International Academy of Pathology
Malaysian Division

FINAL REPORT

QUALITY ASSURANCE PROGRAM
DERMATOPATHOLOGY
2024

NOTES FROM THE COORDINATOR

1. For this 2024 cycle, a total of 12 institutions responded online.
2. IAP-MD QAP provides a platform via the evaluation reports to compare and identify diagnostic insufficiency based on the outcomes of submitted diagnoses and target diagnoses.
3. In the evaluation reports of each cycle, the target diagnosis for each case is provided, followed by a tabulated list of diagnoses submitted by participating laboratories, and followed by discussion and possible differential diagnoses on the case.
4. Evaluation of the performance of each laboratory is conducted by the participating laboratory by comparing its own submitted diagnoses with the diagnoses provided in the evaluation reports. Evaluation of performance shall be the responsibility of each participating laboratory.
5. The coordinators would like to acknowledge the contributions from Dr Sandhya Raj, Dr Saleena Awang, Dr Faridah Mohamad Taib, Dr Zuliatul Faizah Baharom, Dr Lee Bang Rom, Dr Ikmal Hisyam Bakrin, and Dr Aliya Murshida Azlan (Sullivan Nicolaides Pathology).

Prepared by,
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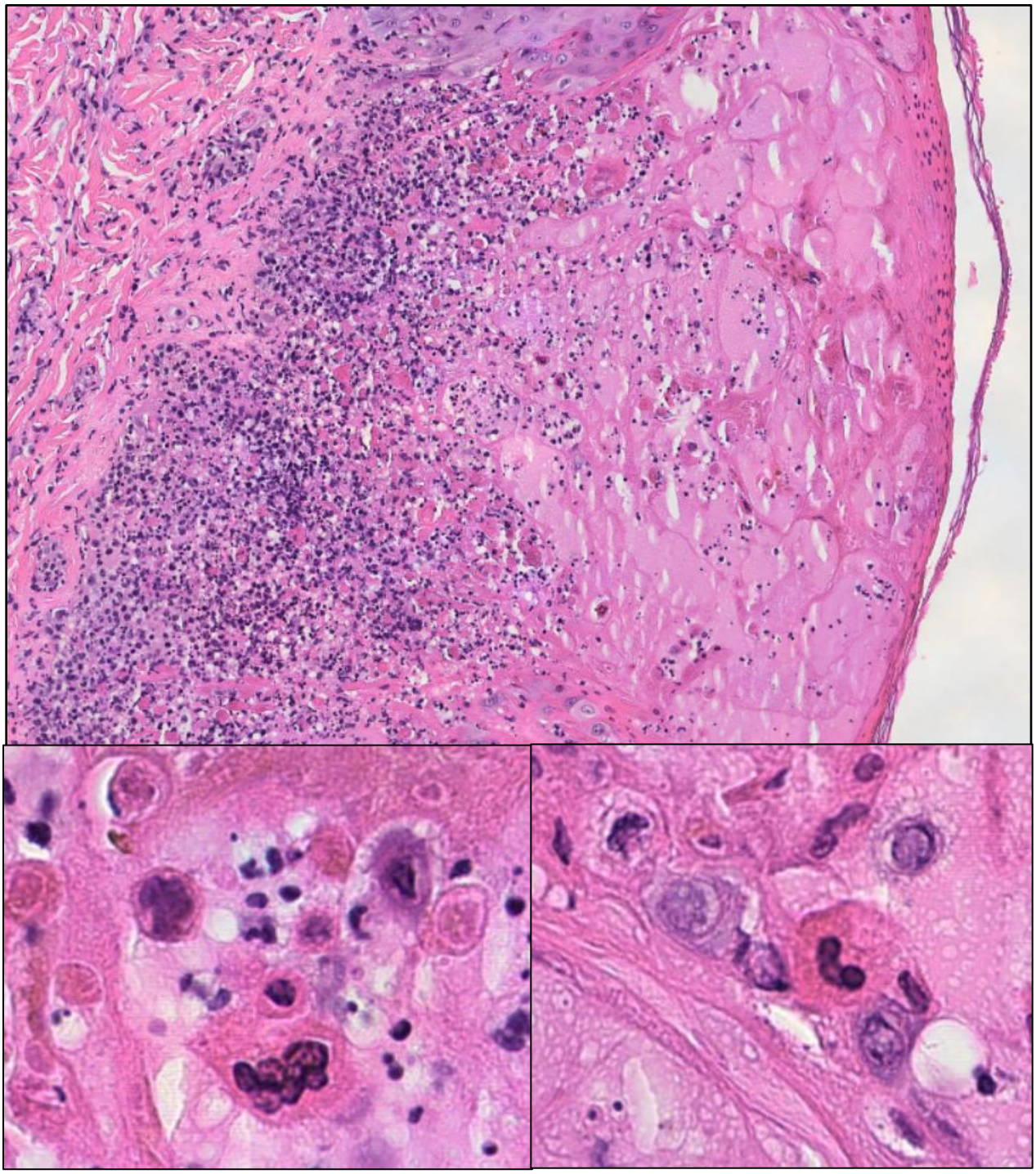
Coordinators for DERMPATH IAPMD QAP 2024

CASE 1

HISTORY: 5-year-old boy with erythematous papules over the right thigh, erupting into vesicles. Spread to the cheek, neck, trunk, back, and extremities. Associated with fever and residual cough.

TARGET DIAGNOSIS: <u>Cutaneous herpes</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Herpes virus infection	1	Concordant
Herpes virus dermatitis	1	Concordant
Herpes virus vesicular dermatitis	1	Concordant
Herpes zoster infection	2	Concordant
Cutaneous Herpes simplex virus infection.	1	Concordant
Cutaneous herpes simplex infection	1	Concordant
Cutaneous herpes infection	1	Concordant
Herpes virus infection, favour varicella zoster (chickenpox)	1	Concordant
Varicella zoster/Cutaneous herpes infection.	1	Concordant
Herpes Simplex Virus (HSV) dermatitis	1	Concordant
Vesicobullous lesion with viral cytopathic effect compatible with Varicella zoster virus infection	1	Concordant

EDUCATIONAL NOTES:

1. The section shows epidermal acantholysis with abundant neutrophilic and lymphohistiocytic infiltrate. Some of the keratinocytes show multinucleation, moulding, and nuclear margination.
2. Herpes simplex and varicella-zoster produce grouped vesicles on an erythematous base; VZV typically follows a dermatomal distribution (zoster) and may cause more profound neuralgia. Immunosuppressed hosts can show atypical, disseminated, or chronic presentations (eczema herpeticum, widespread ulcers).
3. Classic histologic features are intraepidermal vesiculation with acantholysis and keratinocytes showing viral cytopathic changes — margination of chromatin, nuclear moulding, and multinucleation. Eosinophilic nuclear inclusions and dermal mixed infiltrate are also seen.
4. Differential diagnoses include impetigo or folliculitis (neutrophils predominate), pemphigus vulgaris (suprabasal acantholysis, negative HSV), and erythema multiforme (interface change; no viral cytopathic change). HSV or VZV immunohistochemistry is useful; clinicopathologic correlation is essential.

