International Academy of Pathology
Malaysian Division

FINAL REPORT

QUALITY ASSURANCE PROGRAM
GENERAL DIAGNOSTIC HISTOPATHOLOGY
CYCLE 02/2022

NOTES FROM THE COORDINATOR

1. For this cycle 02/2022, a total of 30 institutions responded online by the closing date of 15 November 2022.

2. Excerpts of previously circulated information about this quality assurance program are reproduced here:
    - **IAP-MD QAP provides a platform via the evaluation reports to compare and identify diagnostic insufficiency based on the outcomes of submitted diagnoses and targeted diagnoses.**
    - **In the evaluation reports of each cycle, the targeted 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.**
    - **Evaluation of performance of each laboratory is conducted by participating laboratory by comparing own submitted diagnoses with the diagnoses provided in the evaluation reports. Evaluation of performance shall be the responsibility of each participating laboratory.**

3. Any queries regarding this final report for cycle 02/2022 could be directed to Dr. Ch'ng Ewe Seng, e-mail: iapmdqap@gmail.com.

4. The coordinator would like to acknowledge the contributions from Prof. Dr. Nor Hayati Othman, Dato Dr. Norain Karim, Dr. Hakimah Mahsin, Datin Dr. Nik Raihan Nik Mustapha, Dr. Nurul Akmar Misron, Dr. Noraida bt. Khalid, Dr. Teoh Phaik Inn, and Dr. Chew Bee See.

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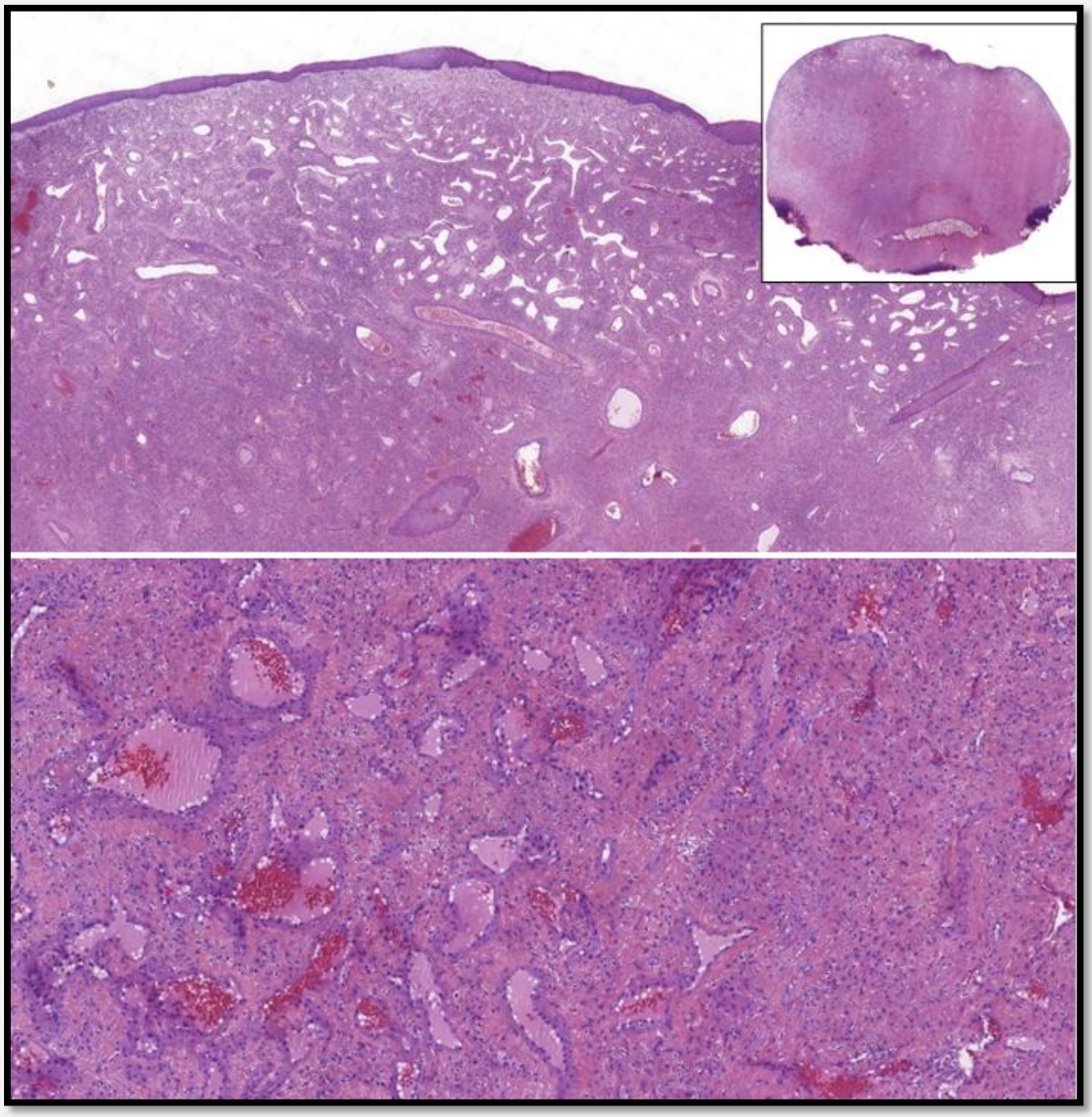
Coordinators for IAP-MD QAP

Case 1

Case 1: An 18-year-old male had a nasal mass. One representative section.

Targeted Diagnosis: **Nasopharyngeal angiofibroma**



Case 1

Submitted Diagnoses by Participating Institutions	Number	
Angiofibroma/ Nasopharyngeal angiofibroma/ Juvenile angiofibroma	30	Acceptable

Educational notes:

1. This polypoid fibrovascular mass is largely covered by metaplastic stratified squamous epithelium with focal ulceration. The mass is composed of branching vessels of various sizes with a large feeding artery observed near the base. The fibrous stroma is composed of bland-looking fibroblasts appearing in spindle or stellate morphology. Numerous mast cells are admixed. These histological features are diagnostic of nasopharyngeal angiofibroma.
2. Nasopharyngeal angiofibroma is a locally aggressive tumor that develops almost exclusively in adolescent and young males. Hormonal dependency of this tumor is evidenced by its growth in boys reaching puberty and its expression of androgen receptor. In addition, this tumor shows nuclear expression of beta-catenin in the majority of cases.
3. Other vascularized neoplasms such as glomangiopericytoma and solitary fibrous tumor may constitute the differential diagnoses. Clinical features of a mass arising in nasopharyngeal region in young males should warrant due consideration for nasopharyngeal angiofibroma.
4. The recurrence rate is about 20% for nasopharyngeal angiofibroma. Recurrence is related to incompleteness of surgical resection especially in those cases that have intracranial extension. Sarcomatous transformation has been reported for those treated by radiotherapy.

