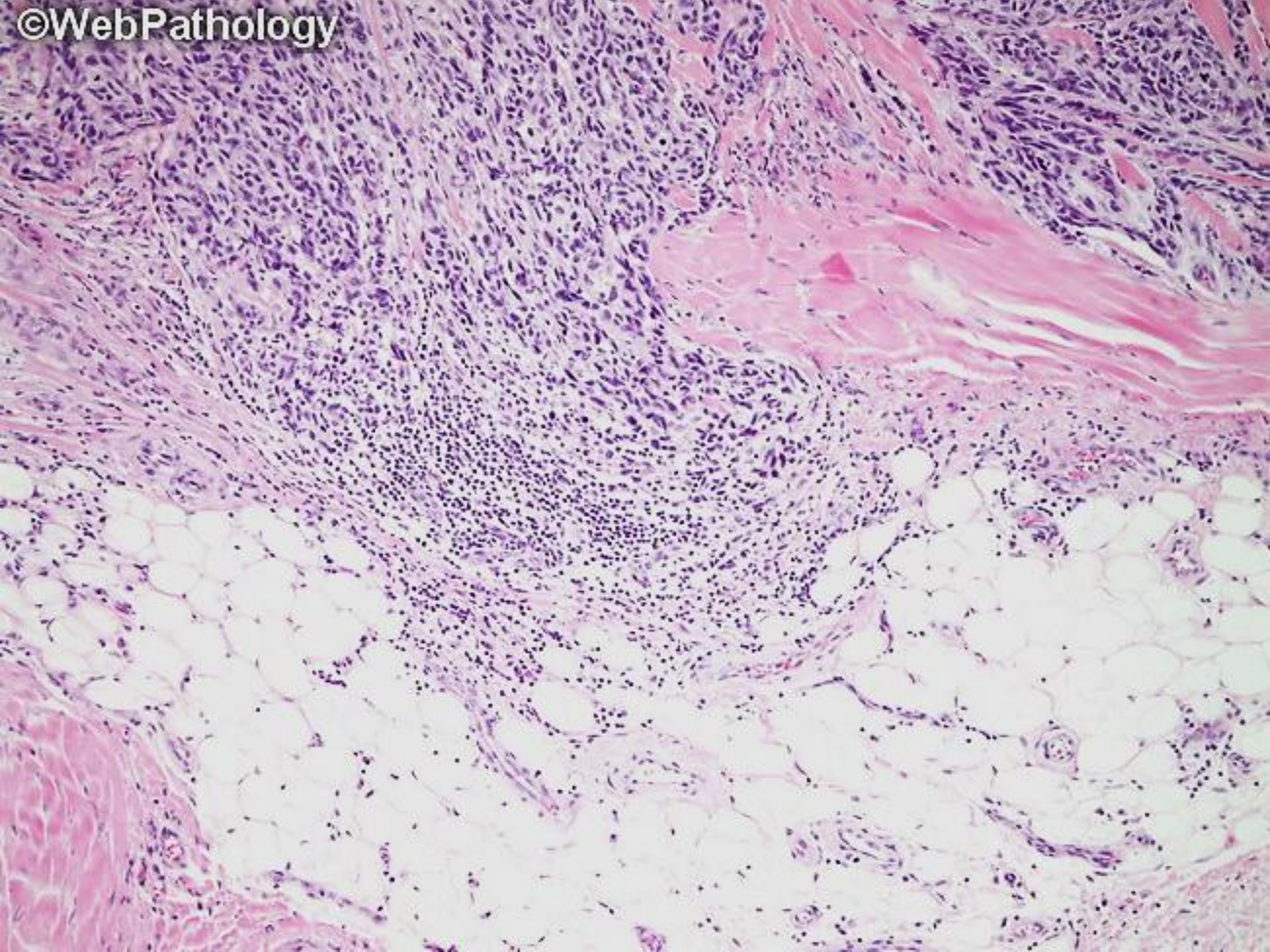
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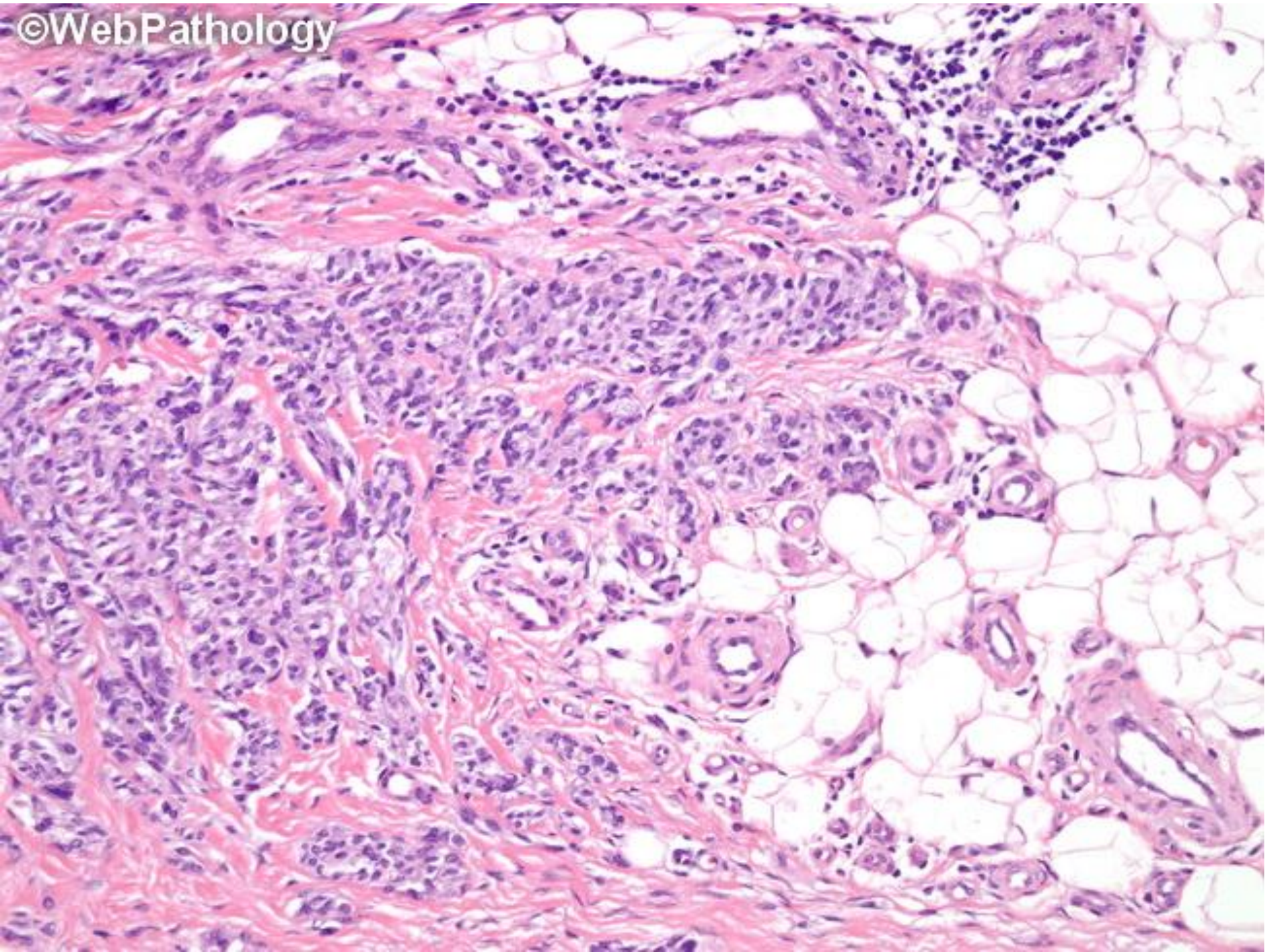
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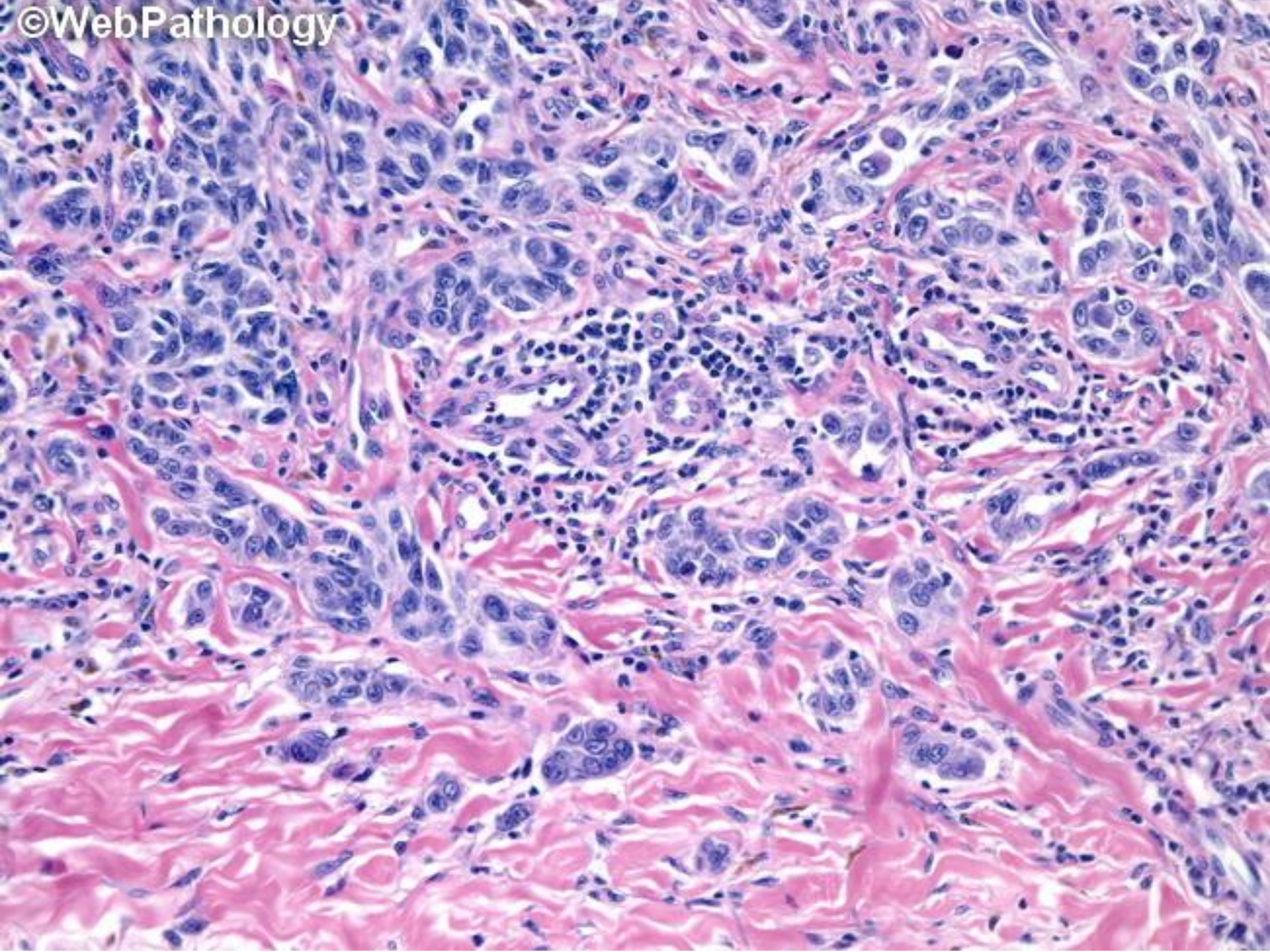