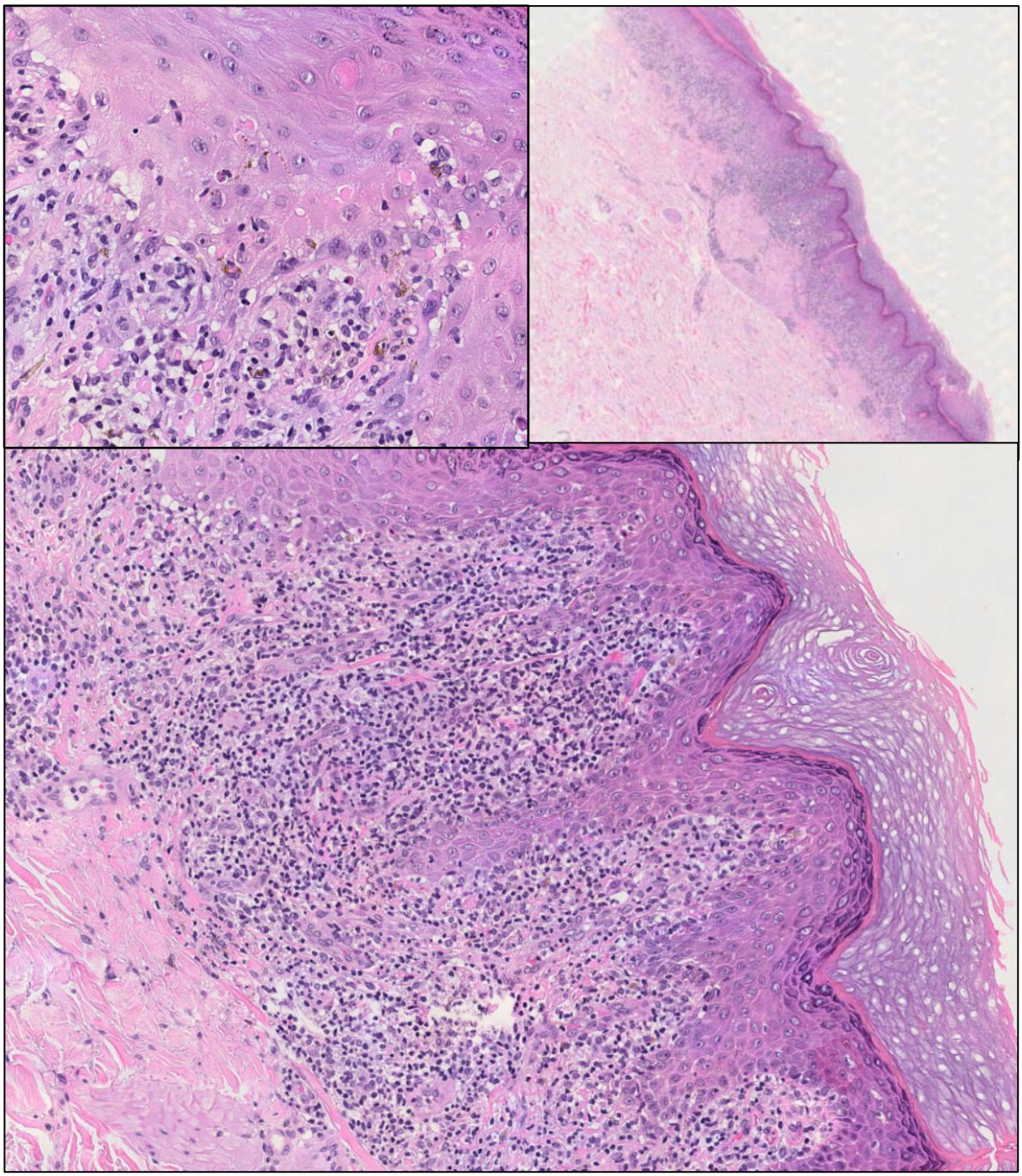
REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)

CASE 2

HISTORY: 74-year-old female with an itchy rash for 4 months on the upper limbs, lower limbs, and minimal lesions on the trunk, worsening over the past 1 month. On examination, multiple violaceous flat-top plaques and papules were seen.

TARGET DIAGNOSIS: <u>Lichen planus</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Lichen planus	11	Concordant
Lichenoid reaction consistent with lichen planus.	1	Concordant

EDUCATIONAL NOTES:

1. The section shows a lichenoid dermatitis with a dense, band-like lymphocytic infiltrate obscuring the dermoepidermal junction with basal cell degeneration and Civatte bodies. Hypergranulosis and saw-toothing of the rete ridges are also seen.
2. Lichen planus is a chronic, inflammatory, T-cell mediated disease producing pruritic, violaceous, flat-topped papules and plaques; mucosal, hair, and nail involvement are common.
3. The hallmarks are a lichenoid (or interface) dermatitis with a dense, band-like lymphocytic infiltrate obscuring the dermoepidermal junction, basal cell degeneration, Civatte bodies (apoptotic basal keratinocytes), hypergranulosis, saw-toothing of rete ridges, and pigment incontinence.
4. Differential diagnoses include lichenoid drug eruption (eosinophils; deeper infiltrate), lupus erythematosus (follicular plugging, dermal mucin), graft-versus-host disease (more apoptotic cells), and erythema multiforme (less banding); clinicopathologic correlation and awareness of variant patterns avoid misdiagnosis.

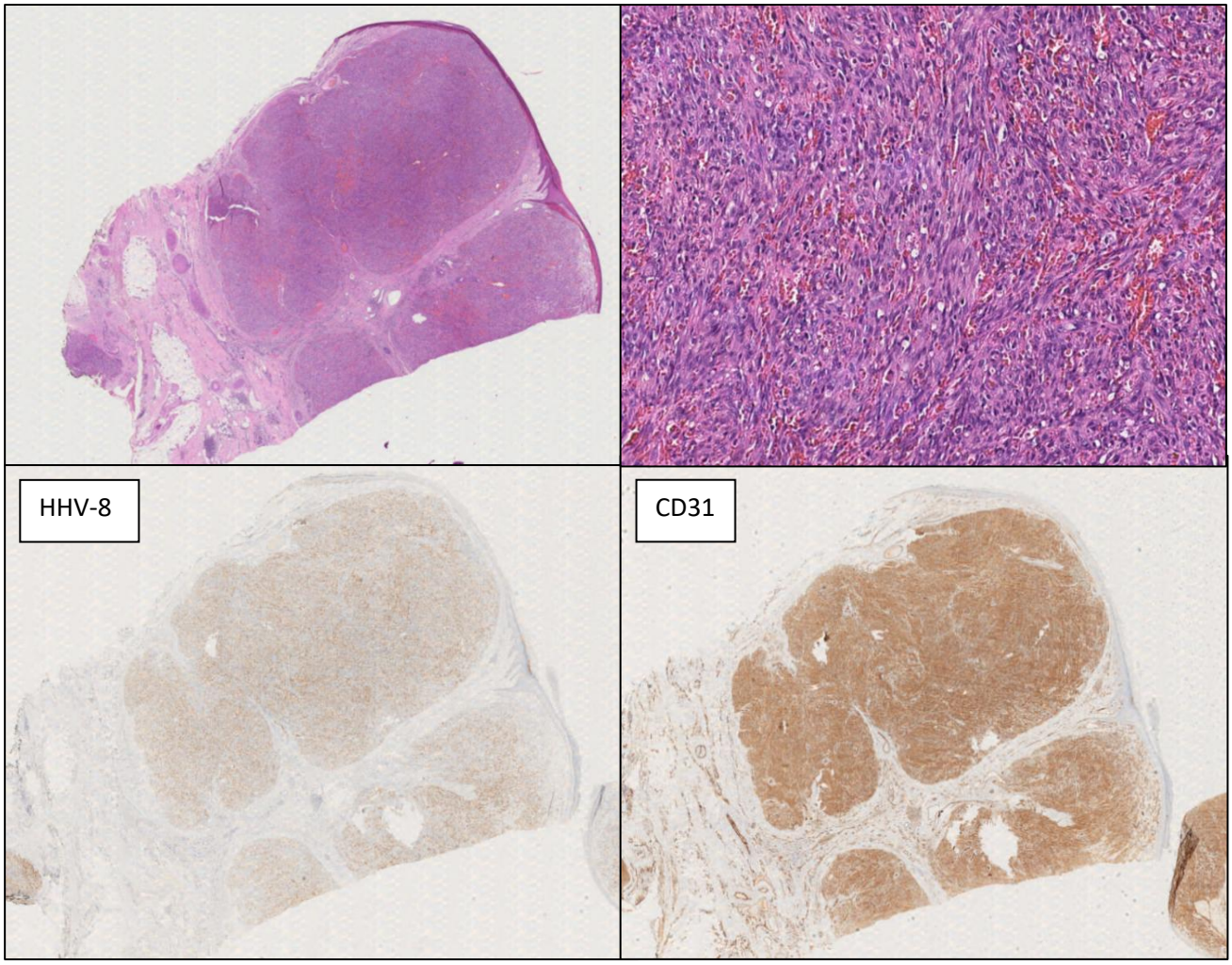
REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)