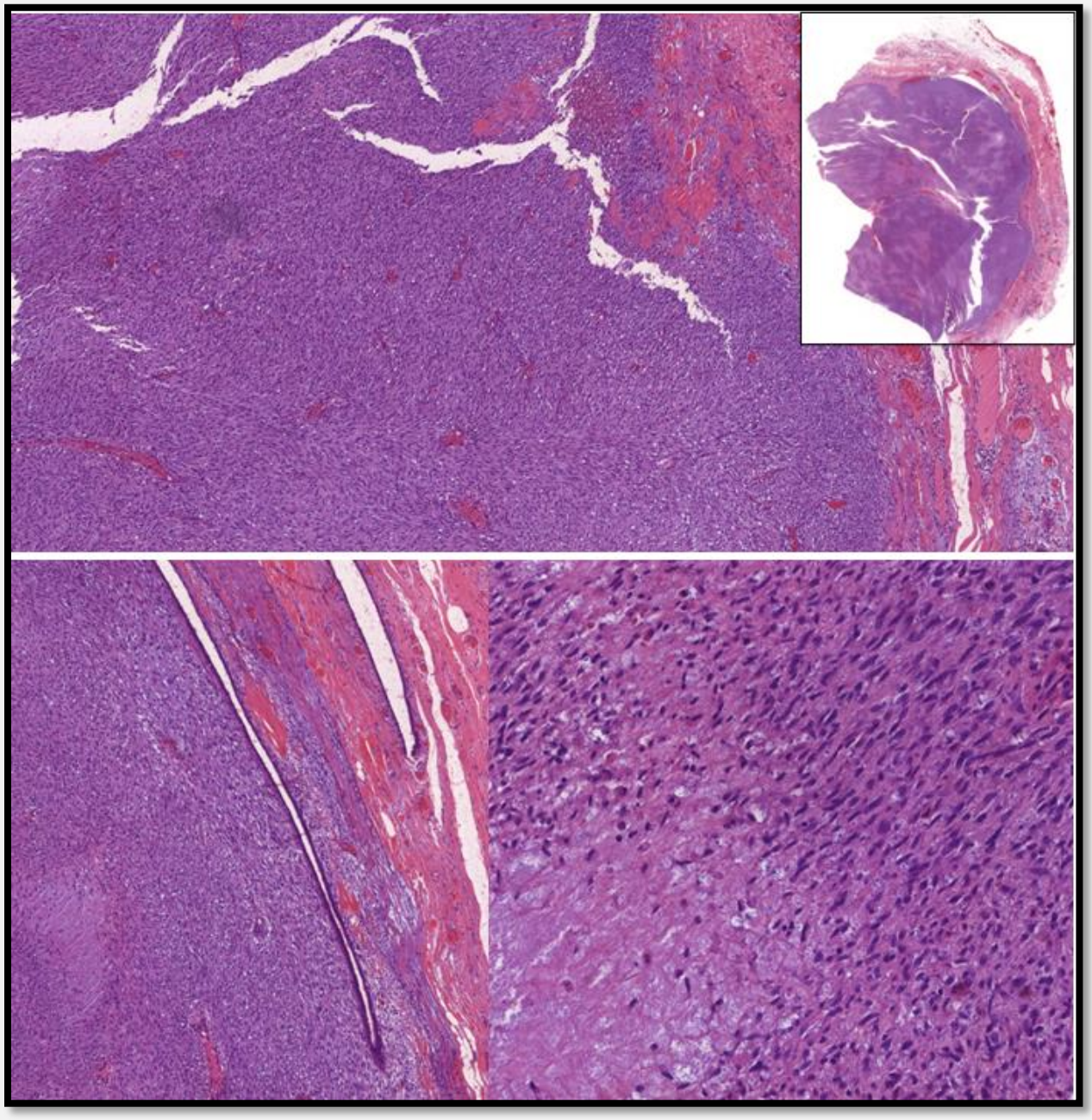
Reference:

1. Gnepp, D. R., & Bishop, J. A. (2020). Gnepp's Diagnostic Surgical Pathology of the Head and Neck . Elsevier Health Sciences.

Case 2

Case 2: A 56-year-old female presented with a rapidly growing breast mass. One representative section.

Targeted Diagnosis: **Malignant phyllodes tumour**



Case 2

Submitted Diagnoses by Participating Institutions	Number	
Malignant phyllodes tumor	26	Acceptable
Spindle cell/ Malignant spindle cell neoplasm, differential includes malignant phyllodes tumor	4	Acceptable

Educational notes:

1. The tumor is highly cellular, comprised of predominantly spindled stromal cells displaying pleomorphic, hyperchromatic nuclei and brisk mitotic activity. There is prominent stromal overgrowth, diffuse stromal hypercellularity and tumor necrosis. Foci of compressed ducts are present at the periphery. These features are that of malignant phyllodes tumor (PT).

2. Recent WHO classification recommends that malignant PTs to be diagnosed when all the following features are fulfilled: marked stromal nuclear pleomorphism; stromal overgrowth (defined by the absence of epithelial elements in one low-power microscopic field); increased mitoses ($\geqslant$ 5 mitoses/mm2; $\geqslant$ 10 mitoses per 10 high-power fields of 0.5 mm in diameter and 0.2 mm2 in area); increased stromal cellularity, and an infiltrative border.

3. The presence of malignant heterologous elements also justifies the diagnosis of malignant PT. An exception is liposarcoma due to the lack of associated characteristic molecular aberrations observed in soft tissue liposarcoma. The malignant heterologous component may resemble osteogenic sarcoma, chondrosarcoma, leiomyosarcoma, rhabdomyosarcoma, angiosarcoma and, very rarely, undifferentiated pleomorphic sarcoma. In such cases, the diagnosis of PT depends on finding residual epithelial structures by extensive sampling, without which, the tumor may be mistaken as the exceptionally rare primary or metastatic sarcoma.

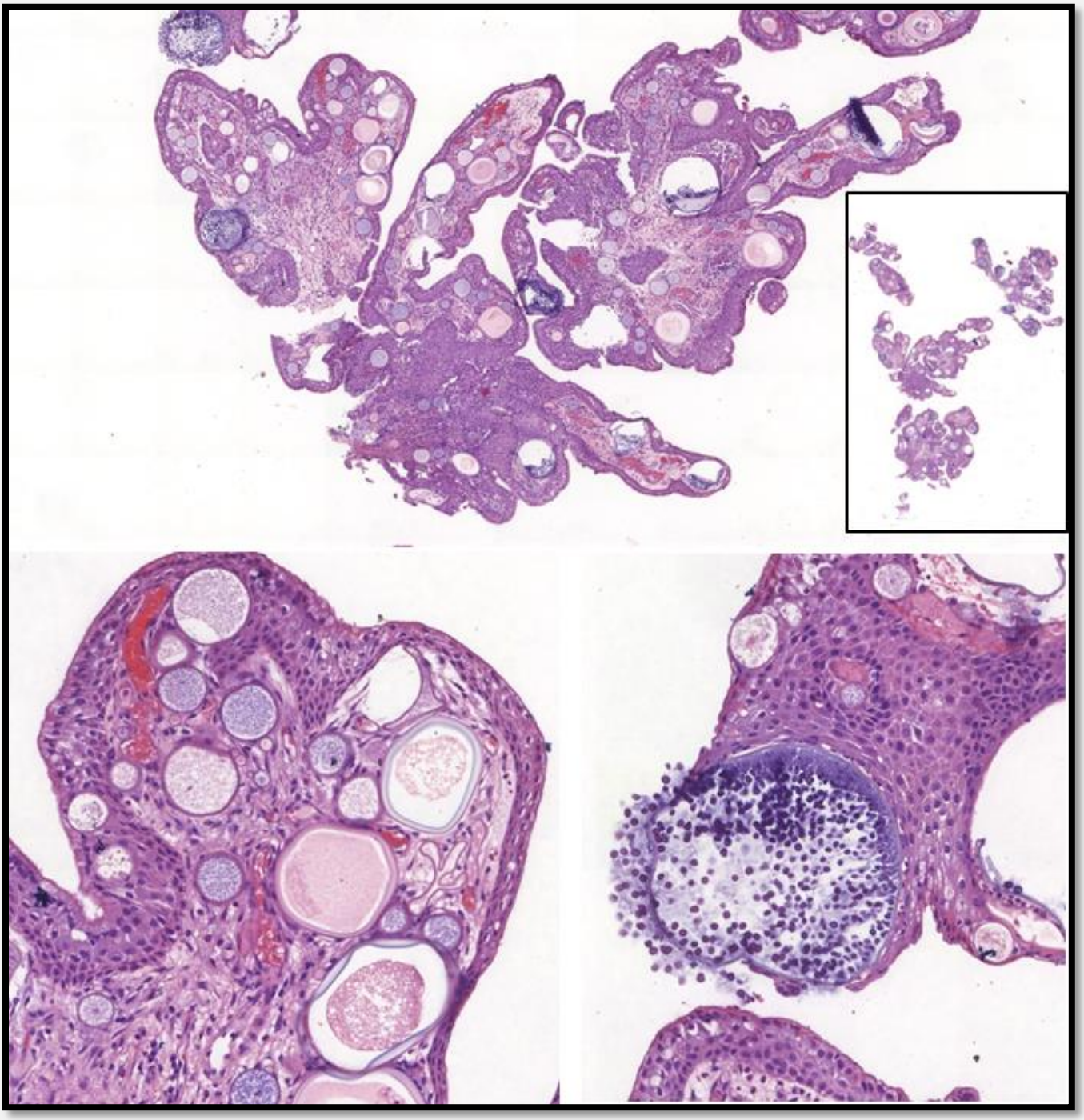
Reference:

1. Lokuhetty, D., White, V. A., Watanabe, R., & Cree, I. A. (2019). WHO Classification of Tumours Editorial Board. Breast tumors. WHO Classification of Tumours Series, 5th ed.; International Agency for Research on Cancer: Lyon, France.

