XXII CONVEGNO SOCIETÀ LIGURE DI OTORINOLARINGOIATRIA
E CHIRURGIA CERVICO-FACCIALE



Tumefazioni del collo:
dalla diagnosi
al trattamento

sabato **10 ottobre 2026** Grand Hotel **Arenzano**

Il ruolo dell'agoaspirato (FNAC-FNAB) nelle tumefazioni del collo

Patrizia Morbini

Anatomia Patologica

Ospedali Galliera Genova

SIAPEC - IAP

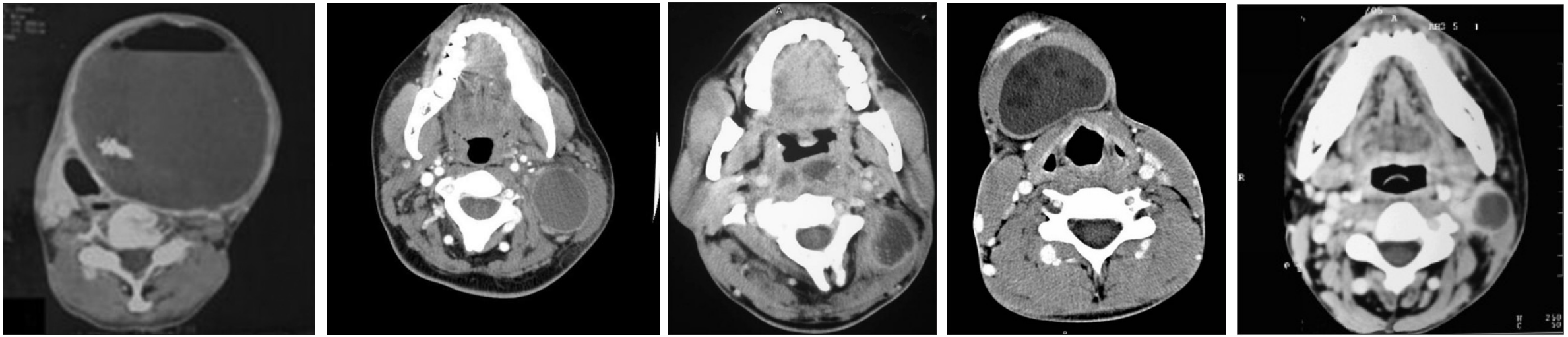
AIOCC - IHNS
Associazione Italiana Oncologia Cervico Cefalica

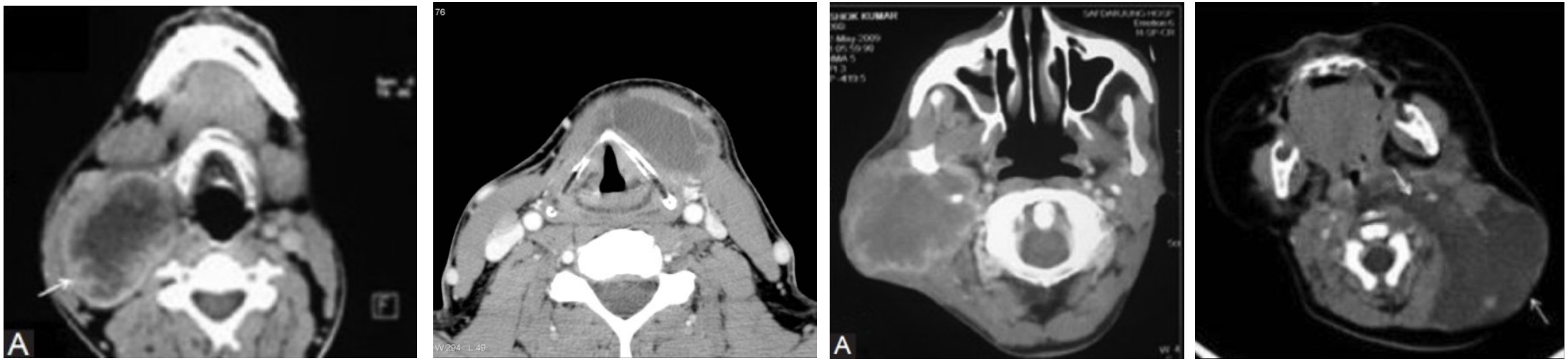
Ente Ospedaliero Ospedali Galliera Genova
Ospedale di rilievo nazionale e di alta specializzazione



NECK MASSES ARE NOT CREATED EQUAL







NECK "CYSTS"

- **Thyroglossal duct cyst**
- **Branchial cleft cysts**
- **Dermoid and epidermoid cysts**
- **Laryngocele**
- **Thymic cyst**
- **Cervical bronchogenic cysts**
- **Cystic lesions of ectopic thyroid**
- **Cystic lesions of salivary glands**
- **Vascular** (pseudoaneurysm, arteriovenous fistula/malformation, venous vascular malformation, and phlebectasia, **lymphangioma**)

- Benign cysts of the lateral neck are often congenital, or malformative. They are typical of childhood ad adolescence.
- Acquired cysts appearing later and becoming sympthomathic are at risk of malignancy

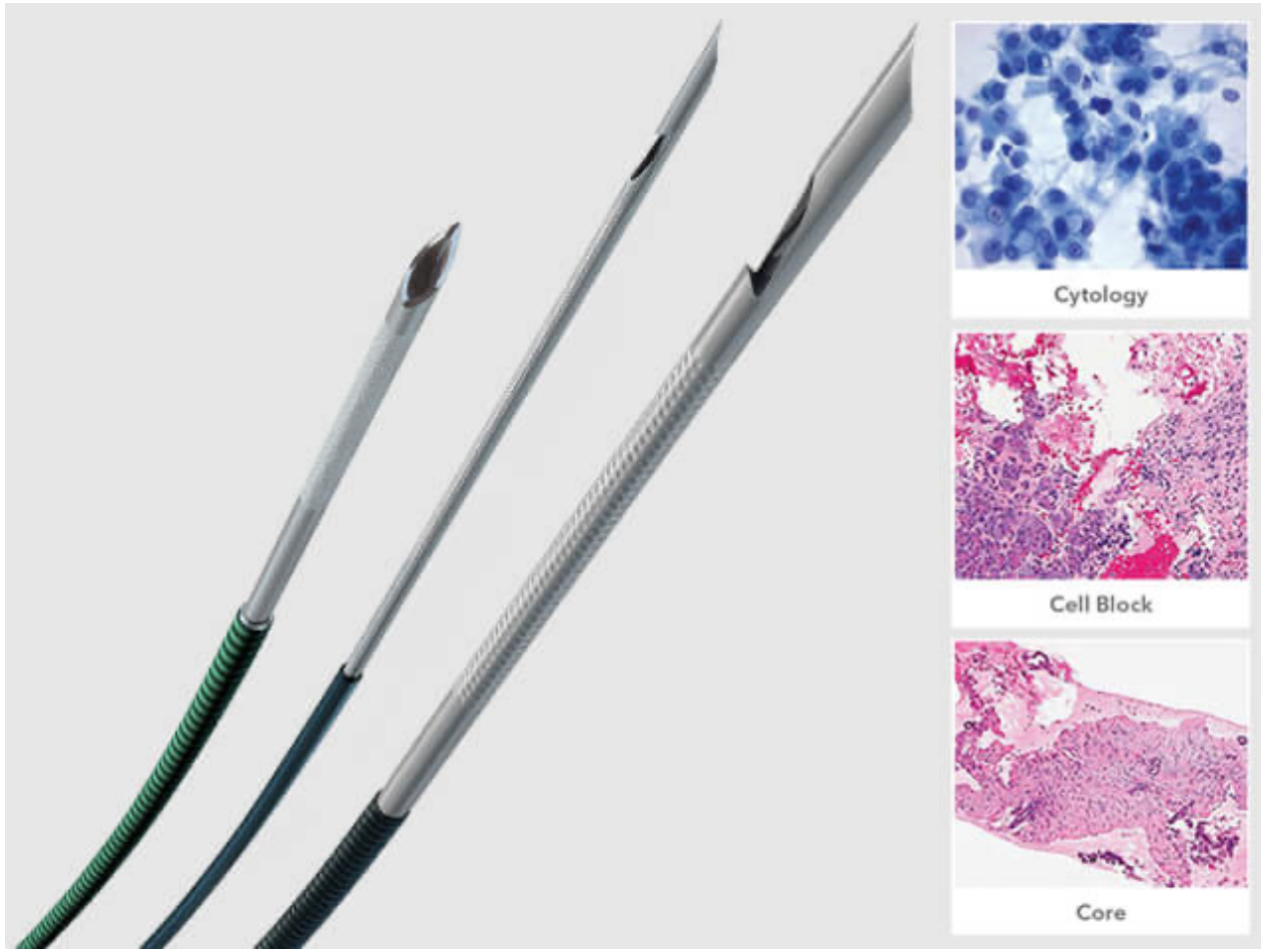
NECK MASSES/CYST-LIKE LESIONS

- **Neurogenic tumors**
- **Infections/inflammatory lesions**
- **Necrotic lymphnode metastasis**
- **Lymphoadenopathies**