CASE 3

HISTORY: 75-year-old male with no known medical illness presented with painful swelling over the left forearm for 3 months associated with itchiness, bleeding, and intermittent fever. The swelling was increasing in size and spreading proximally.

TARGET DIAGNOSIS: <u>Kaposi sarcoma, tumoral stage</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Kaposi sarcoma	3	Concordant
Kaposi sarcoma, tumour stage	4	Concordant
Kaposi sarcoma, nodular stage/type	2	Concordant
Nodular Kaposi sarcoma.	2	Concordant
Kaposi Sarcoma, margin involved.	1	Concordant

EDUCATIONAL NOTES:

1. The section shows a nodular spindle cell proliferation forming fascicles and slit-like channels. RBC extravasation, hyaline globules, and haemosiderin are seen. Immunostains for vascular markers and HHV-8 are positive.
2. Kaposi sarcoma (KS) is an HHV-8 (KSHV)–associated vascular neoplasm. The tumoral (nodular) stage presents as violaceous plaques or nodules that can be multifocal and may ulcerate; lesion behaviour ranges from indolent to aggressive depending on subtype and host immunity.
3. Early vascular proliferations with slit-like vascular spaces and extravasated erythrocytes evolve into nodular spindle-cell proliferations forming fascicles and slit-like channels; RBC extravasation, hyaline globules, and haemosiderin are common. Immunostains for vascular markers and HHV-8 are diagnostic. Differential diagnoses include spindle cell haemangioma (cavernous areas), Kaposiform hemangioendothelioma (Paediatric; GLUT1), angiosarcoma (nuclear pleomorphism; HHV-8–), and dermatofibroma (Factor XIIIa+).
4. Grading into patch, plaque, or nodular stages is useful morphologically.

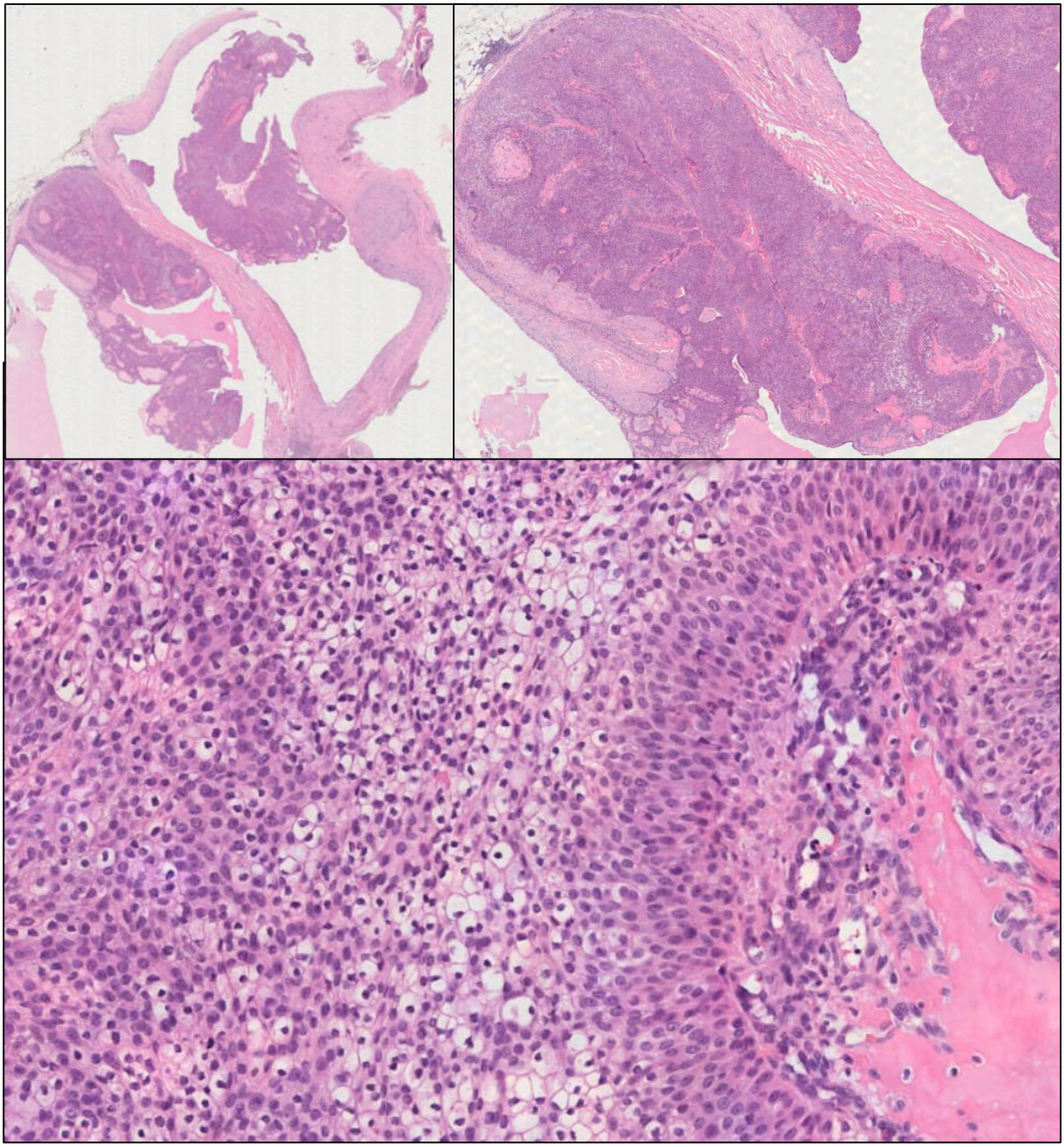
REFERENCE:

- Mc Kee’s Pathology of the Skin, 5th Edition (2019)
- Weedon’s Skin Pathology, 6th Edition (2024)

CASE 4

History: 38-year-old man, presented with left arm swelling for 1 year.