Case 3

Case 3: A 35-year-old Nepalese male presented with epistaxis for 3 months. A papillomatous mass at the left inferior turbinate was noted. One representative section.

Targeted Diagnosis: **Rhinosporidiosis**



Case 3

Submitted Diagnoses by Participating Institutions	Number	
Rhinosporidiosis.	30	Acceptable

Educational notes:

1. There are small polypoid fragments covered by metaplastic stratified squamous epithelium. The underlying fibrous stroma shows many sporangia ranging from juvenile sporangia without endospores to large mature sporangia containing endospores. Some mature sporangia are ruptured. Mild chronic inflammatory infiltrates are observed. These sporangia are those of rhinosporidiosis.
2. Rhinosporidiosis is characterized by polypoid growth primarily occurring in nose, nasopharynx, and ocular areas. Rarely, disseminated diseases involving mucocutaneous sites and internal organs have been reported. Rhinosporidiosis primarily occurs in hot tropical climate countries such as Uganda, Sri Lanka, India, Brazil and Argentina.
3. Rhinosporidiosis is caused by *Rhinosporidium seeberi*, a parasite resembling fungus presenting as yeast-like organism in tissue. Morphologically, sporangia of *R. seeberi* are similar to *Coccidioides* spherules (10 to 100 um) displaying distinct endospore structures. *R. seeberi* sporangia are nonetheless larger (100 to 450um) and mucicarmine positive.
4. *R. seeberi* cannot be cultured. The diagnosis of rhinosporidiosis rests in histopathological examination.

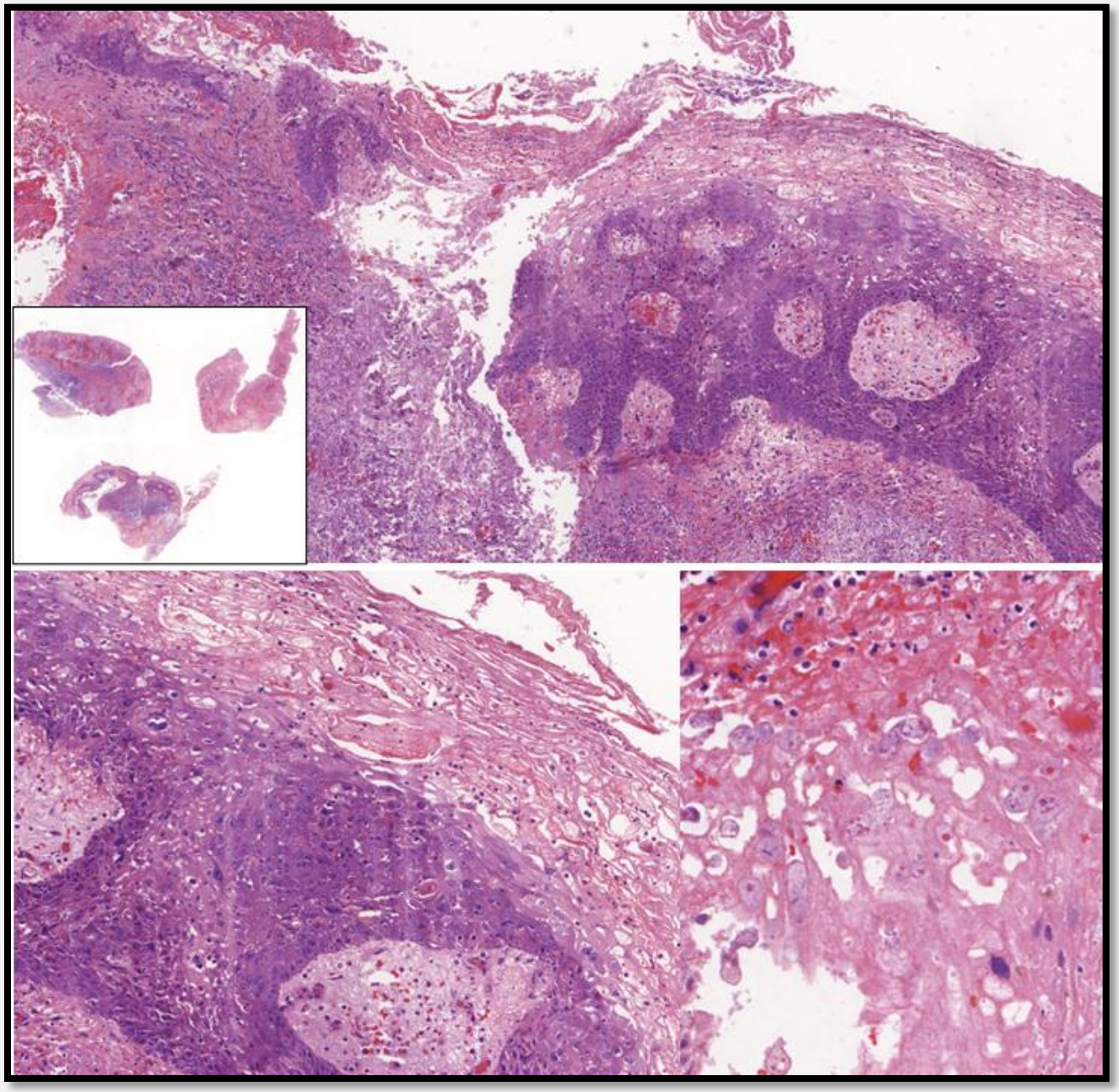
Reference

1. Guarner J, Brandt ME. (2011) Histopathologic diagnosis of fungal infections in the 21st century. Clin Microbiol Rev. 24(2):247-80.

Case 4

Case 4: A 32-year-old male with a history of high-risk sexual behavior, presented with peri-anal abscess. One representative section.

Targeted Diagnosis: **1. High-grade anal squamous dysplasia / High-grade squamous intraepithelial lesion (HSIL)/ Anal intraepithelial neoplasia (AIN) II 2. Cutaneous amoebiasis**



Case 4

Submitted Diagnoses by Participating Institutions	Number	
Amoebiasis with anal intraepithelial neoplasia (AIN) 2/ High grade AIN/ High grade squamous intraepithelial lesion (HSIL)/severe dysplasia	16	Acceptable
Amoebiasis with squamous dysplasia/ AIN 1/LSIL	9	Acceptable
Amoeba, HSV with indefinite dysplasia	3	
Amoebiasis	1	
Condyloma acuminatum with abscess formation	1	

Educational notes:

1. The squamous epithelium exhibits prominent surface ulceration and a spectrum of dysplastic changes characterized by enlarged nuclei with coarse chromatin, irregular nuclear membrane, and occasional large nucleoli. High-grade dysplastic areas involving up to two thirds of epithelial thickness is noted along with koilocytic atypia. No papillary structure or stromal invasion is identified. Within the edematous, inflammed and necrotic stroma, there are amoebas displaying abundant vacuolated cytoplasm that contains ingested red blood cells. Epithelioid granuloma is not seen.
2. Low-grade squamous intraepithelial lesion (LSIL/ AIN I) is defined as a proliferation of atypical metaplastic squamous cells confined to the lower third of the epithelium. As most cases of LSIL regress, it is generally considered a preinvasive lesion rather than a precursor of squamous cells carcinoma (SCC). Anal condyloma (condyloma acuminatum), when included under LSIL, is a warty lesion characterized by papillomatous exophytic growth around fibrovascular core with broad rete pegs, parakeratosis, and koilocytotic atypia. High-grade squamous intraepithelial neoplasia (HSIL/AIN II-III) shows involvement of two thirds or more of the squamous epithelium by marked cytological atypia, mitotic figures in the upper two thirds of the epithelium, and loss of nuclear polarity. This term includes those previously classified as moderate to severe dysplasia, carcinoma in situ, Bowen disease, and Bowenoid papulosis. HSIL may progress to SCC and thus is considered a precursor of SCC.
3. Perianal infection by *Entamoeba histolytica* is an emerging sexually transmitted infection among men having sex with men (MSM). Cutaneous amoebiasis typically causes indurated ulcers with necrotic base and undermined margin. Tissue destruction may enlarge rapidly with interposing normal areas. The trophozoites are generally distributed at the edges of the ulcer. They are round or oval, unicellular, pale, basophilic organisms measuring 20 to 50 µm, and often surrounded by a clear halo due to retraction artefact. Phagocytosis of red blood cells by trophozoites indicates its pathogenicity. There is a mixed inflammatory infiltrate, but epithelioid granuloma is not a feature.