CYTO/HISTOPATHOLOGICAL DIAGNOSIS

SAMPLING METHODS

- (US-guided) fine needle aspiration
- (US guided) needle core biopsy



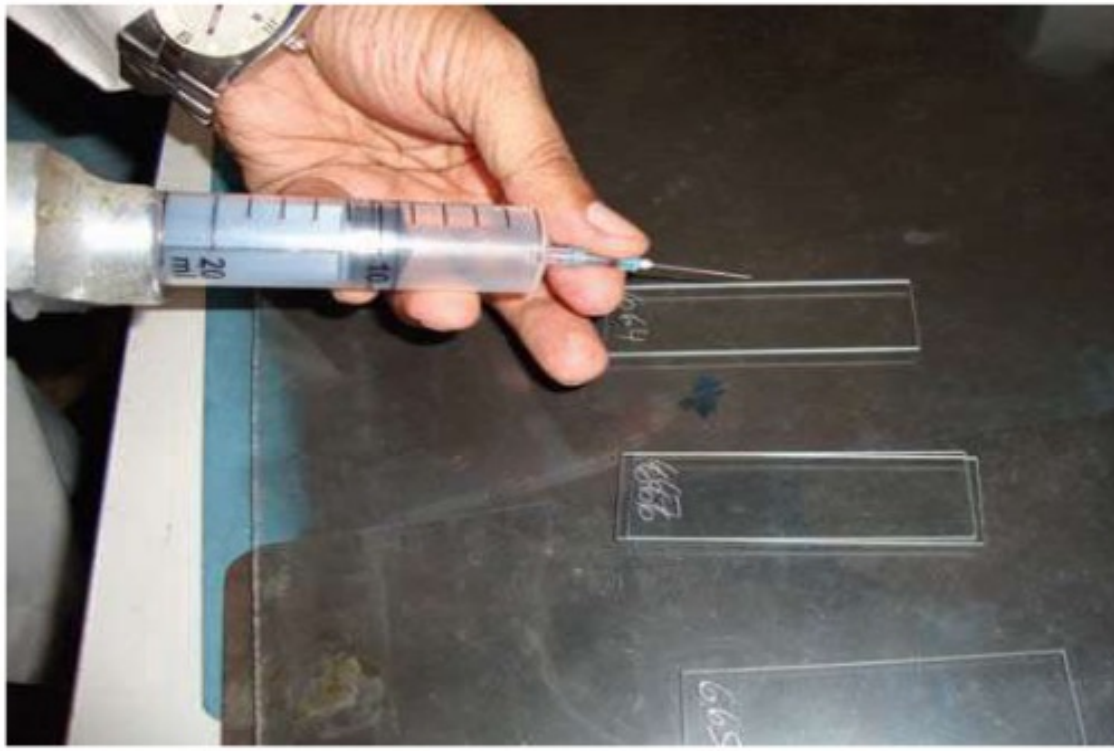
CYTOLOGICAL (FNA) SAMPLES

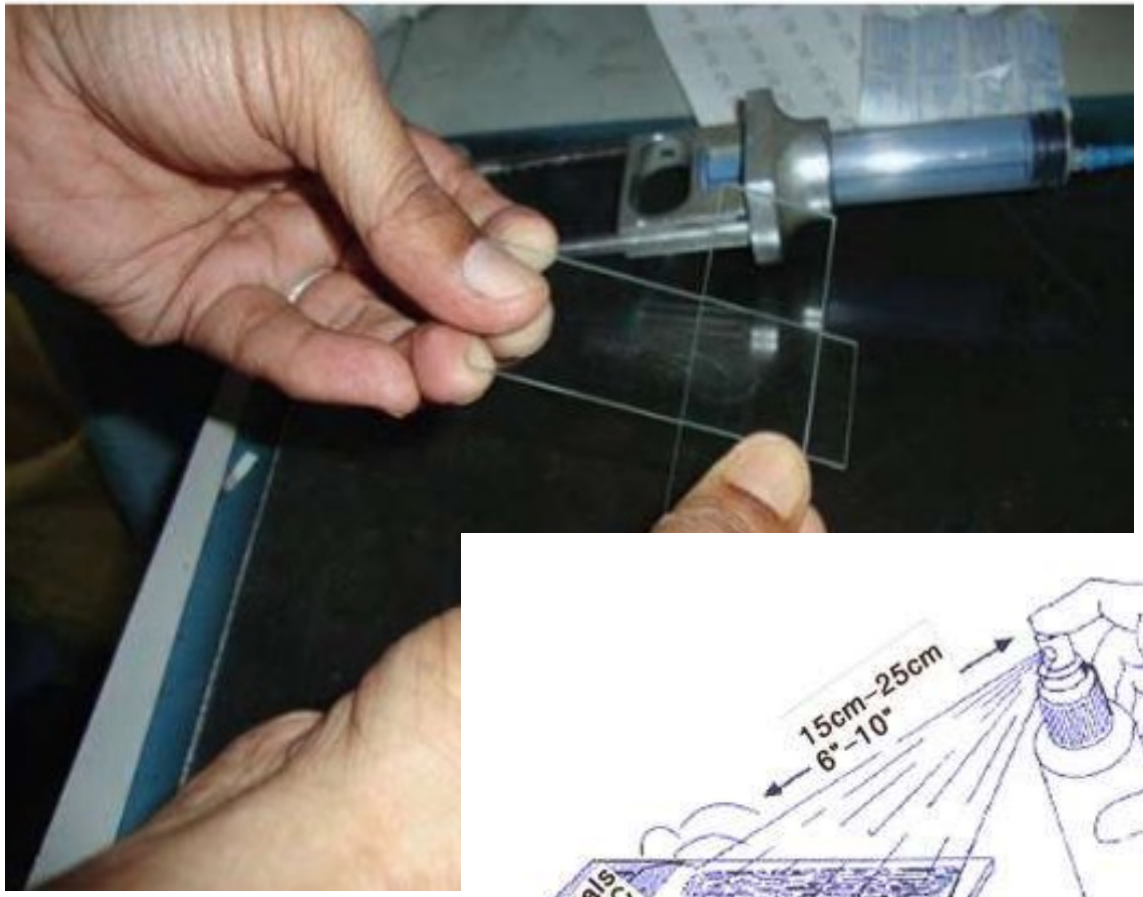
- **Easy to obtain, limited discomfort, few complications, early discharge**
- **Short laboratory turn-around time**
- **Adequate cell smearing tricky**
- **Air-drying-induced artifacts**
- **Spray fixation uneven (better results by immersion in 95% ethanol)**
- **Limited data on tissue architecture**
- **Only available for cytomorphological observation (no immuno, no molecular)**
- **High rate of inadequate samples**

Recommended technical improvements

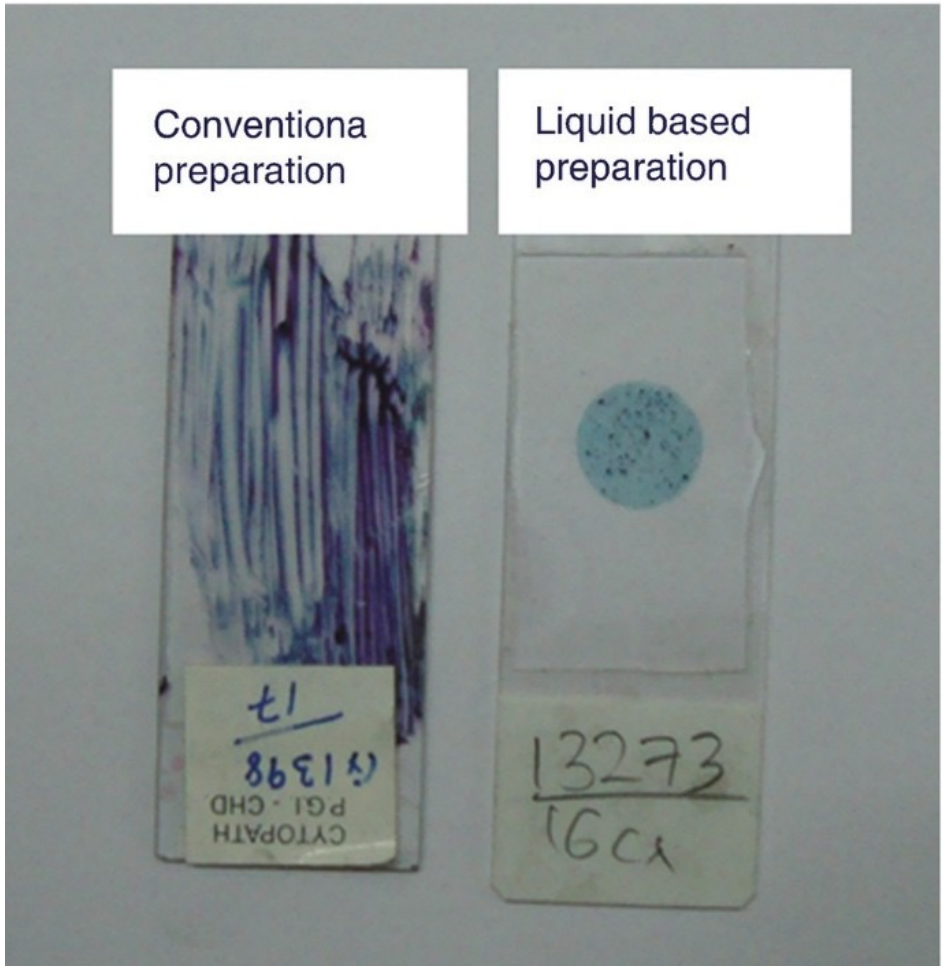
- **Liquid-based cytology (Thin-Prep)**
- **Cell block**
- **ROSE**
- **Needle rinse**