TARGET DIAGNOSIS: <u>Hidradenoma</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Hidradenoma	7	Concordant
Solid cystic hidradenoma	4	Concordant
Nodular hidradenoma	1	Concordant

EDUCATIONAL NOTES:

1. The section shows a circumscribed, solid-cystic nodule composed of two cell types — polygonal/clear cells and basaloid cells.
2. Hidradenomas (solid-cystic or nodular hidradenoma) are benign sweat-gland (eccrine/apocrine spectrum) adnexal nodules, usually solitary, slow-
3. growing, often on head/neck or trunk; rarely undergo malignant transformation.
4. Microscopic examination shows well-circumscribed dermal nodules composed of solid and cystic components, with two cell types — polygonal/clear cells (glycogen-rich) and darker basaloid cells; ductal differentiation and cystic spaces may be present.
5. Overlap with other clear-cell adnexal tumours and hidradenocarcinoma mandate complete excision and, if atypia/mitoses present, deeper sampling and IHC (CK7+, EMA+, CEA+, p63+); recurrence or aggressive behavior is uncommon but documented in malignant transformation.
6. Differential diagnoses include hidrocystoma (purely cystic), clear cell carcinoma (cytologic atypia), RCC metastases (CD10+, PAX8+), and trichilemmoma (peripheral palisading).

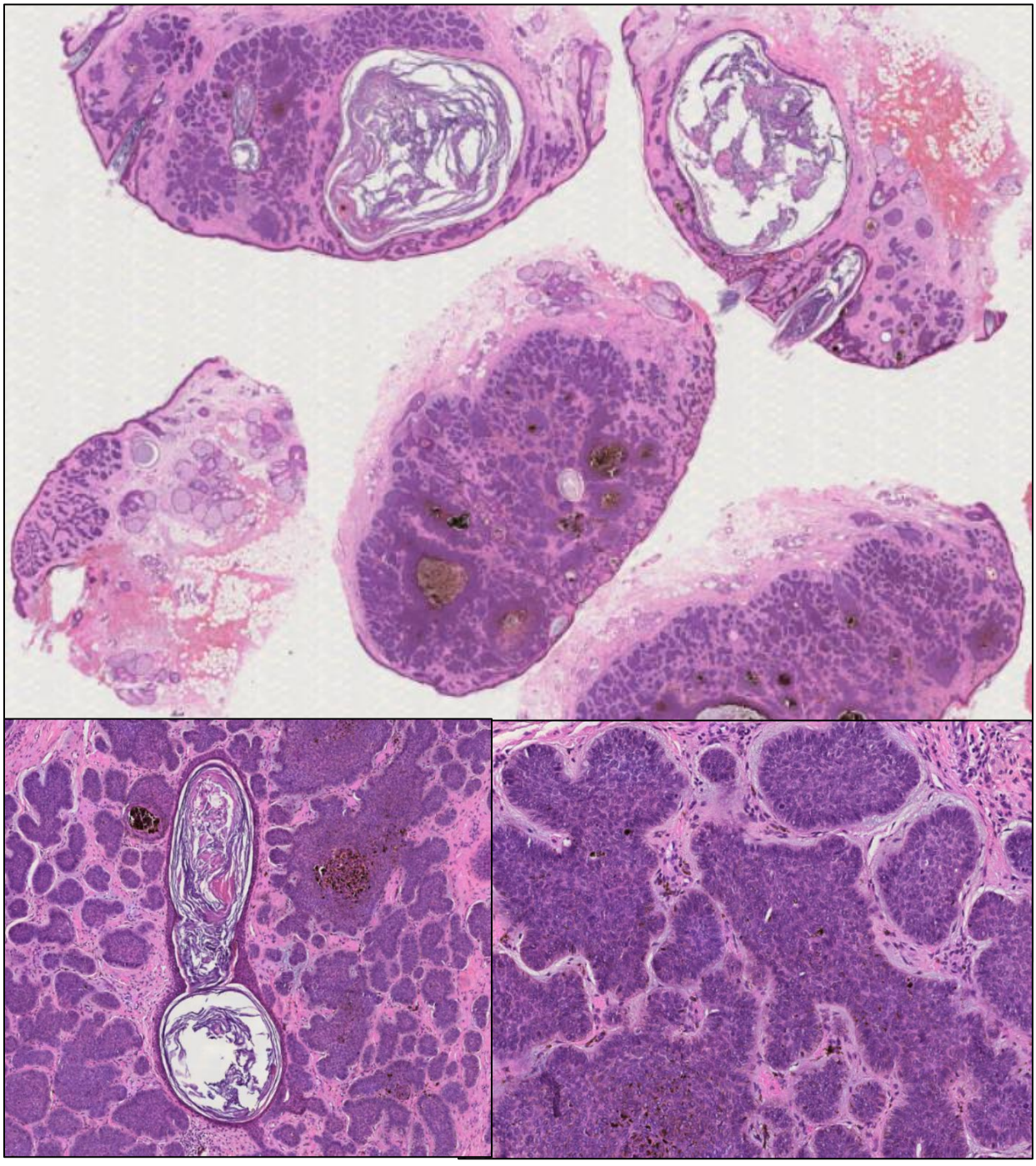
REFERENCE:

- Mc Kee’s Pathology of the Skin, 5th Edition (2019)
- Weedon’s Skin Pathology, 6th Edition (2024)

CASE 5

History: 69-year-old man with underlying CKD III, hypertension, hyperlipidaemia, and actinic keratosis. Presented with a right cheek lesion for 1 year, gradually increasing in size, painless, no bleeding, and no discharge.

TARGET DIAGNOSIS: <u>Trichoblastoma/ trichoepithelioma</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Trichoblastoma/ trichoepithelioma	2	Concordant
Trichoblastoma	2	Concordant
Tricoepithelioma	1	Concordant
Basaloid neoplasm- Trichoblastoma vs Basal cell carcinoma. Recommend IHC - CK20 and CD10.	1	Concordant
Basaloid neoplasm, Differential diagnoses are Trichoblastoma and basal cell carcinoma (BCC). We would do IHC with expected finding as below: CK 20+ in trichoblastoma, CD34 stromal positive in trichoblastoma, BCL2 diffuse positivity in BCC	1	Concordant
Basal cell carcinoma	3	
Pigmented basal cell carcinoma	1	
Basal cell carcinoma, nodular variant. Margin not involved.	1	

EDUCATIONAL NOTES:

1. The section shows circumscribed nests of basaloid cells within the dermis with peripheral palisading. A few mitotic figures are seen however, cellular pleomorphism is minimal. Clefting occurs between the epithelial stromal tumour mass and the surrounding dermis. The stroma is fibrocellular. Keratin cysts and prominent melanin pigments are seen.
2. Trichoblastomas and trichoepitheliomas are benign hair-germ (follicular) neoplasms, typically on the face/scalp of adults and occasionally familial (multiple trichoepitheliomas). They present as slow-growing, skin-colored papules or nodules.
3. Both lesions may show morphologic overlap and recapitulate features of germinative hair bulb epithelium and associated mesenchymal stroma. Both show dermal circumscribed nests of basaloid cells with follicular germ differentiation, peripheral palisading is usually less pronounced than in BCC, presence of fibroblast-rich stroma with papillary mesenchymal bodies, horn cysts and variable follicular differentiation.
4. Trichoepitheliomas are usually within the superficial dermis while trichoblastomas are deeper and may extend to the subcutis. Trichoblastomas may contain dendritic melanocytes and appear pigmented.
5. The main diagnostic problem is distinguishing trichoblastic tumours from basal cell carcinoma — evaluate stromal characteristics, clefting pattern (stromal retraction favors BCC), and use ancillary markers when needed (CK20+ Merkel cells; BCL2+ peripheral; CD10 stroma+). Complete excision is curative for benign lesions.