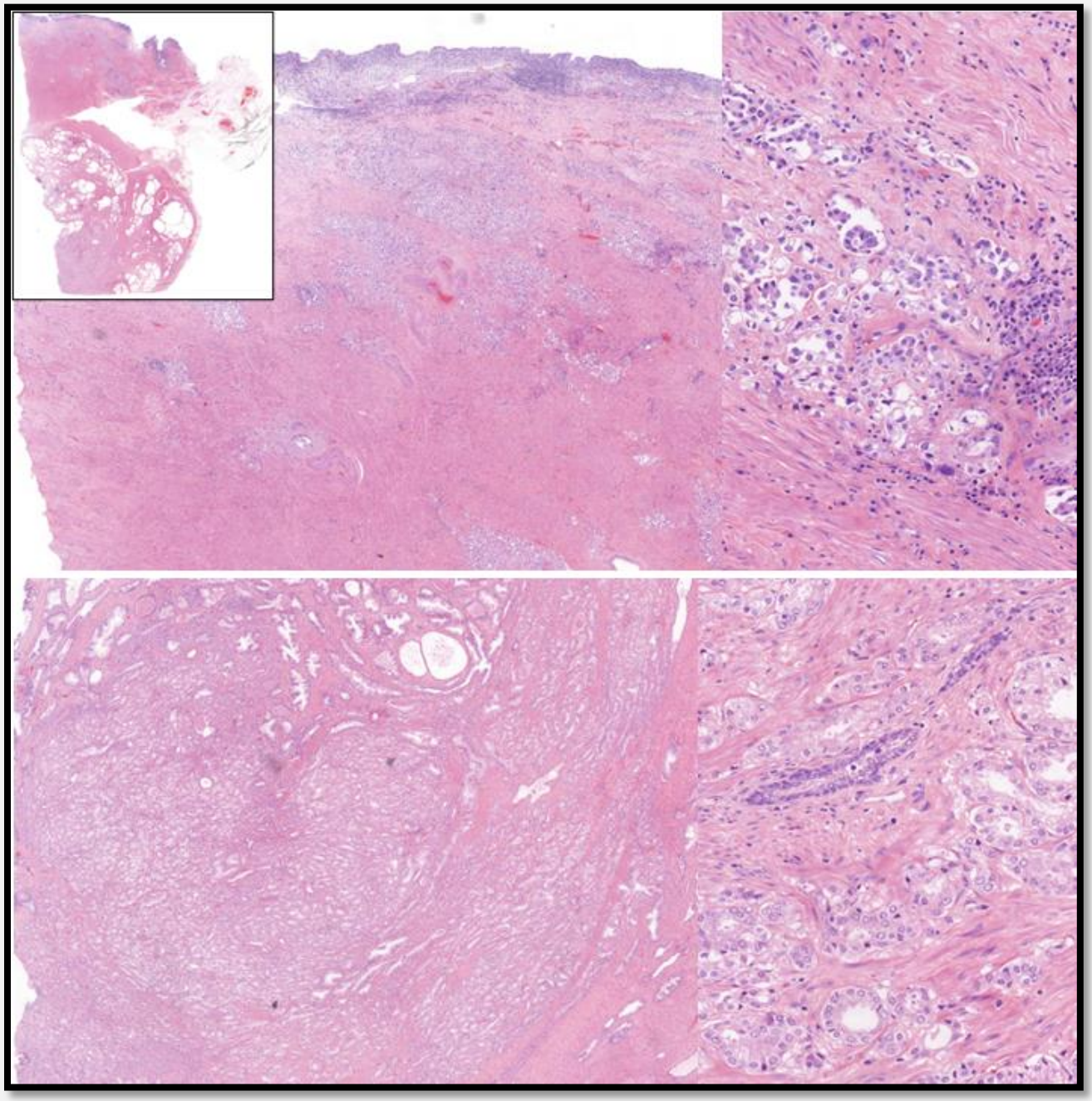
Reference

1. Klimstra, D. S., Kloppel, G., La Rosa, S., Arends, M. J., & Fukayama, M. (2019). WHO Classification of Tumors Editorial Board. Digestive system tumors.
2. Hoff, P. M., et al. (2017). Pathology of anal cancer. Surgical Oncology Clinics, 26(1), 57-71.
3. Fernández-Díez, J., Magaña, M., & Magaña, M. L. (2012). Cutaneous amebiasis: 50 years of experience. Cutis, 90(6), 310-314.

Case 5

Case 5: A 77-year-old male presented with hematuria. Cystoprostatectomy was performed. Section was taken from the bladder neck.

Targeted Diagnosis: **1. Micropapillary urothelial carcinoma 2. Prostatic acinar adenocarcinoma, Gleason pattern 3+4=7, Grade group 2**



Case 5

Submitted Diagnoses by Participating Institutions	Number	
Urothelial carcinoma, micropapillary variant and Prostatic acinar adenocarcinoma, Gleason pattern 3+4=7/3+3=6 , Grade group 2/1; Requires IHC for primary urothelial confirmation	19	Acceptable
Prostatic adenocarcinoma (Gleason 3+3) and poorly differentiated carcinoma in bladder, requires IHC for bladder versus prostate primary	4	Acceptable
Adenocarcinoma prostate, invasive urothelial carcinoma.	1	Acceptable
Prostatic adenocarcinoma (Gleason score 4+3=9) with extension into the bladder and surgical margin, pT3a./ metastatic in bladder	3	
Micropapillary urothelial carcinoma/ infiltrating urothelial carcinoma	2	
Acinar prostatic adenocarcinoma, foamy gland variant, Gleason score 3+3	1	

Educational notes:

1. Section shows marked inflamed bladder mucosa. There are infiltrative tight micropapillary clusters of malignant cells embedded in empty lacunae extending from the lamina propria through the muscularis propria into the perivesical soft tissue. The prostate tissue at the base is not involved by this micropapillary urothelial carcinoma. Nonetheless, synchronous prostatic acinar adenocarcinoma is seen. This acinar adenocarcinoma is composed of infiltrative predominantly well-formed small glands with a smaller component of fused glands (Gleason 3 + 4). The glands show nuclear enlargement with prominent nucleoli.
2. Infiltrative carcinoma with micropapillary pattern is well-recognized in many organs including bladder, breast, lung, pancreas, colorectum, and salivary glands, but exceeding rare in prostate (only one case to-date). Apart from clinical correlation, primary micropapillary urothelial carcinoma could be differentiated from other primaries especially prostatic adenocarcinoma with a panel of immunohistochemical markers encompassing uroplakin II, S100P for urothelial carcinoma, and NKX3.1 and PSA for prostatic adenocarcinoma.
3. Incidental prostatic adenocarcinoma in cystoprostatectomy specimens for bladder cancer is not uncommon with a reported rate of 5% to 60%. The majority of these incidental prostatic adenocarcinomas are associated with higher ages of patients, and they are clinically insignificant due to small volume and low tumor stage. Synchronous prostatic adenocarcinoma is also unrelated to bladder cancer stage and grade. Therefore, it is best to regard both synchronous carcinomas as independent primary malignancies with management tailored to them separately.