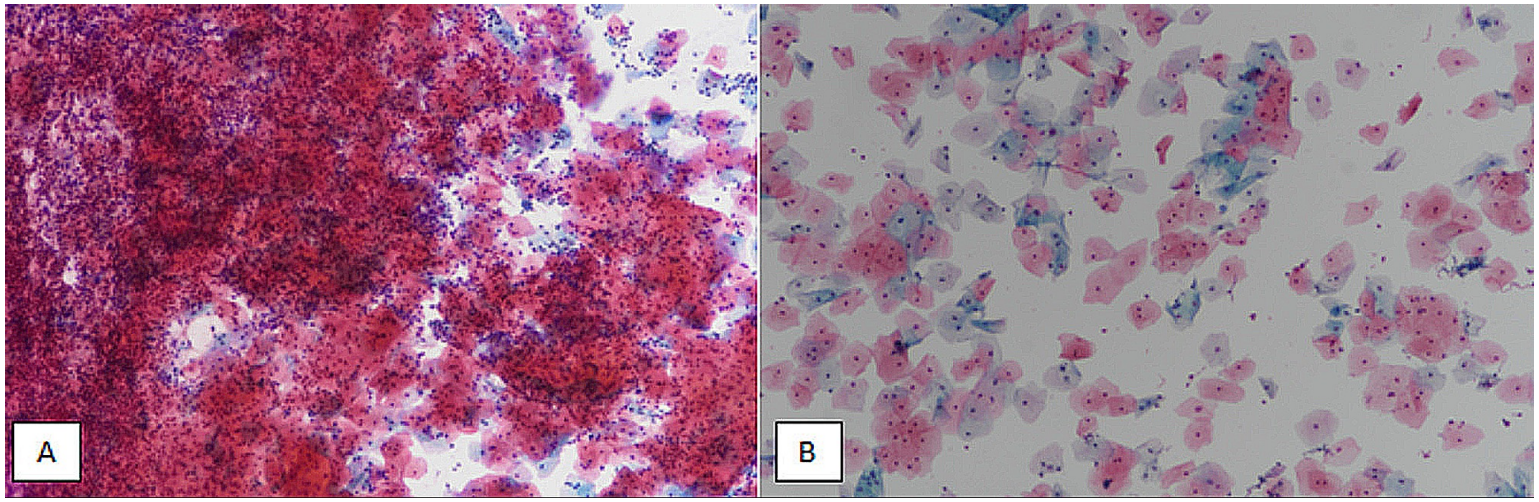
MANUAL SMEARING

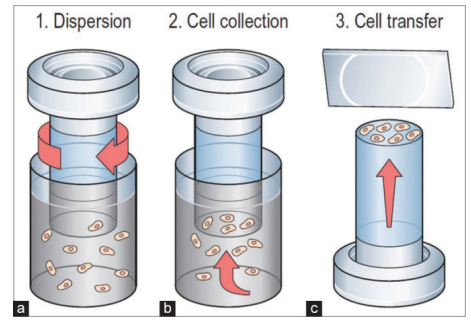




LIQUID-BASED CYTOLOGY









LIQUID-BASED CYTOLOGY

Advantages

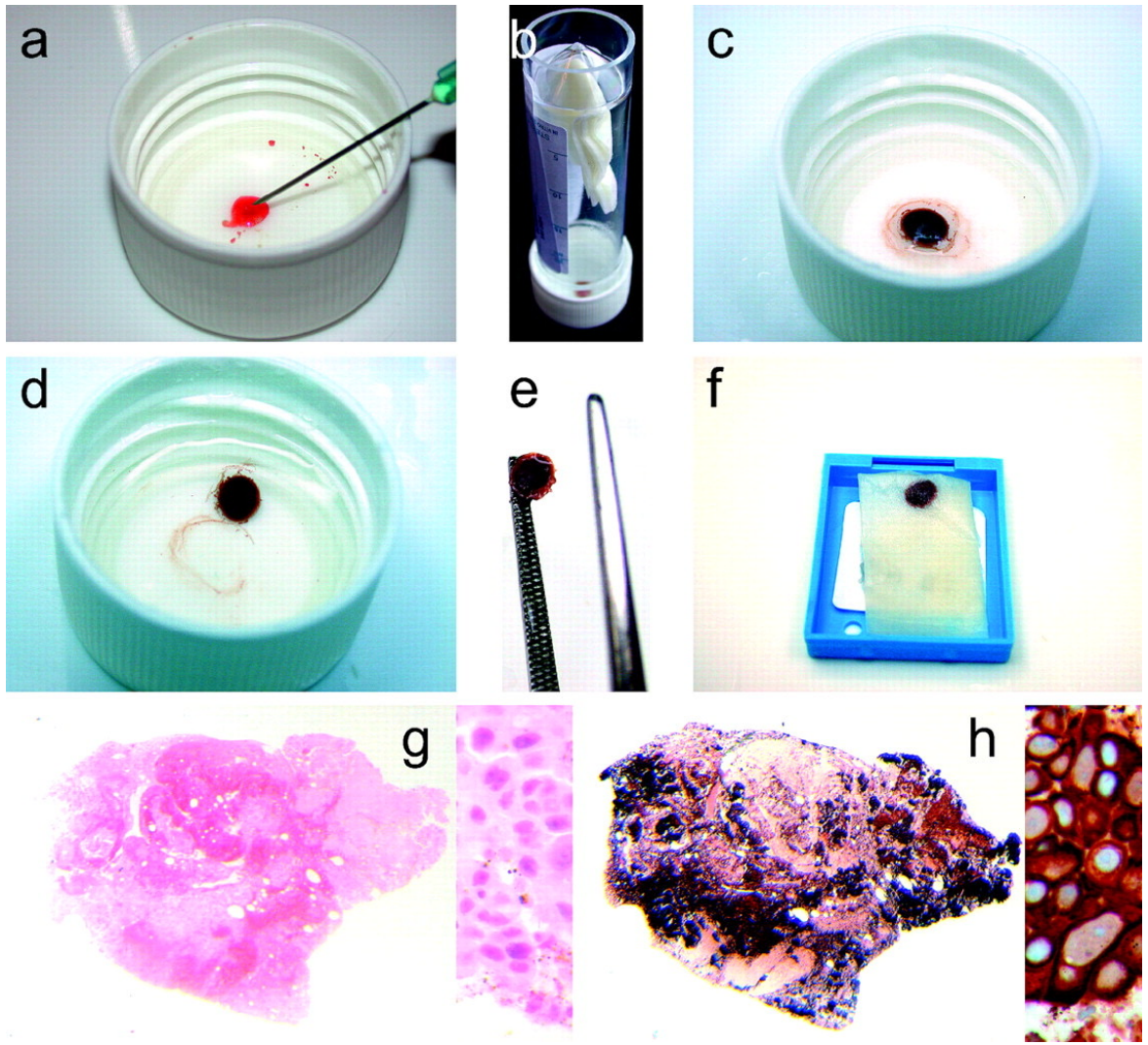
- Better morphological detail
- Standardized fixation phase
- Residual material in the vial can be preserved for immunostain or molecular tests

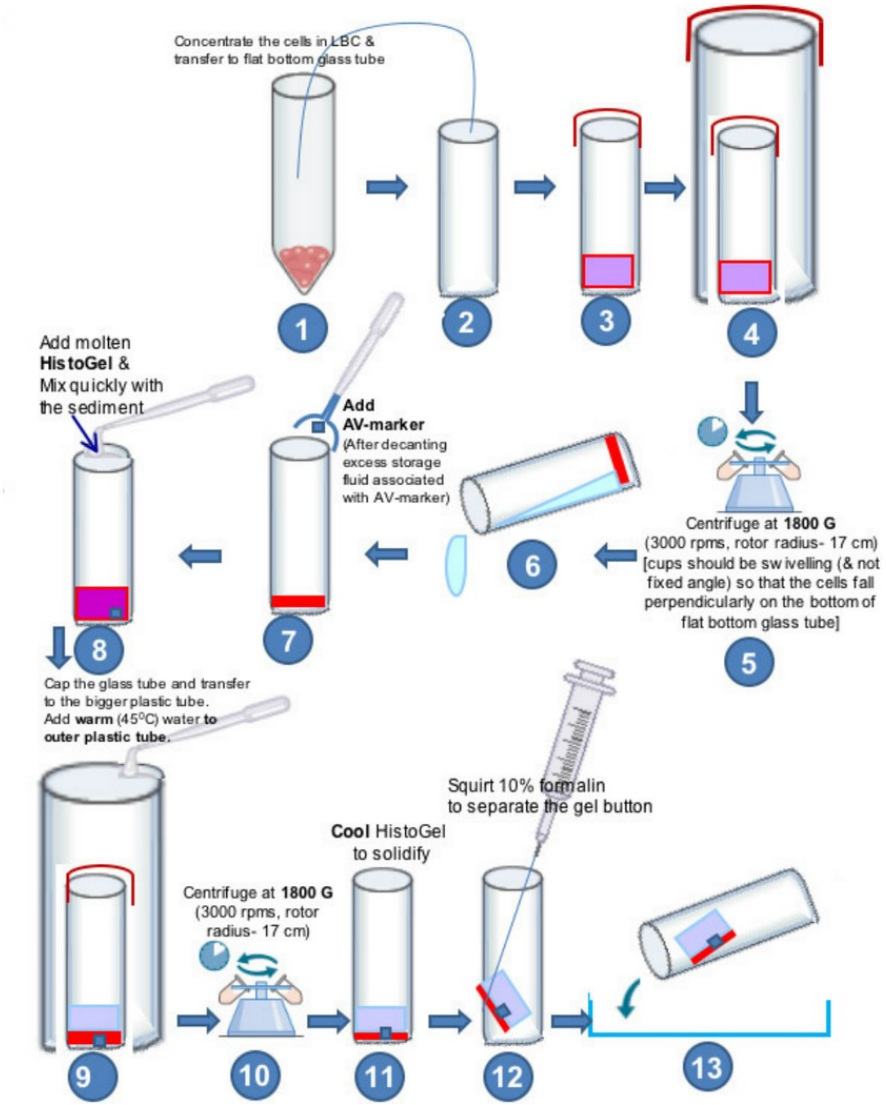
Disadvantages

- Loss of background acellular material
- More expensive than smears

CELL BLOCK




a
b
c
d
e
f
g
h


Concentrate the cells in LBC & transfer to flat bottom glass tube
1
2
3
4
Centrifuge at 1800 G (3000 rpms, rotor radius- 17 cm) [cups should be swivelling (& not fixed angle) so that the cells fall perpendicularly on the bottom of flat bottom glass tube]
5
6
Add AV-marker (After decanting excess storage fluid associated with AV-marker)
7
Add molten HistoGel & Mix quickly with the sediment
8
Cap the glass tube and transfer to the bigger plastic tube. Add warm (45°C) water to outer plastic tube.
9
Centrifuge at 1800 G (3000 rpms, rotor radius- 17 cm)
10
Cool HistoGel to solidify
11
Squirt 10% formalin to separate the gel button
12
13