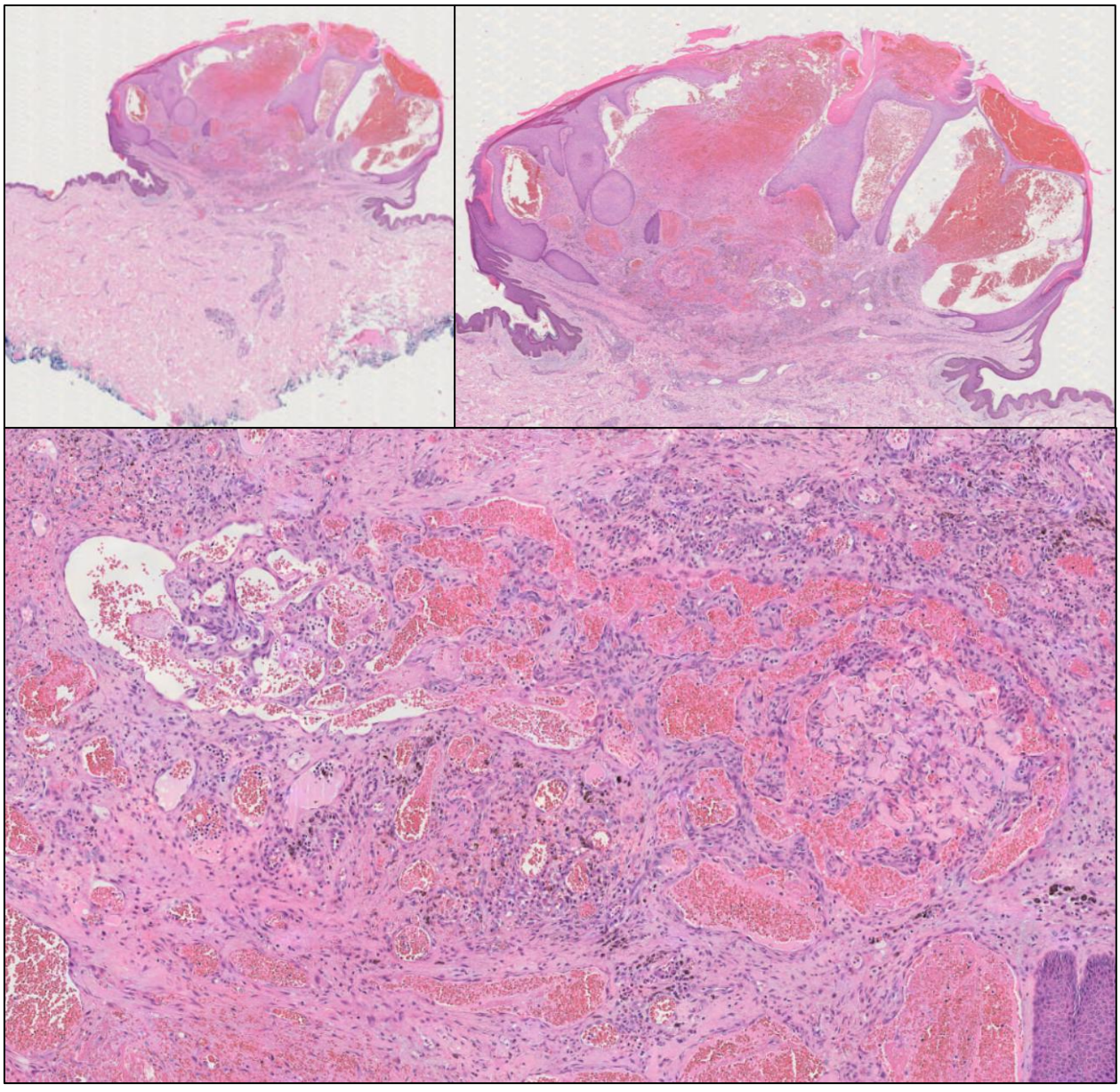
REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)

CASE 6

History: 18-year-old man with a hyperkeratotic nodule over the right lower quadrant of the abdomen for 3 months. On examination, there was a black hyperkeratotic nodule, 1x0.8cm, non-tender.

TARGET DIAGNOSIS: <u>Angiokeratoma</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Angiokeratoma	8	Concordant
Angiokeratoma circumscriptum	1	Concordant
Benign vascular lesion with epidermal hyperplasia, consistent with Angiokeratoma	1	Concordant
Benign vascular lesion. Differential diagnosis includes Angiokeratoma	1	Concordant
Verrucous hemangioma	1	

EDUCATIONAL NOTES:

1. The section shows a raised skin lesion composed of ectatic blood vessels within the papillary dermis associated with overlying epidermal hyperplasia characterized by acanthosis, elongation of the rete, and hyperkeratosis, with the epidermis encircling the dilated vascular spaces. Thrombosis is seen within the vascular ectasia.
2. Angiokeratomas are benign capillary ectasias in the superficial dermis producing small, dark red to blue hyperkeratotic papules; variants include solitary angiokeratoma and multiple forms (including those associated with Fabry disease).
3. Microscopic examination shows dilated, thin-walled vascular spaces in the papillary dermis that may extend into and cause overlying epidermal hyperkeratosis, acanthosis, and papillomatosis; intravascular thrombosis and haemosiderin are common.
4. Clinically, the main concern is to exclude melanocytic lesions (melanoma; nuclear atypia, pigmented cells), other vascular tumours (haemangioma; deeper involvement) or verruca (koilocyte); recognition of the superficial vascular ectasia and epidermal hyperplasia is diagnostic, and excision or simple ablation suffices for symptomatic lesions.