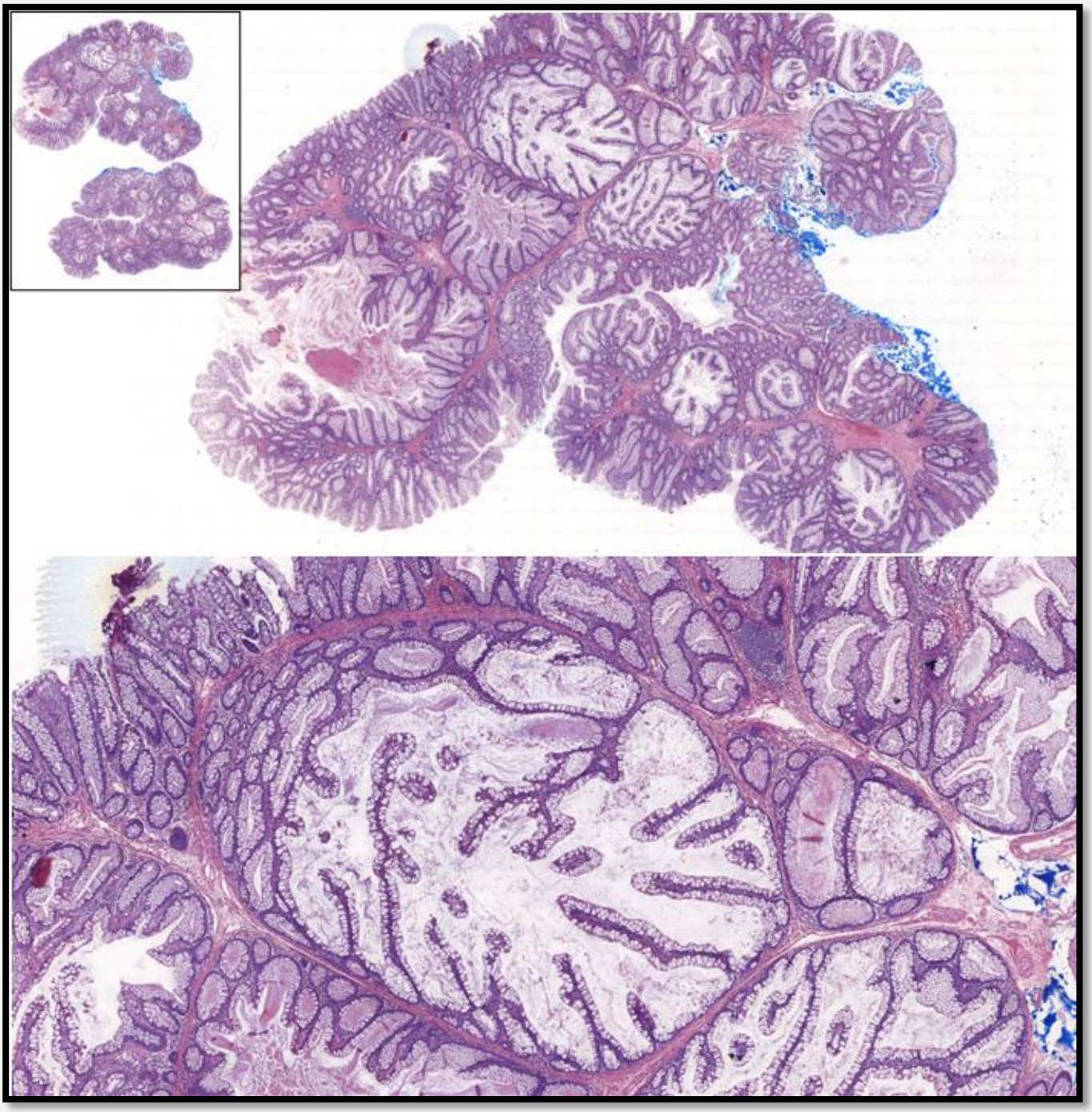
Reference

1. Wadad S. Mneimnehet, et al. (2012) Micropapillary Carcinoma: New Variant of Prostatic Acinar Adenocarcinoma. Arch Pathol Lab Med 136 (11): 1447–1450
2. Ch'ng, ES. (2021) Mining The Cancer Genome Atlas gene expression data for lineage markers in distinguishing bladder urothelial carcinoma and prostate adenocarcinoma. Sci Rep 11, 6765.
3. Jing, Y., et al. (2018), Prevalence and clonality of synchronous primary carcinomas in the bladder and prostate. J. Pathol, 244: 5-10.

Case 6

Case 6: A 25-year-old female had a polyp at the descending colon. One representative section.

Targeted Diagnosis: **Peutz Jeghers polyp**



Case 6

Submitted Diagnoses by Participating Institutions	Number	
Peutz-Jeghers polyp/Hamatomatous polyp.	28	Acceptable
Peutz-Jeghers polyp, with differential diagnosis : Tubular adenoma.	1	Acceptable
Traditional serrated adenoma	1	

Educational notes:

1. There are polyps displaying lobular crypt architecture divided by arborizing smooth muscle. Some of the crypts in the lobules are mildly dilated. These crypts are lined by non-neoplastic mucinous epithelium. These polyps are Peutz-Jeghers (PJ) polyps.
2. PJ polyps are harmatomatous polyps with arborizing smooth muscle dividing lobular compartments of crypts. These histological features are typically seen in polyps arising in small intestine but less prominent in polyps arising in stomach or colon. In colon, the lobular crypt architecture provides better clues. In addition, desmin immunostaining highlights this lobular accentuation in colonic PJ polyps, which is absent in other mimics of PJ polyps such as polypoid mucosal prolapse, hyperplastic polyps and juvenile polyps.
3. Recognition of PJ polyps is important to help diagnose Peutz-Jegher syndrome (PJS). PJS is diagnosed when the following criteria are fulfilled: presence of 3 or more PJ polyps; any number of PJ polyps in a person with a family history of PJS in the first-degree relative; characteristic mucocutaneous pigmentation in a person with a family history of PJS; or any number of PJ polyps in a person with the characteristic mucocutaneous pigmentation of PJS.
4. Patients who are diagnosed with PJS have increased risk for cancer in gastrointestinal tract as well as in extra-gastrointestinal sites. These patients are recommended to undergo intensive surveillance for multiple organs starting as young as 8 years old with frequent interval surveillance.