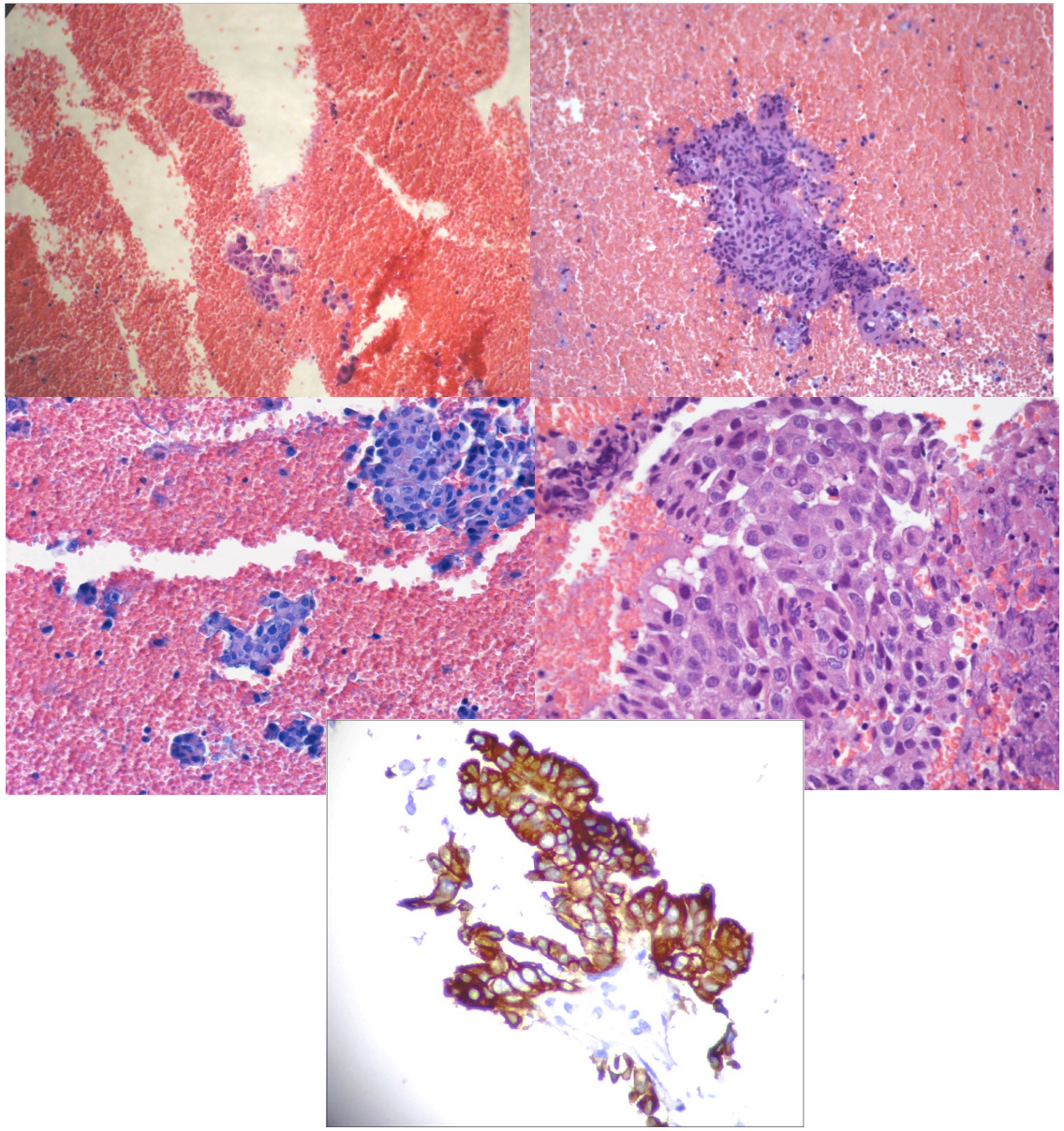
CELL BLOCK

Advantages

- Samples handled like a biopsy
- Better morphological detail
- Standardized fixation phase
- Permanent residual material available for immunostain or molecular tests

Disadvantages

- Takes more time
- Higher rate of non diagnostics vs liquid phase



RAPID ON-SITE EVALUATION - ROSE

- Real-time assessment of FNA specimen adequacy at the bedside
- 2-3 slides smeared and stained (diff-quick) for each aspirate
- Immediate microscope check by cytopathologist
- FNA repeated if sample inadequate

Advantages

- Lowers the rate of non-diagnostic samples
- Further material can be preserved for cell block/liquid phase (ancillary tests)
- Cyto(patho)logist can work remotely via digital pathology, provided that smears are properly prepared

Limitations

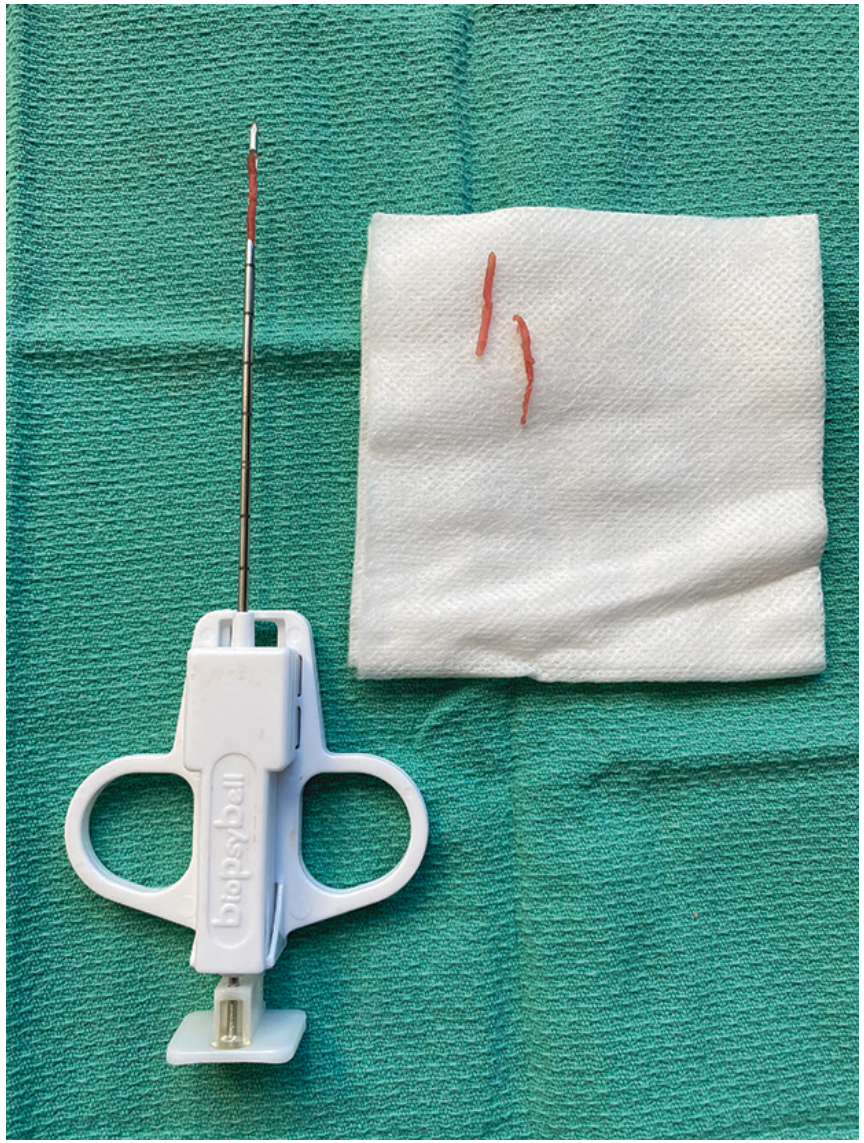
- Time-consuming
- Can not absolutely exclude further non-diagnostic sampling

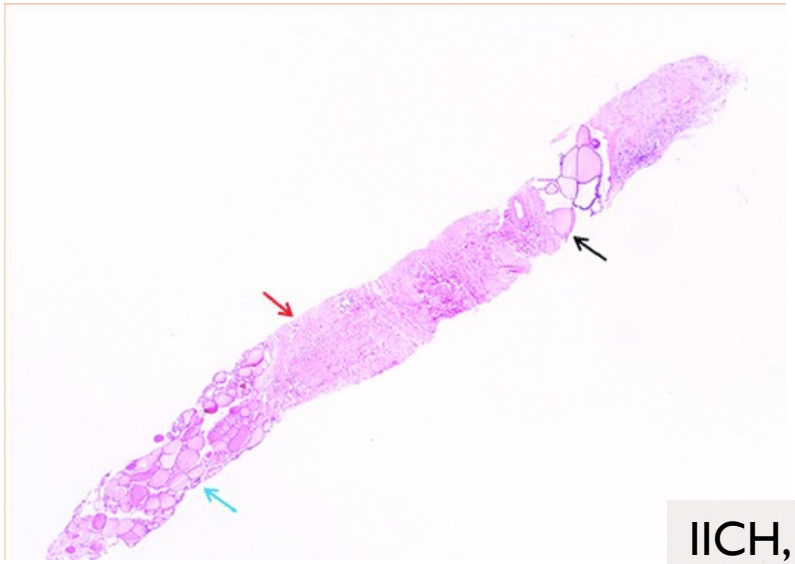
CORE-NEEDLE HISTOLOGICAL SAMPLES

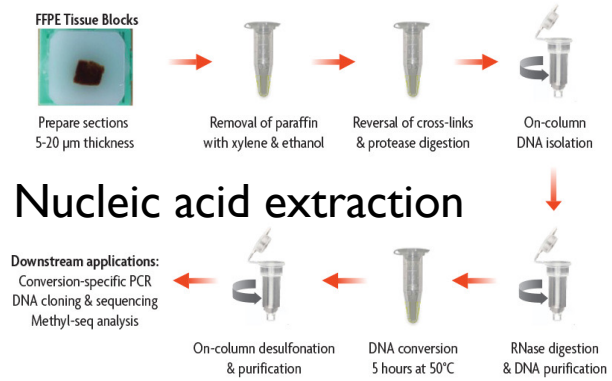
- Easy to obtain, more discomfort, slightly more complications
- Longer lab turn-around time
- Adequacy can not be controlled