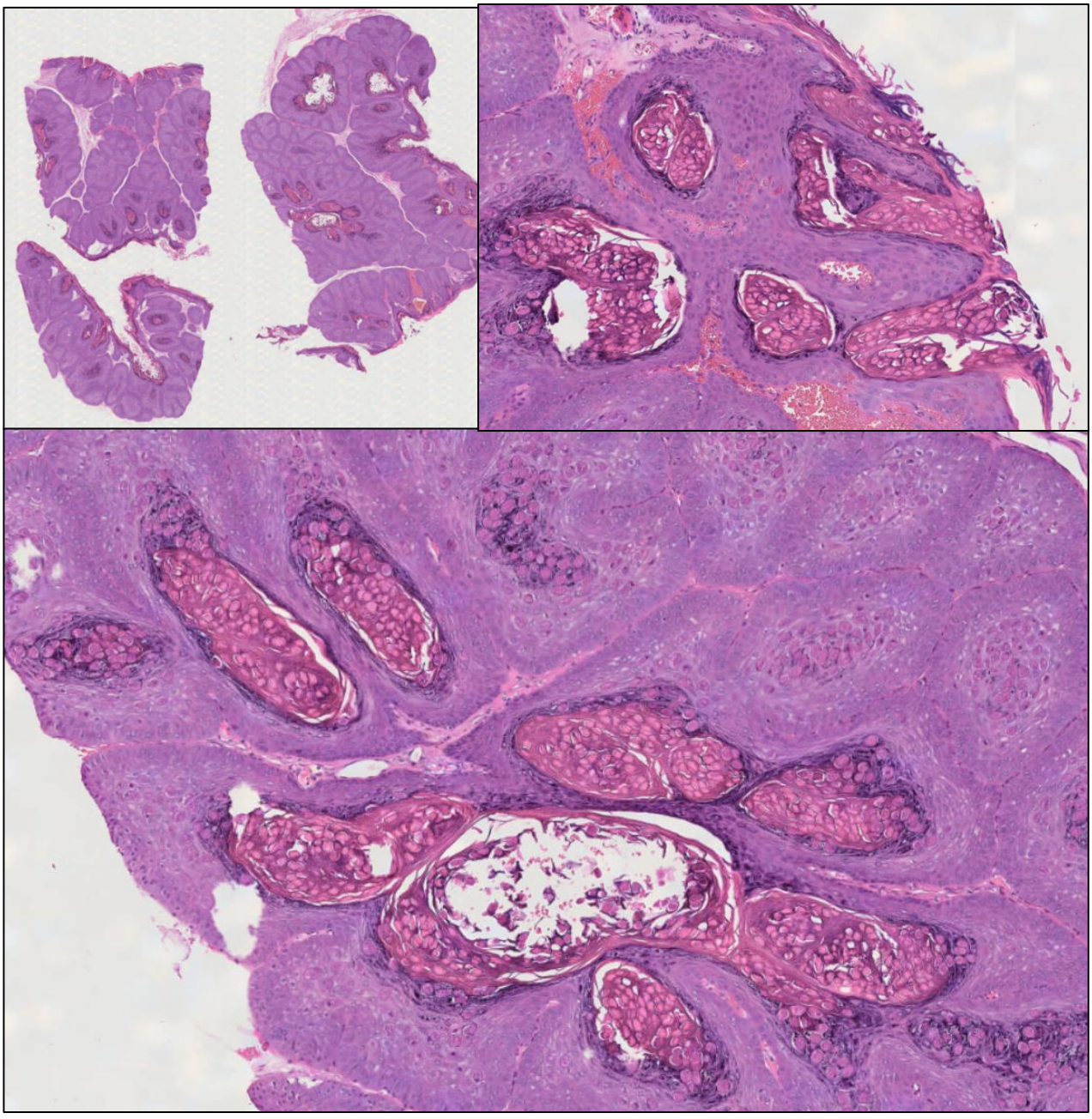
REFERENCE:

- Mc Kee’s Pathology of the Skin, 5th Edition (2019)
- Weedon’s Skin Pathology, 6th Edition (2024)

CASE 7

HISTORY: 40-year-old man with retroviral disease, defaulted follow-up, presented with 3 skin-coloured nodules on his face, focally ulcerated. Pus discharge was seen upon pressure.

TARGET DIAGNOSIS: <u>Molluscum contagiosum</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Molluscum contagiosum	12	Concordant

EDUCATIONAL NOTES:

1. The section shows inverted lobules of hyperplastic squamous epithelium that expand into the underlying dermis, containing Henderson-Paterson (HP) bodies. At the granular layer, the HP bodies become increasingly haematoxyphilic and occupy the entire cell. The overlying epidermis is hyperkeratotic.
2. A poxvirus infection (Molluscipoxvirus) that causes discrete, umbilicated, dome-shaped, waxy papules (common in children, sexually transmitted in adults; more florid in immunosuppressed patients). Lesions are usually self-limited but can be numerous or persistent in immunodeficiency.
3. Diagnostic molluscum bodies (Henderson-Patterson bodies): large eosinophilic intracytoplasmic inclusion bodies within keratinocytes that progressively fill and expand the follicular infundibulum, producing lobulated, crateriform structures with compact orthokeratosis at the surface.
4. The histology is so characteristic that special stains are rarely needed; in atypical or inflamed lesions, PCR or electron microscopy historically confirmed the virus, but are seldom required.
5. Differential diagnoses include verruca (koilocytosis) and keratoacanthoma (glassy cytoplasm).

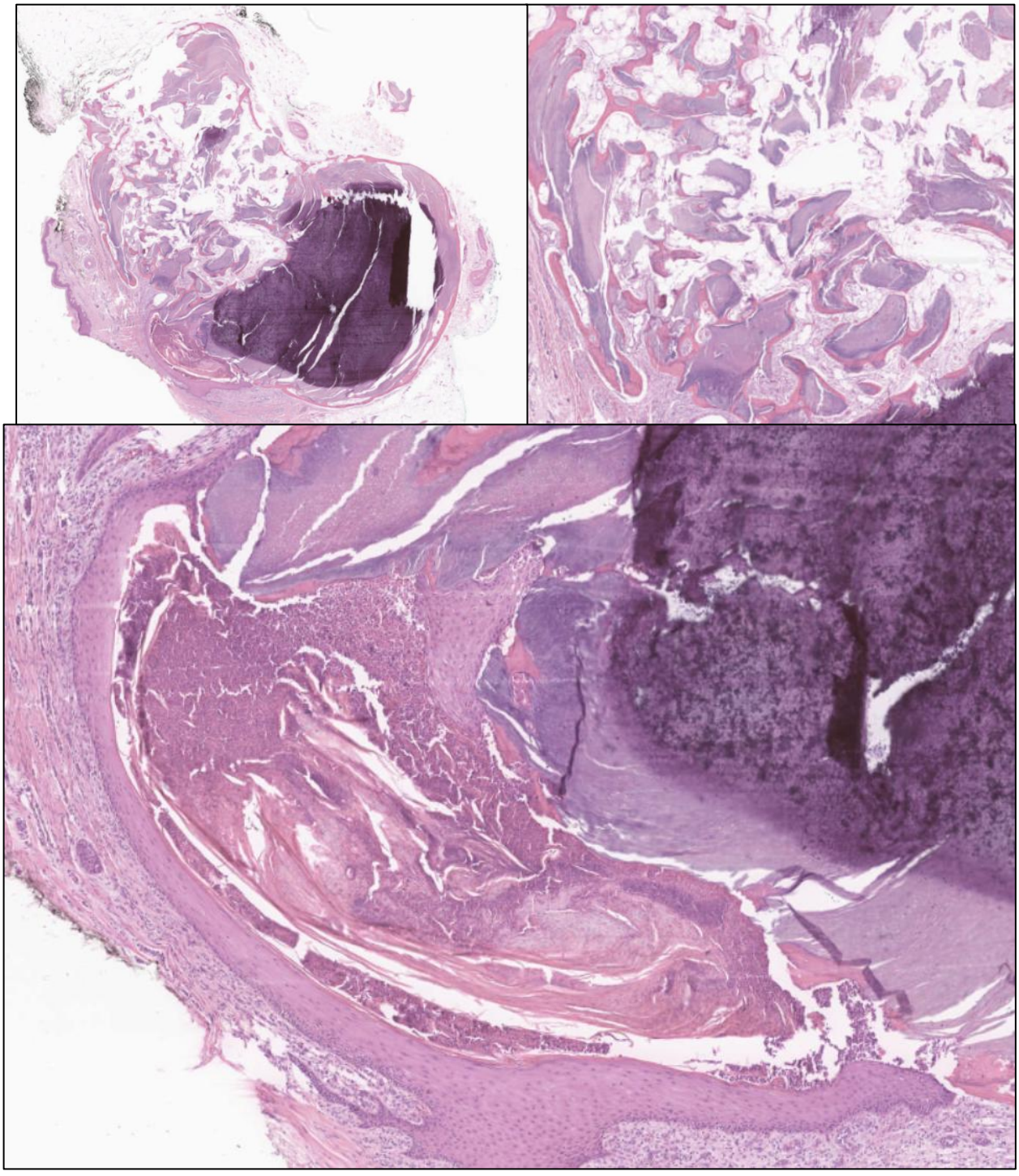
REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)