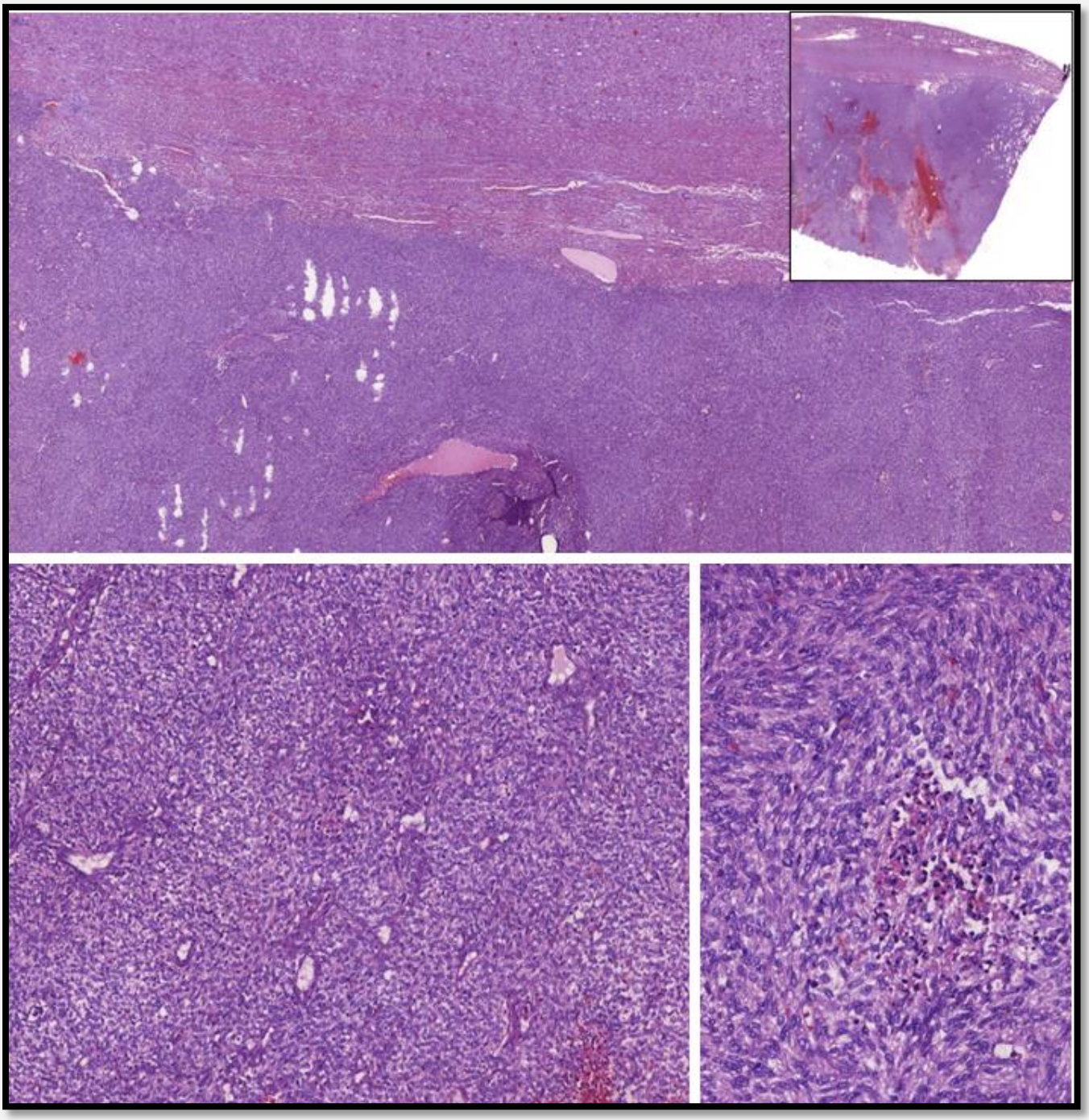
Reference

1. Tse, J., Wu, S., Shinagare, S. et al. (2013) Peutz-Jeghers syndrome: a critical look at colonic Peutz-Jeghers polyps. Mod Pathol 26, 1235–1240
2. Boland CR, et al. (2022) Diagnosis and Management of Cancer Risk in the Gastrointestinal Hamartomatous Polyposis Syndromes: Recommendations from the US Multi-Society Task Force on Colorectal Cancer. Gastroenterology. 162(7):2063-2085.

Case 7

Case 7: A four-month-old baby had a large right renal tumor. One representative section.

Targeted Diagnosis: **Congenital mesoblastic nephroma, cellular type**



Case 7

Submitted Diagnoses by Participating Institutions	Number	
Congenital mesoblastic nephroma, cellular	21	Acceptable
Mesenchymal / spindle cell tumour, differential includes congenital mesoblastic nephroma	5	Acceptable
Wilms tumour/ nephroblastoma	3	
Renal mesenchymal neoplasm suggestive of clear cell sarcoma	1	

Educational notes:

1. There is an unencapsulated tumor with relatively well-demarcated borders. The tumor is markedly cellular, composed of plump cells with vesicular nuclei and a moderate amount of cytoplasm, growing in a densely packed sheet-like pattern. Dilated, non-arborising, thin-walled vessels are present. Necrosis and haemorrhage are evident. Histological features are compatible with cellular form of congenital mesoblastic nephroma (CMN).
2. CMN appears in three histological subtypes, the classic, cellular and mixed types. In contrast to the cellular type, the classic has poorly demarcated border and irregular tumor-kidney interface. Bland spindle cells are organized in interlacing fascicular pattern, frequently forming finger-like protrusions and entrapment of islands of uninvolved renal parenchyma. Abundant collagen deposition and extramedullary hematopoiesis are noted. The mixed subtype shows features of both. For this cellular type, ETV6 gene rearrangement on fluorescence in-situ hybridization was demonstrated. A fusion of ETV6 and NTRK3 genes has been found in ~70% of cellular CMN; this is a desirable diagnostic criterion for cellular CMN. Nuclear staining by pan-TRK antibody also supports such diagnosis.
3. For differential diagnoses, clear cell sarcoma of the kidney typically shows monotonous, plump ovoid cells with variably clear nuclei and/or cytoplasm. There is a distinctive arborising fibrovascular septa (delicate branching 'chicken wire' vessels) that separate the tumor cells into nests and trabeculae. Spindled and cellular areas can be present, but the classic patterns are usually seen at least focally. Nephroblastoma or Wilms tumor (WT) with pure stromal component may be difficult to differentiate from cellular CMN. The presence of skeletal muscle and blastema, age older than 1 year, bilateral tumors, and nephrogenic rests favor the diagnosis of WT over cellular CMN.

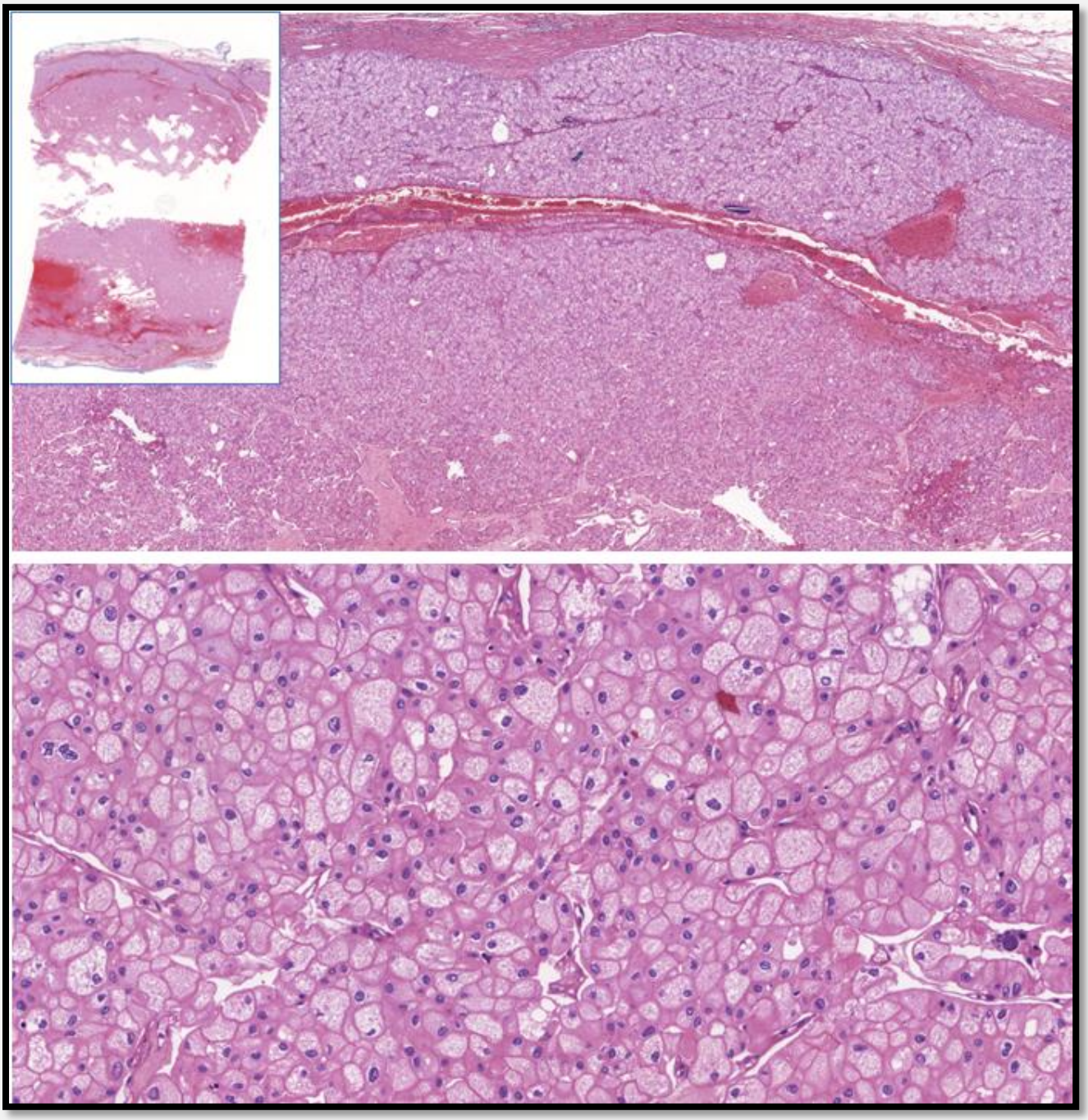
Reference

1. WHO Classification of Tumours Editorial Board. Paediatric tumours [Internet; beta version ahead of print]. Lyon (France): International Agency for Research on Cancer; 2022 [cited 2022 Sept 9]. (WHO classification of tumours series, 5th ed.; vol 7).
2. Ooms, A. H., et al. (2020). Renal tumors of childhood—a histopathologic pattern-based diagnostic approach. Cancers, 12(3), 729.