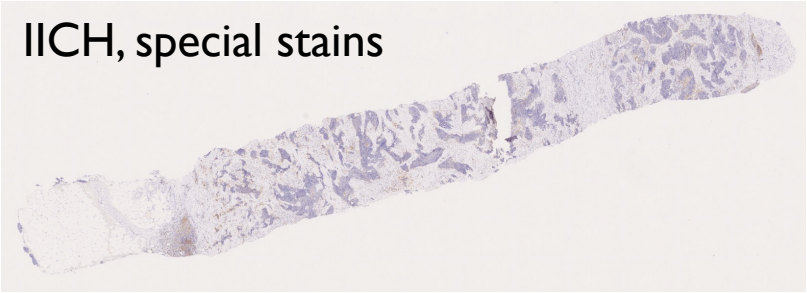
- Standard formalin fixation
- Cytoarchitectural evaluation (+immuno,+molecular)

CORE-NEEDLE HISTOLOGICAL SAMPLES









Sample yield can be improved maximizing cell recovery:

Core needle biopsy wash -> liquid phase



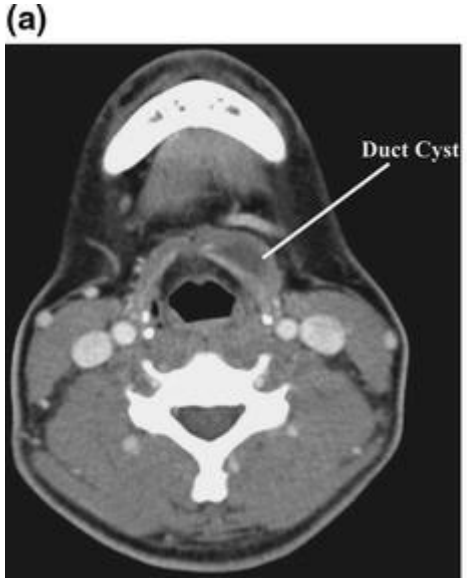
HOW TO CHOOSE SAMPLING?

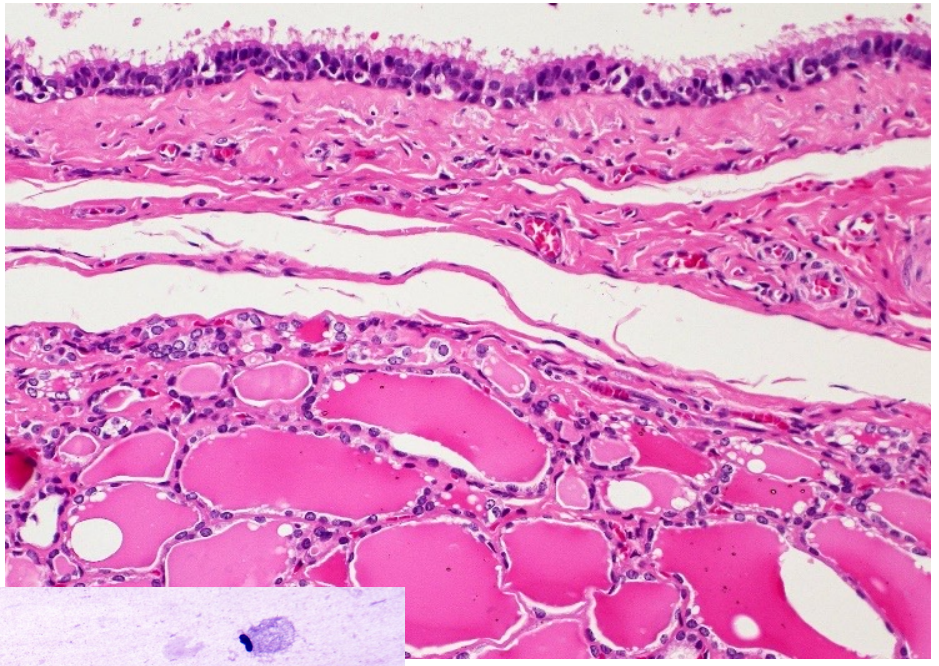
LOOK AT THE TARGET!

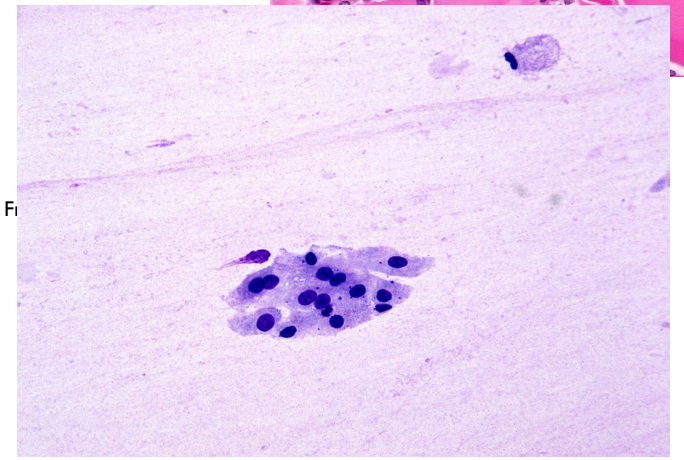
THYROGLOSSAL DUCT CYST

- Most common congenital abnormality in the central neck compartment (70-75% of midline-neck swelling in children).
- Up to 7% in a series of adult autopsies.