CASE 8

HISTORY: Case 8: 74-year-old female with skin lesion on the leg.

TARGET DIAGNOSIS: <u>Pilomatrixoma with osseous differentiation</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Pilomatricoma	1	Concordant
Pilomatricoma with ossification	3	Concordant
Pilomatricoma with secondary ossification	1	Concordant
Pilomatricoma with osseous metaplasia	2	Concordant
Ossified pilomatricoma	4	Concordant
Benign hybrid cyst with features of ossification and calcification.	1	

EDUCATIONAL NOTES:

1. The section shows a lobulated and circumscribed dermal neoplasm composed predominantly of bone tissue with prominent calcification. In one focal area, basaloid cells are seen, exhibiting abrupt keratinization, without an intervening granular layer (trichilemmal keratinization) and the presence of ghost cells.
2. Pilomatrixoma (calcifying/calcifying epithelioma of Malherbe) is a benign hair-matrix neoplasm, common in children/young adults, presenting as a firm subcutaneous nodule; rare cases show extensive ossification/osseous metaplasia.
3. Microscopic examination shows a classic biphasic pattern with peripheral basaloid cells and central “shadow”/ghost cells (anucleate eosinophilic cells) often with dystrophic calcification; in ossifying examples, there is mature lamellar bone or osteoid within the stroma, sometimes with osteoclast-type giant cells.
4. Ossification is thought to be a metaplastic stromal response (often in long-standing lesions); management is complete excision—recognize ossifying variants to avoid confusion with other bone-forming cutaneous lesions.
5. Differential diagnoses include basal cell carcinoma (no ghost cells), trichoepithelioma (no calcification), and squamous cell carcinoma (keratin pearls).

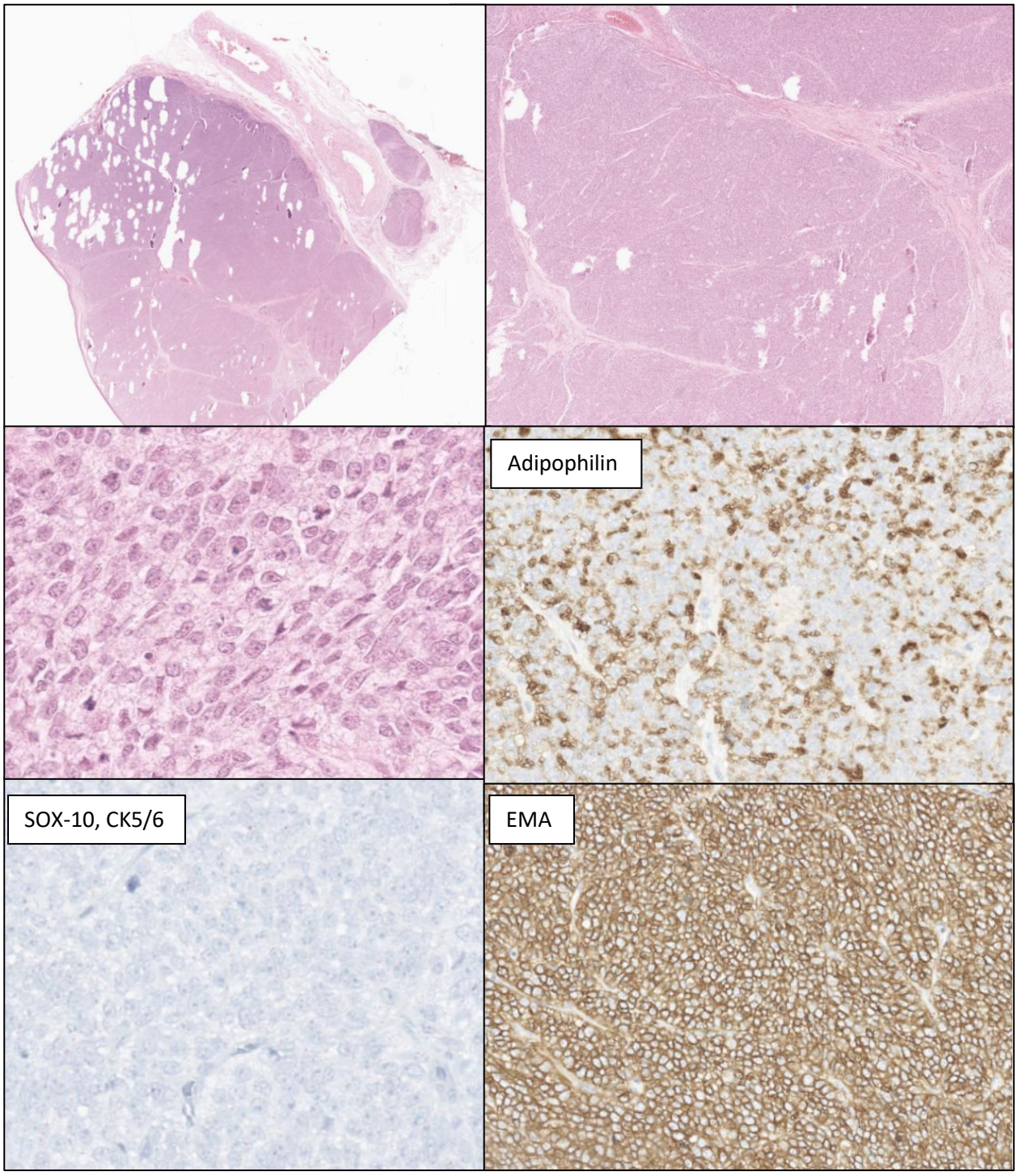
REFERENCE:

- Mc Kee’s Pathology of the Skin, 5th Edition (2019)
- Weedon’s Skin Pathology, 6th Edition (2024)

CASE 9

History: 87-year-old female with forearm skin lesion. History of mantleoma at the same site.