Case 8

Case 8: A 45-year-old male had a left kidney tumor. One representative section.

Targeted Diagnosis: **Chromophobe renal cell carcinoma**



Case 8

Submitted Diagnoses by Participating Institutions	Number	
Chromophobe renal cell carcinoma	29	Acceptable
Malignant eosinophilic renal cell neoplasm; differentials include Chromophobe RCC, Eosinophilic variant CCRCC, and others. Panel of IHC is required	1	Acceptable

Educational notes:

1. This renal tumor is composed of solid sheets of cells separated by fibrous and vascular septa. The cells are composed predominantly of chromophobe cells displaying abundant pale opaque cytoplasm and prominent plantlike distinct cell membrane. A small proportion of smaller eosinophilic cells are admixed. Both cell types display the characteristic hyperchromatic, irregular wrinkled (raisinoid)nuclei; binucleation is noted. There are perinuclear haloes. These histological features are that of chromophobe renal cell carcinoma.
2. Chromophobe renal cell carcinoma was first described in 1985 and later an eosinophilic variant was added. Recent WHO classification does not differentiate the classic and eosinophilic chromophobe renal cell carcinomas as there is no prognostic significance and lack of defined criteria between them. Nonetheless, when eosinophilic cells predominate in chromophobe renal cell carcinoma, distinction from oncocytoma is important. The most useful immunohistochemical marker for distinction is CK7. In chromophobe renal cell carcinoma, CK7 immunostaining is usually diffuse whereas in oncocytoma, scattered CK7-positive cells appear in less than 5% and as single cells or small clusters.
3. Strict criteria should be adhered to when diagnosing chromophobe renal cell carcinoma and oncocytoma. Nonetheless, there is a heterogenous category of 'other oncocytic tumors of the kidney' in the recent WHO classification, which contains tumors that exhibit overlapping or intermediate features between oncocytoma and chromophobe renal cell carcinoma.
4. Chromophobe renal cell carcinoma patients generally have excellent outcomes with distant metastasis and death occurring in 6% and 2% of them, respectively. Chromophobe renal cell carcinoma is not graded using WHO/ISUP 4-tiered grading system as there is no prognostic value.

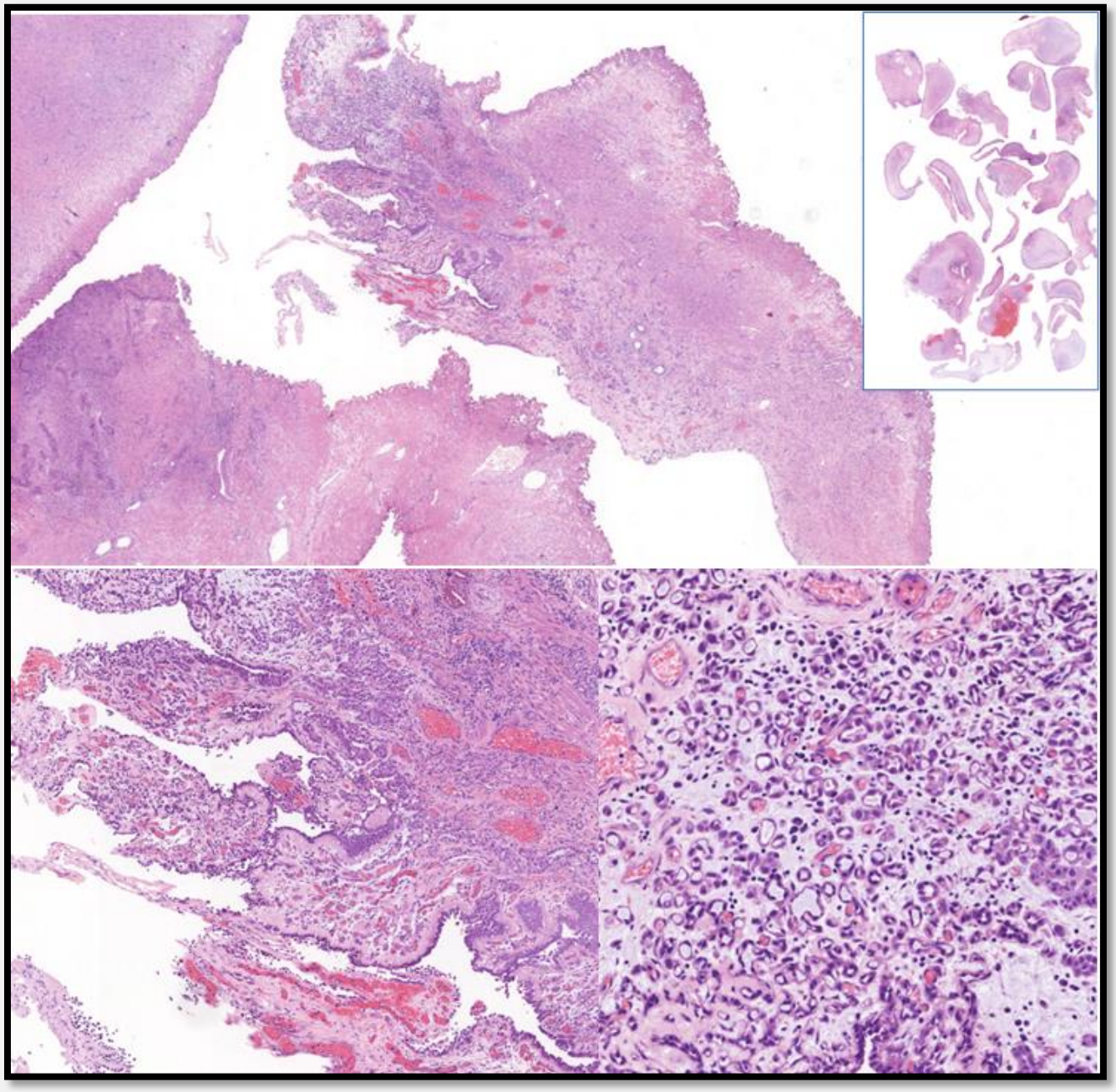
Reference

1. Lobo, J., et al. (2022), WHO 2022 landscape of papillary and chromophobe renal cell carcinoma. Histopathology, 81: 426-438.

Case 9

Case 9: A 77-year-old male presented with lower urinary tract symptoms and hematuria. Trans-urethral resection of the prostate (TURP) was performed. One representative section.