- **Diagnosis: Imaging (FNA)**



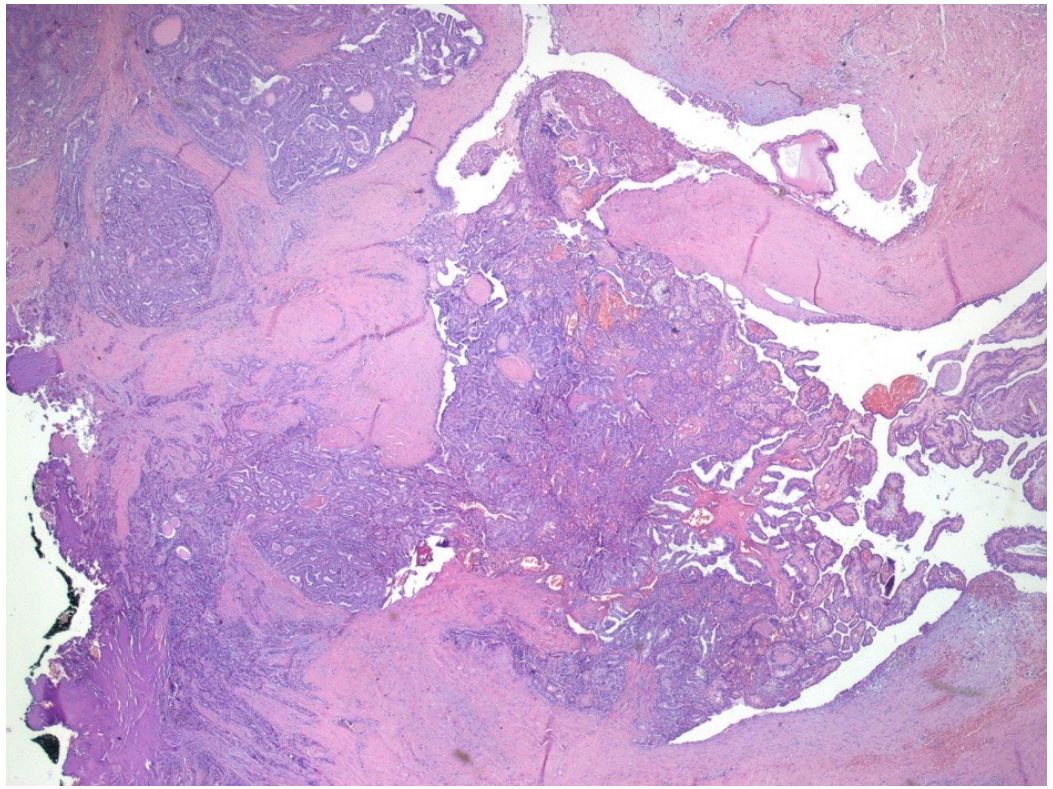


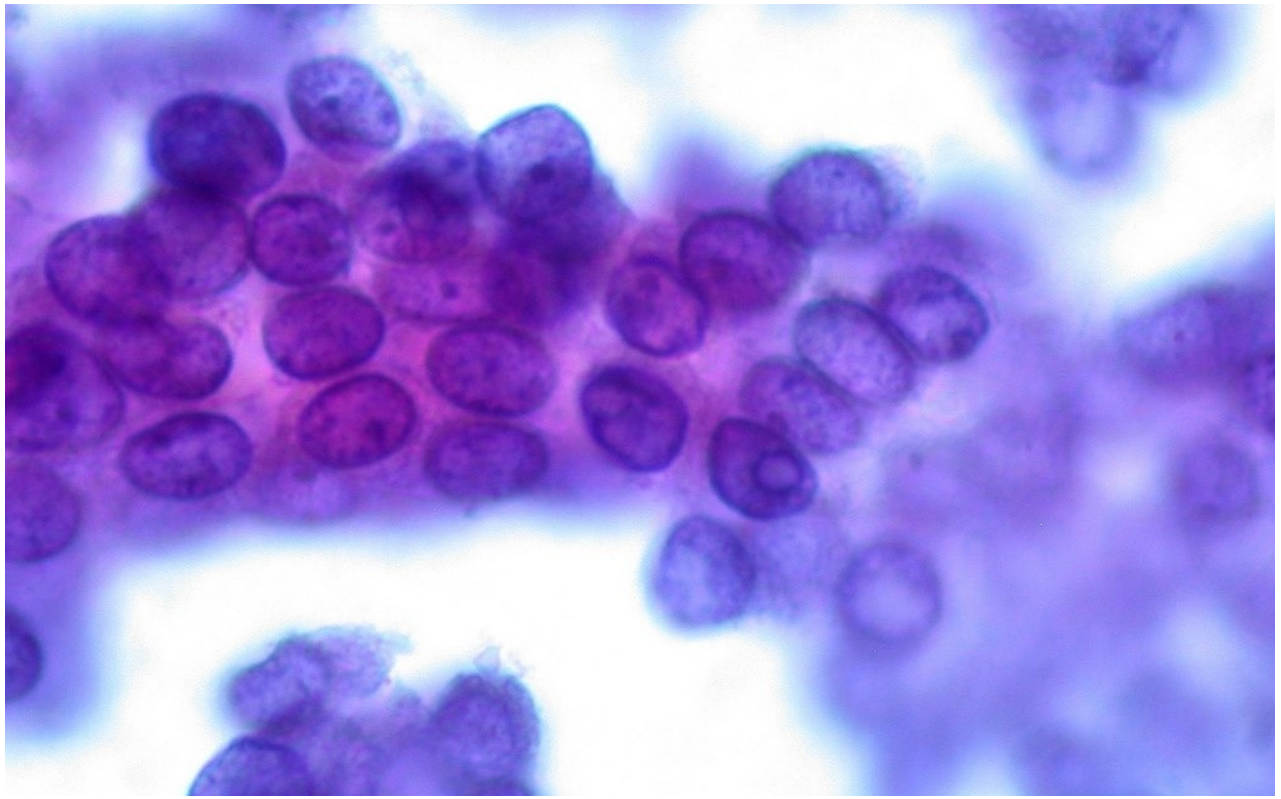


PAPILLARY CARCINOMA EX TDG

Thyroglossal duct carcinomas occur in approximately 1% of thyroglossal duct cysts

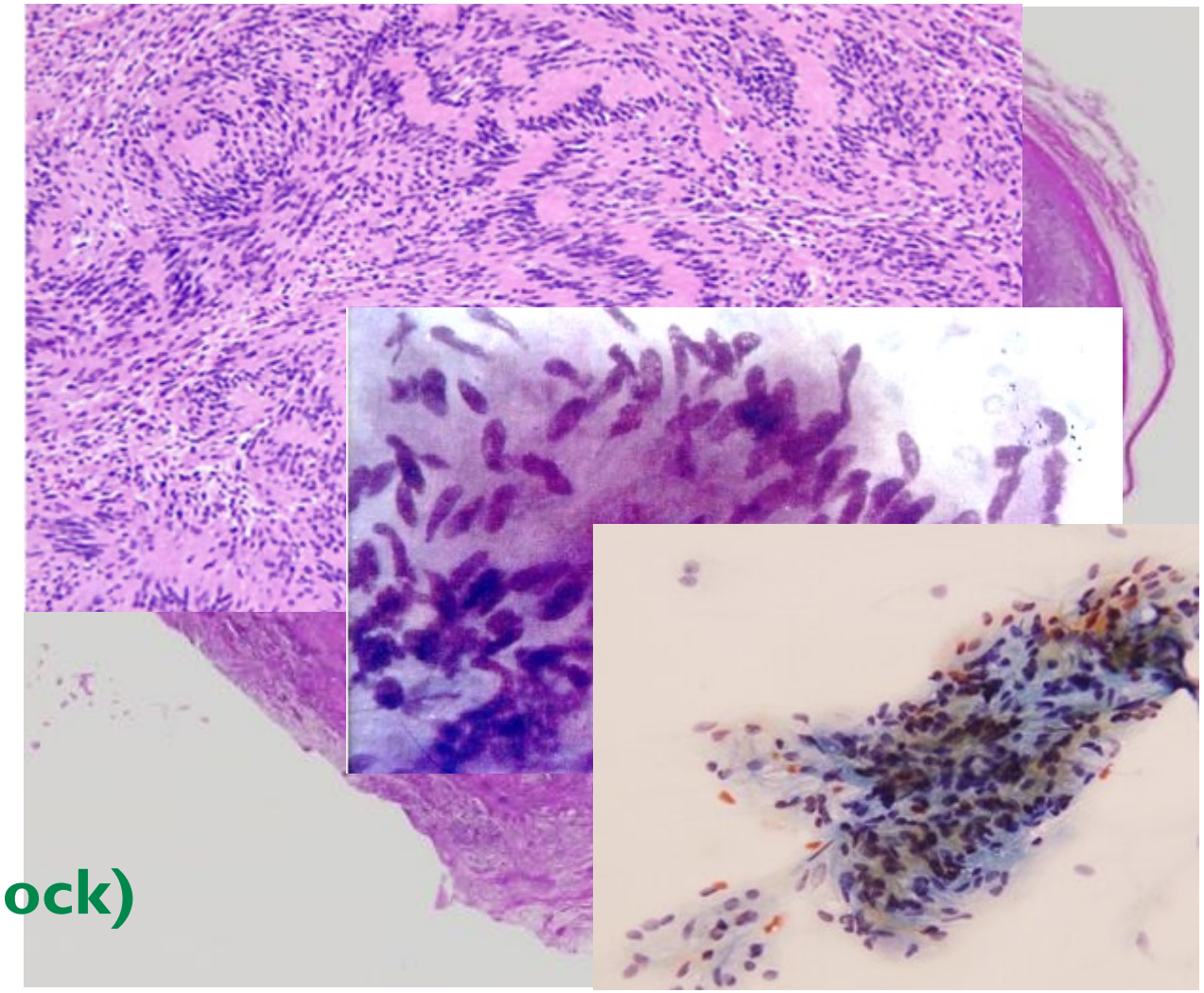
- **Diagnosis: Imaging + FNA (+ cell block)**





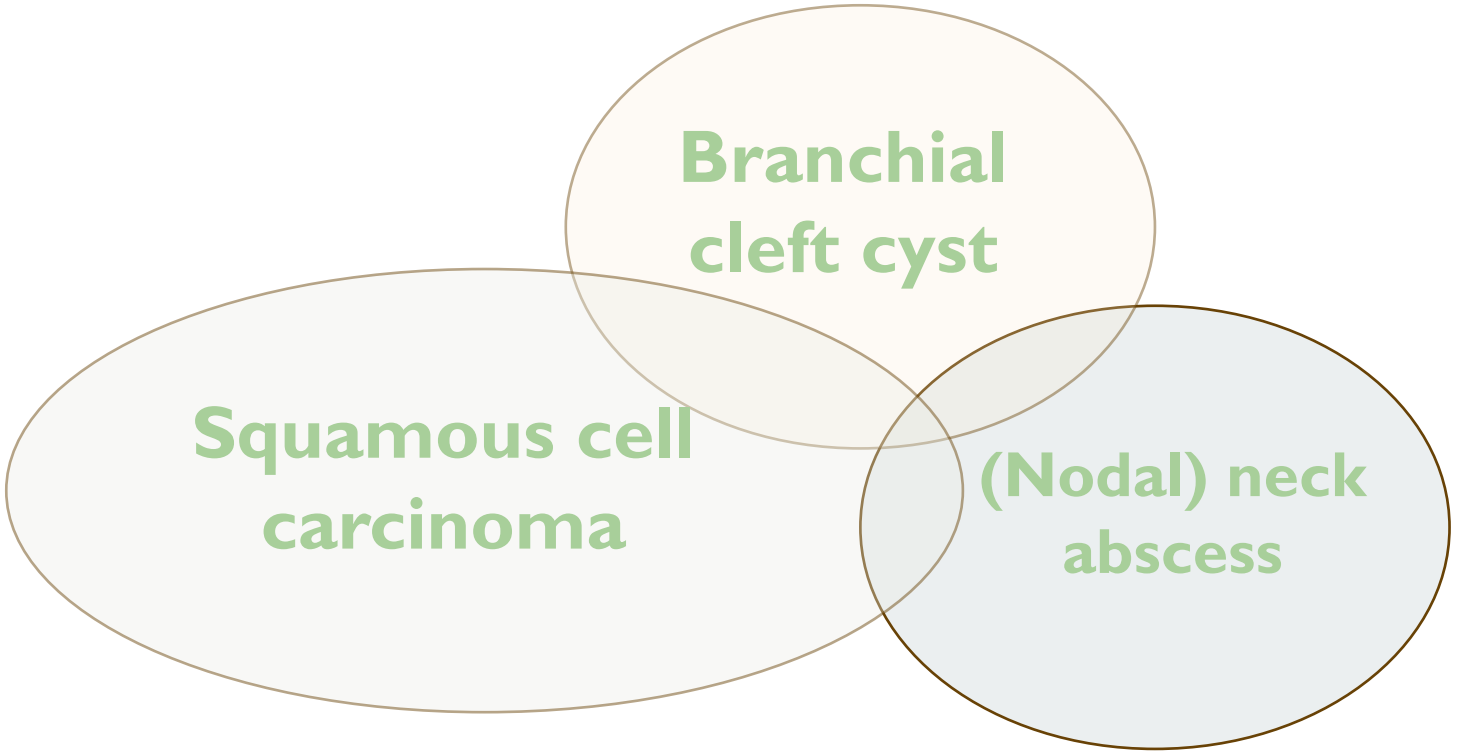
NEUROGENIC TUMORS

- Schwannomas, peripheral nerve sheath tumours, neurofibromas and other rare neurogenic tumours
- typical of adulthood.
- frequent cystic cavitation associated with age-related involution
- Common compressive symptoms.
- Imaging highlights the intimate connection with nervous structures of the lateral neck.
- Association with syndromic disease suspected esp. when multiple/plexiform (neurofibromatosis, schwannomatosis, Von Reckilnghausen syndrome, etc.)