TARGET DIAGNOSIS: <u>Sebaceous carcinoma</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Sebaceous carcinoma	10	Concordant
Sebaceous carcinoma, mild to moderately differentiated	1	Concordant
Sebaceous carcinoma, poorly differentiated	1	Concordant

EDUCATIONAL NOTES:

1. The section shows a nodular dermal tumour composed of neoplastic cells with mild nuclear pleomorphism. Mitotic figures are frequently seen. Adipophilin shows a membranous vesicular pattern.
2. Sebaceous carcinoma arises from sebaceous glands (ocular/extraocular); eyelid (meibomian/Zeis) tumours are classic and can be aggressive — extraocular lesions occur on the head/neck and may be associated with Muir-Torre syndrome (MMR defects).
3. Microscopic examination shows lobular proliferation of atypical sebaceous cells showing vacuolated, foamy cytoplasm and variable architectural patterns (lobular, pagetoid, diffuse); mitoses, necrosis, and pagetoid intraepidermal spread can occur, and the degree of atypia/mitotic activity predicts aggressive behaviour.
4. Immunohistochemistry (EMA, adipophilin, androgen receptor) and mismatch repair protein IHC (to screen for Muir-Torre) assist diagnosis; wide excision with margin control and consideration of regional staging is recommended because of recurrence/metastatic potential.
5. Differential diagnoses include squamous cell carcinoma (keratin pearls), basal cell carcinoma (no ghost cells, less atypia), and clear cell carcinoma (different pattern).

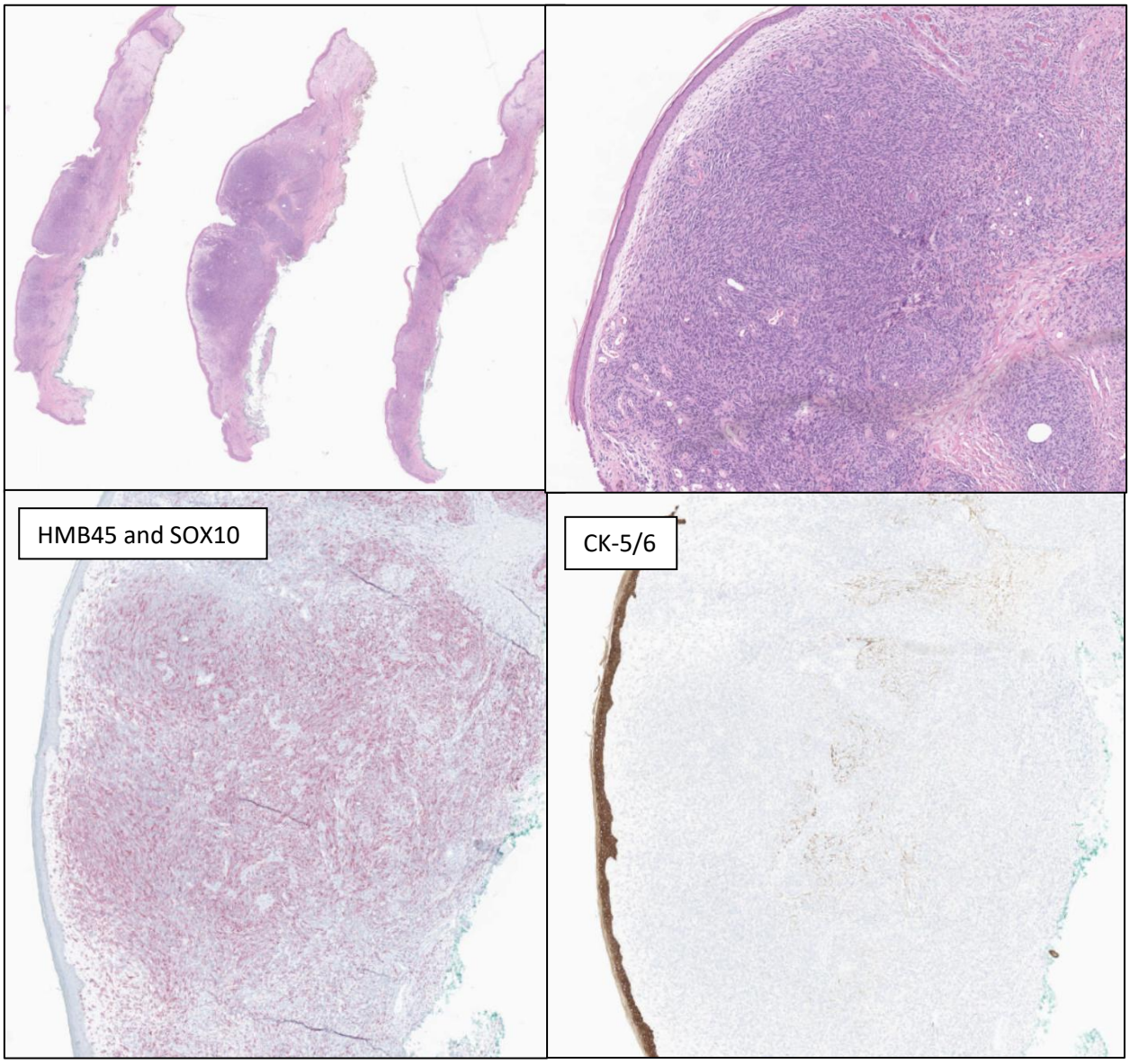
REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)

CASE 10

History: 84-year-old female with a skin lesion on the calf.

TARGET DIAGNOSIS: <u>Malignant melanoma</u>



Submitted Diagnoses by Participating Institutions	Number	Assessment
Malignant melanoma	6	Concordant
Malignant melanoma, Clark level IV	1	Concordant
Nodular melanoma	1	Concordant
Spindle cell melanoma	2	Concordant
Spindle cell melanoma, coexisting with melanoma in situ	1	Concordant
Melanoma	1	Concordant

EDUCATIONAL NOTES:

1. The section shows a poorly circumscribed spindle cell lesion within the dermis. The spindle cells have oval to round nuclei with minimal nuclear pleomorphism and occasional prominent nucleoli. Mitotic figures are easily seen.
2. Malignant melanoma is a melanocytic malignancy with multiple clinicopathologic subtypes and variable prognosis determined largely by Breslow thickness, ulceration, and mitotic rate.
3. Microscopic examination shows atypical melanocytic proliferation with pagetoid spread (especially superficial spreading), asymmetry, cytologic atypia, and dermal invasion; multiple histologic subtypes have distinct patterns, and the WHO 5th Edition refines subtype categories and molecular correlates.
4. Breslow depth and ulceration remain cornerstone prognosticators; immunohistochemistry (Melan-A/MART-1 +, HMB-45 +, SOX10 +) and, where indicated, molecular testing (BRAF/NRAS/CKIT) guide prognosis and targeted therapy; sentinel node assessment and staging follow established oncology protocols.
5. Differentials include Spitz tumour (symmetric), pigmented BCC (BerEP4+), and melanocytic naevus (maturation present).

REFERENCE:

- Mc Kee's Pathology of the Skin, 5th Edition (2019)
- Weedon's Skin Pathology, 6th Edition (2024)