Targeted Diagnosis: **Nephrogenic adenoma / nephrogenic metaplasia**



Case 9

Submitted Diagnoses by Participating Institutions	Number	
Nephrogenic adenoma	19	Acceptable
Nephrogenic adenoma with spindle cell lesion/prostatic stromal nodule/ prostatic stromal tumour of uncertain malignant potential.	4	Acceptable
Differential of nephrogenic metaplasia versus acinar adenocarcinoma/ xanthogranulomatous inflammation with nephrogenic metaplasia	2	Acceptable
Low-grade spindle cell lesion, suggestive of STUMP	2	
Inflammatory myofibroblastic tumour	1	
Prostatic adenocarcinoma	1	
Benign prostate hyperplasia with chronic non specific prostatitis	1	

Educational notes:

1. One of the prostatic urethral fragments contains clusters of small tubules embedded within an edematous stroma. Some of these tubules are lined by flattened epithelium with hobnail nuclei, while others appear cuboidal-shaped with small round nuclei and eosinophilic cytoplasm. The tubules are surrounded by thick basement membrane akin to tubular cells of the kidney. Nucleolus is inconspicuous and there is no nuclear atypia present. This focus represents nephrogenic adenoma.
2. Nephrogenic adenoma/metaplasia represents a benign metaplastic response towards injury. Some lesions may result from mechanical implantation of renal tubules into the urethral mucosa. Morphological features range from well-formed tubules and papillae, to microcystic or vascular-like architectures. Rarely, there are spindled cells within a fibromyxoid background with only rare tubular and cord-like structures. The small tubules are often surrounded by a thickened hyalinized basement.
3. The pseudo-infiltrative pattern of nephrogenic adenoma may histologically mimic prostatic adenocarcinoma, especially when there is extension into superficial muscle. Further potential pitfall is the frequent expression of racemase and lack of basal cell markers. However, nuclear atypia is typically minimal, there is no mitotic figure and there is lack of desmoplastic stromal response. Positivity towards renal transcription factors PAX2 and PAX8, as well as S-100A1 (a calcium binding protein expressed in renal tubular cells) supports the diagnosis of nephrogenic adenoma/metaplasia.
4. Benign nodular hyperplasia of the prostate with pure stromal nodules (stromal hyperplasia) may contain degenerative atypia. Features that favor prostatic stromal tumor of uncertain malignant potential (STUMP) include excessive growth of atypical stromal cells, high degree of hypercellularity, presence of eosinophilic cytoplasm and absence of thick-walled vessels. However, the distinction may be difficult in small specimens.

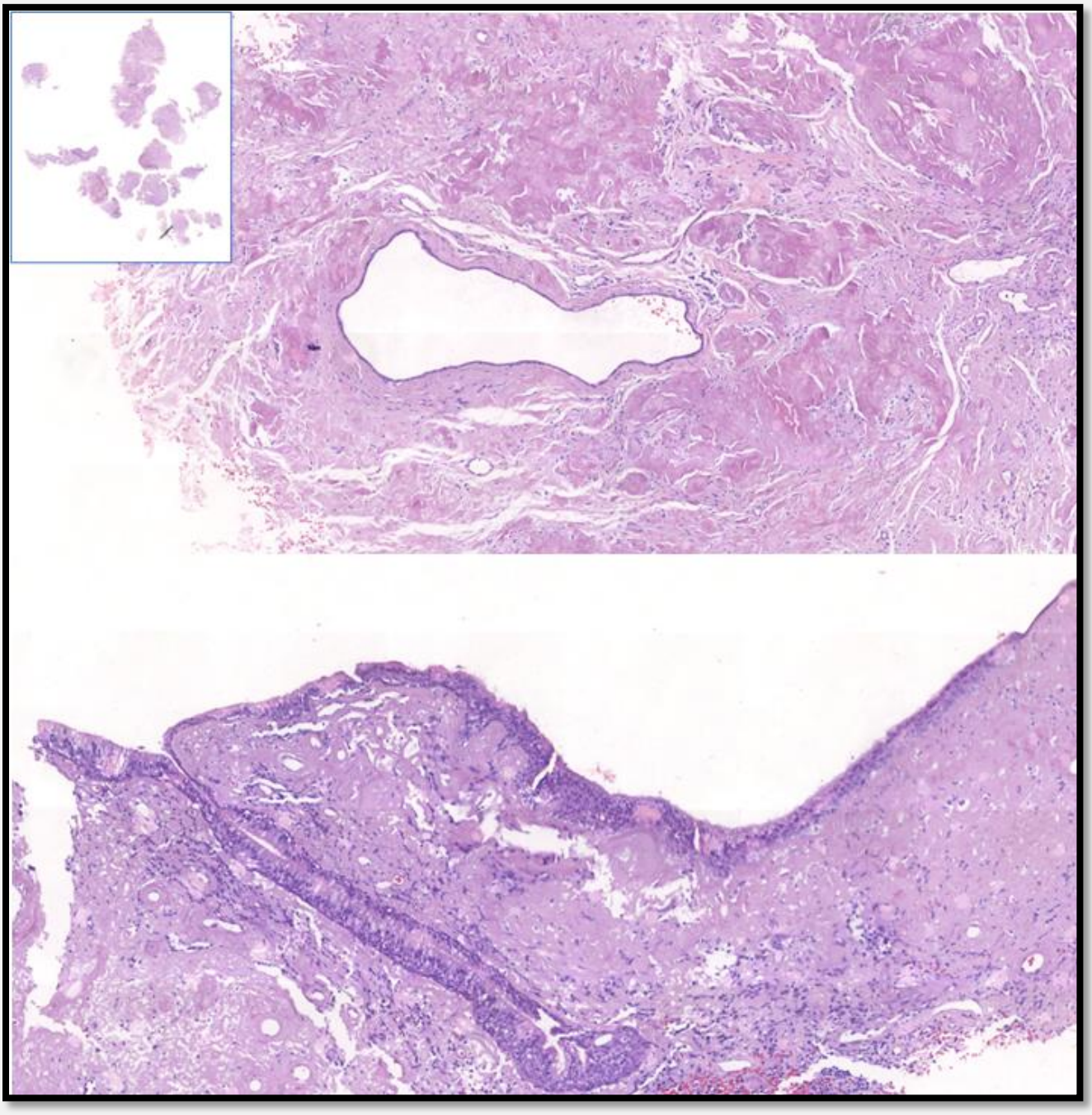
Reference

1. Goldblum JR, Lamps LW, McKenney JK, Myers JL. (2018) Rosai and Ackerman's surgical pathology. 11th ed. Philadelphia: Elsevier.
2. Alexiev, B. A., & LeVea, C. M. (2012). Nephrogenic adenoma of the urinary tract: a review. International journal of surgical pathology, 20(2), 121-129.
3. Bostwick, D. G., & Egevad, L. (2021). Prostatic stromal proliferations: a review. Pathology, 53(1), 12-25.
4. Amin, M. B., et al. (2022). WHO Classification of Tumours Editorial Board. Urinary and Male Genital Tumours WHO Classification of Tumours Series, 5th ed.; International Agency for Research on Cancer: Lyon, France.

Case 10

Case 10: A 22-year-old male had a biopsy of the left false vocal cord. One representative section.

Targeted Diagnosis: **Amyloidosis**



Case 10

Submitted Diagnoses by Participating Institutions	Number	
Amyloid/ Amyloidosis/ Amyloidoma	26	Acceptable
Benign lesion probably amyloid/ Laryngeal nodule, differential includes amyloidosis/ benign hyalinised nodule suggest stain to exclude amyloidosis	3	Acceptable
Mucous retention cyst (mucocele)	1	

Educational notes:

1. The tissue fragments are partly covered by benign respiratory type epithelium. Abundant amorphous homogenous acellular eosinophilic materials are observed predominantly in the subepithelial stroma. Focal mild lymphoplasmacytic infiltrates are present surrounding the deposits. The deposits are consistent with amyloid.
2. Laryngeal amyloidosis is rare; the most affected sites are the ventricles and false focal cords. Typically, the amyloid deposits are composed of smooth, submucosal nodular to diffuse extracellular deposits beneath an intact surface epithelium. Often there is accentuation around minor seromucous glands and vessels, which would show compression atrophy. A sparse inflammatory infiltrate predominantly made up of lymphocytes and plasma cells is common, particularly at the leading edge of the deposit. Occasional histiocytes and foreign-body-type giant cells may be present, either at the peripheral margin or enclosed within the amyloid. The characteristic apple-green birefringence seen under polarized light with Congo red stain is the most reliable confirmatory test.
3. A differential diagnosis is benign hyalinized nodule that can present as vocal cord polyps and nodules. Benign hyalinized nodules represent a reactive process following excessive and improper use of voice. There is deposition of fibrin-type hyalinized material closely related to vascular spaces. Typically, there is lack of inflammatory infiltrates. Congo red stain yields negative result.

Reference

1. Thompson, L. D., & Bishop, J. A. (2017). Head and neck pathology E-book: a volume in the series: foundations in diagnostic pathology. Elsevier Health Sciences.