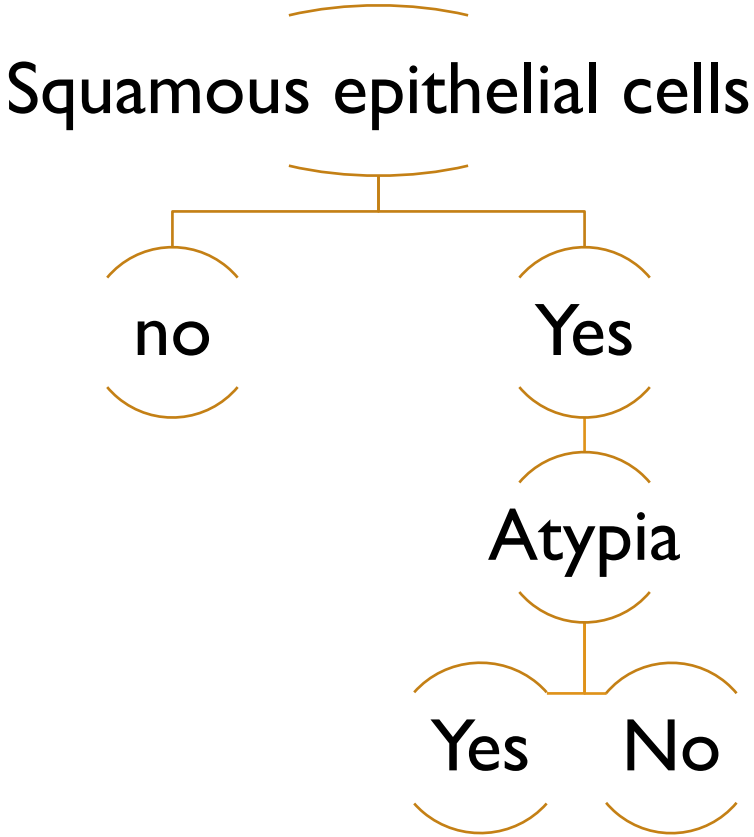
- **Diagnosis: Imaging + FNA (+ cell block)**