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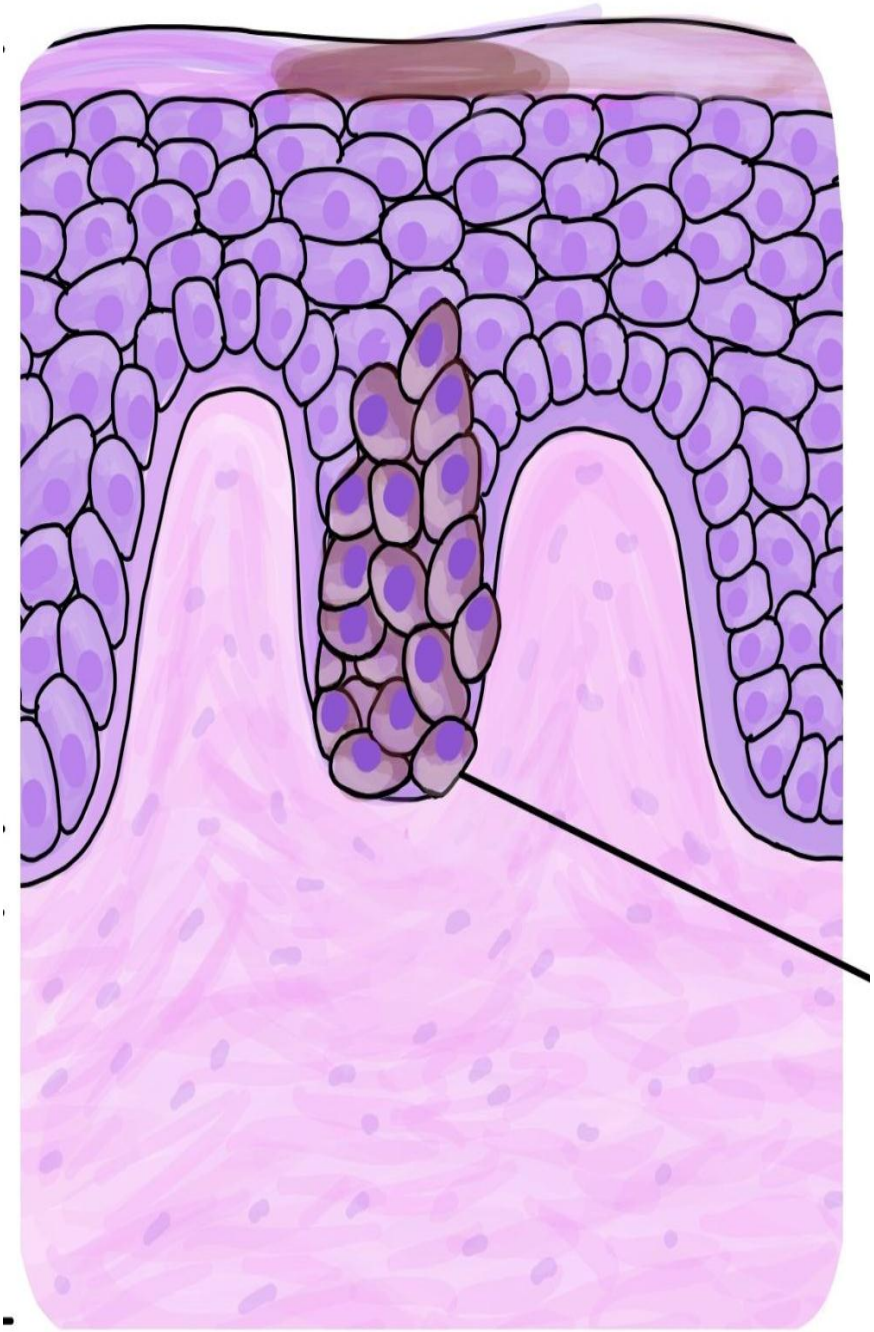
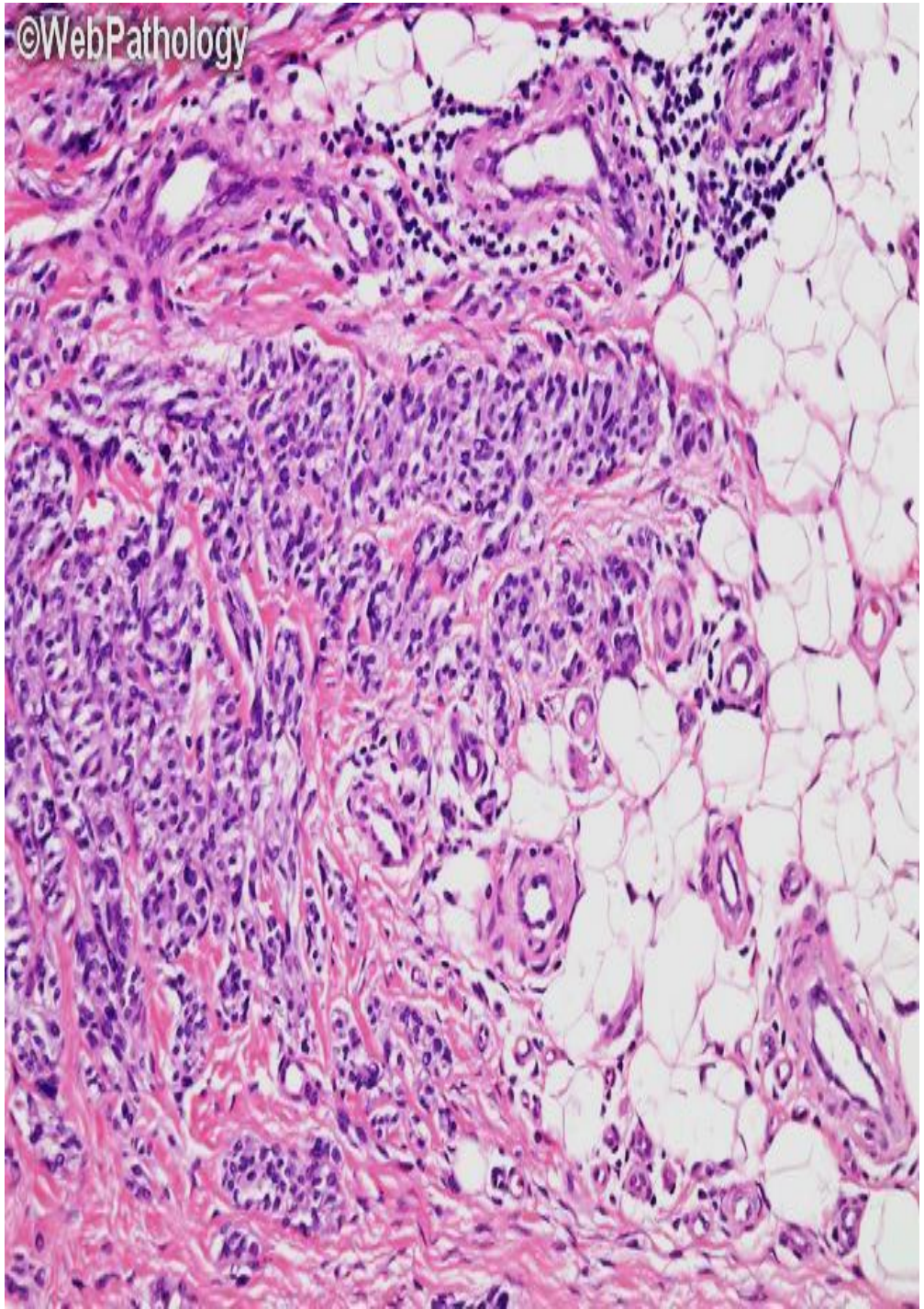
Clark's classification of melanoma

Clark level of invasion is based on the level of tumor invasion relative to the layers of the skin. Tumors are classified into five levels:

- ✓ **Level I** - All tumor cells are confined to the epidermis, above the basement membrane (in situ)
- ✓ **Level II** - Tumor invades into the papillary dermis, past basement membrane
- ✓ **Level III** - Tumor fills the papillary dermis and extends to the interface between the papillary and reticular dermis
- ✓ **Level IV** - Tumor invades the reticular dermis
- ✓ **Level V** - Tumor invasion of subcutaneous tissue

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Spread of melanoma

(**l) Direct infiltration.**

(2) Lymphatic spread to the regional lymph nodes.

(3) Blood spread occurs lately to the lung, liver, spleen, brain and skin. The blood may contain a large amount of melanin (melanaemia). Melanin in the blood may be excreted in urine (melanuria).

Thank You