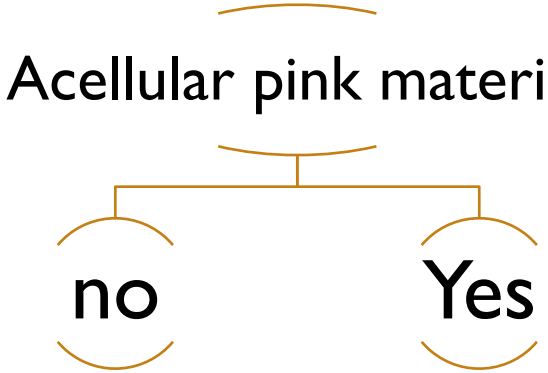
PARTALLY NECROTIC7INFLAMED NECK MAS

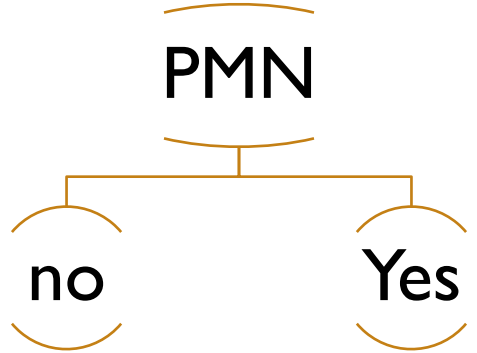


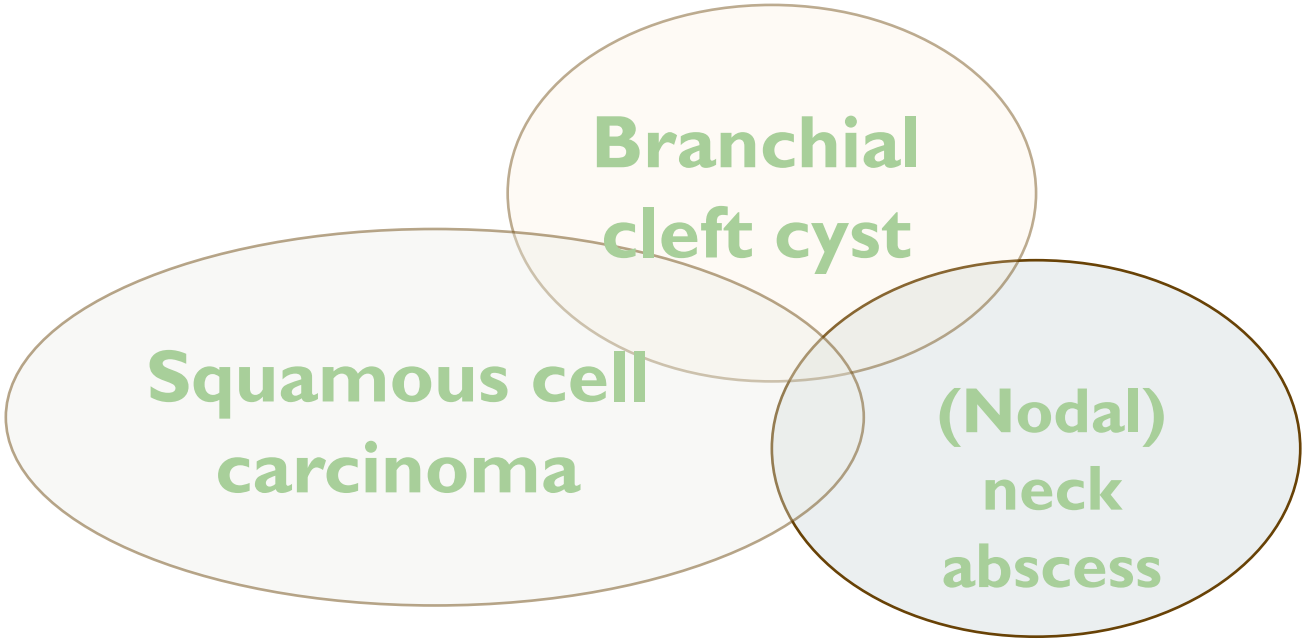
- **Diagnosis: Imaging + FNA**

CYTOLOGICAL FINDINGS
SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION



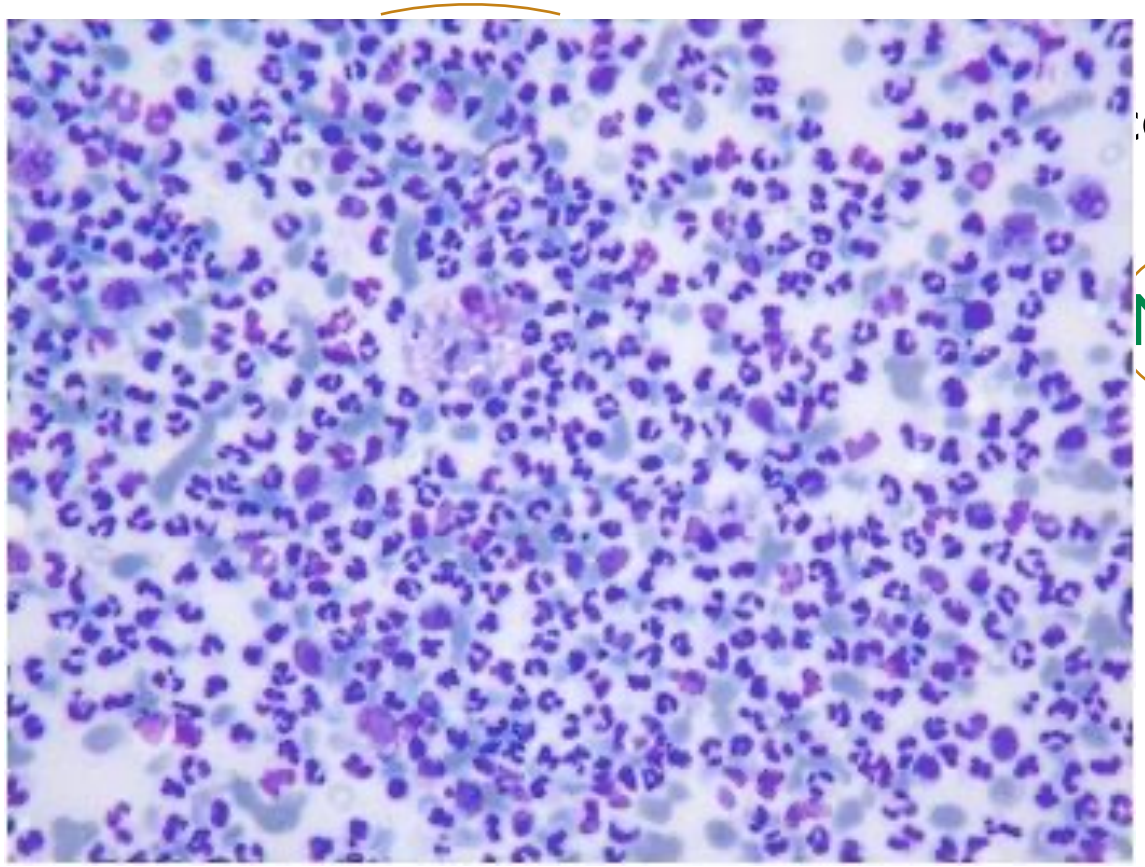






CYTOLOGICAL FINDINGS

SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION



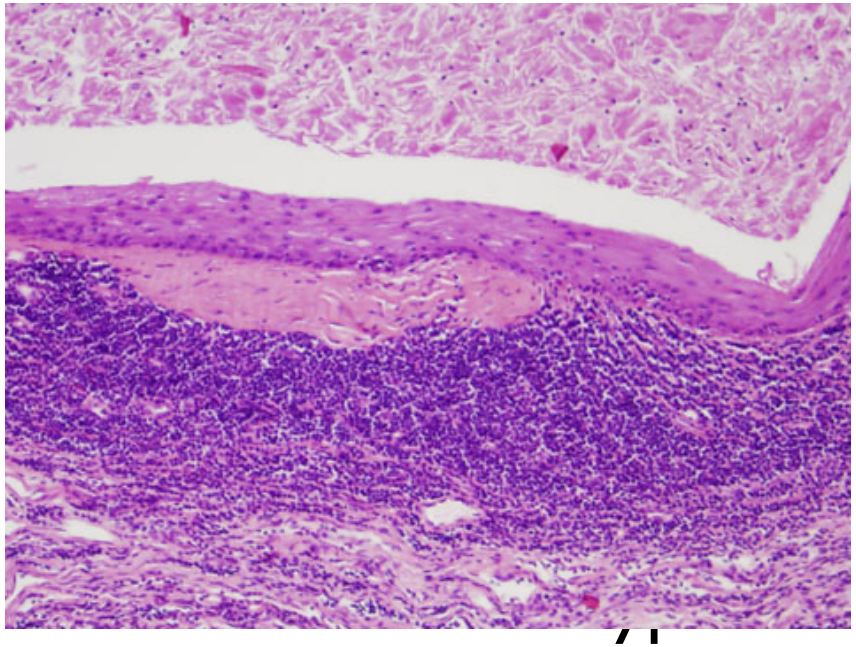
ellular pink material

PMN

Inflammatory/suppurative lesions can develop from lymphnodes undergoing infection (such as tuberculosis, bartonellosis, etc.)

(Nodal) neck abscess

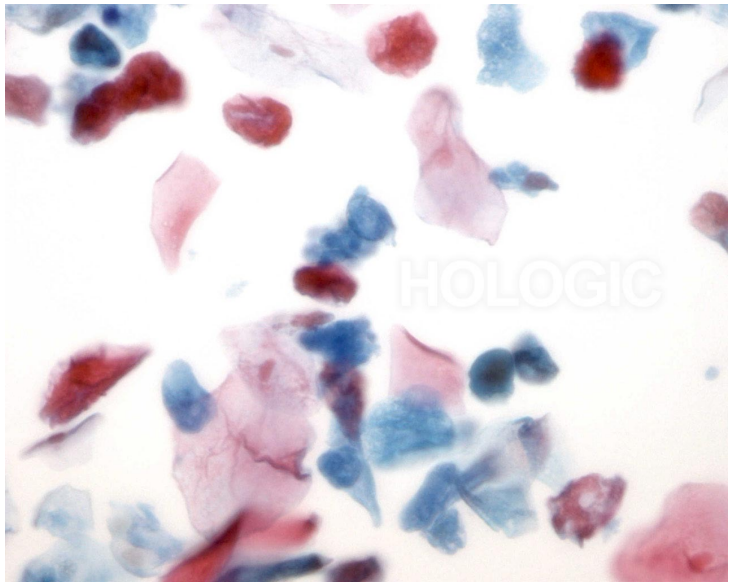
CYTOLOGICAL FINDINGS
SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION



Acellular pink material

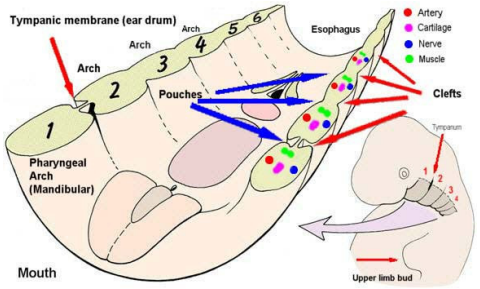
no

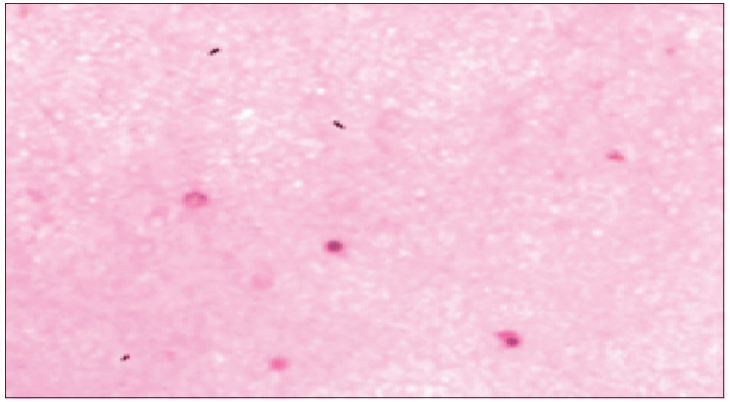
Yes



Branchial cleft cyst

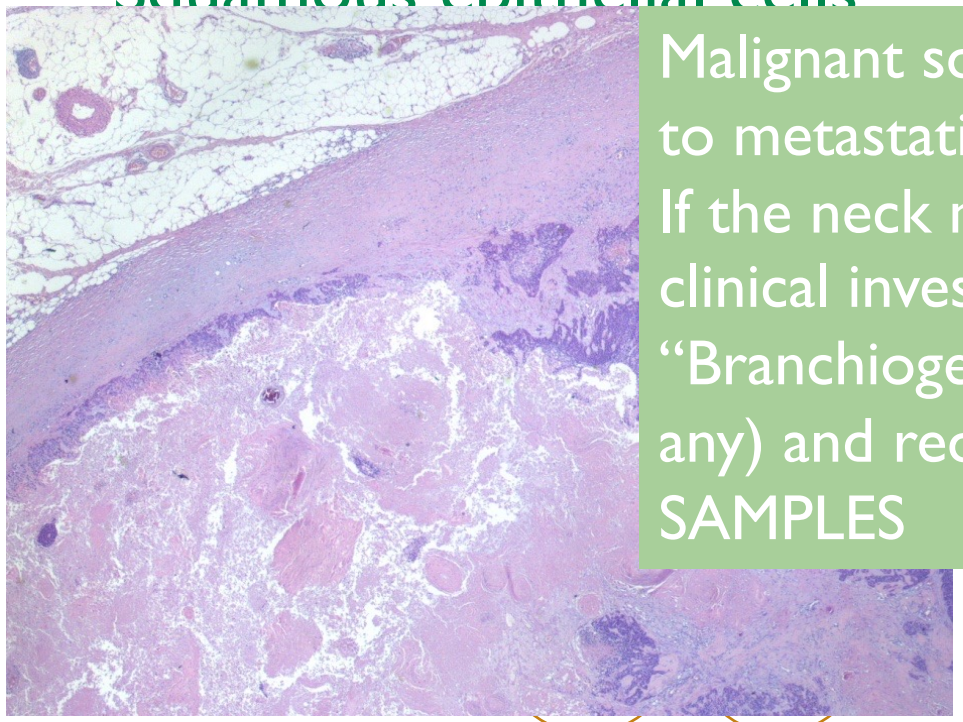
Branchial cleft cysts are lined by stratified non-keratinizing squamo-columnar epithelium with abundant external lymphoid tissue and contain keratin, cholesterol clefts and amorphous material



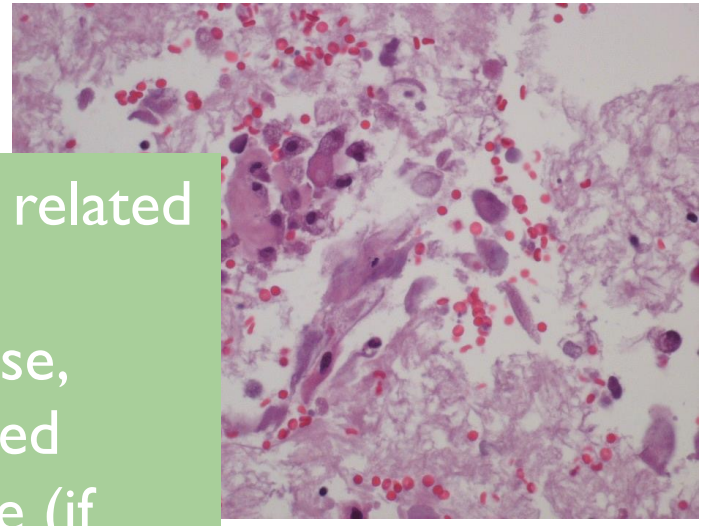


CYTOLOGICAL FINDINGS
SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION

Squamous epithelial cells

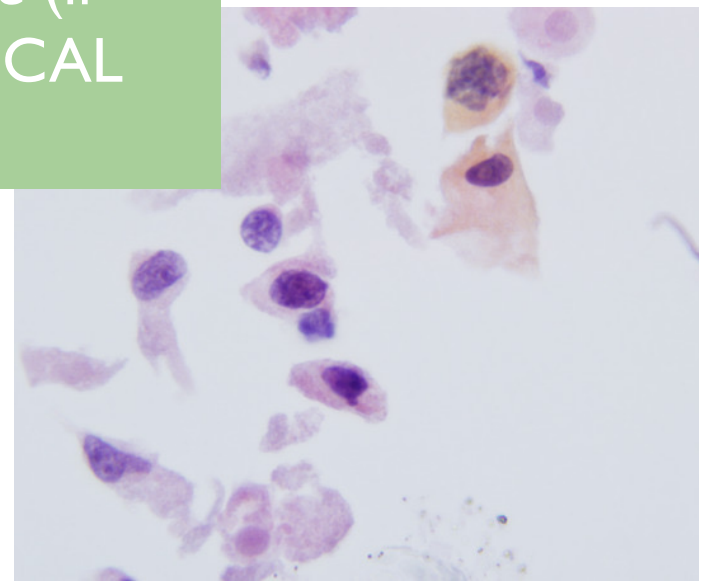


Acellular pink

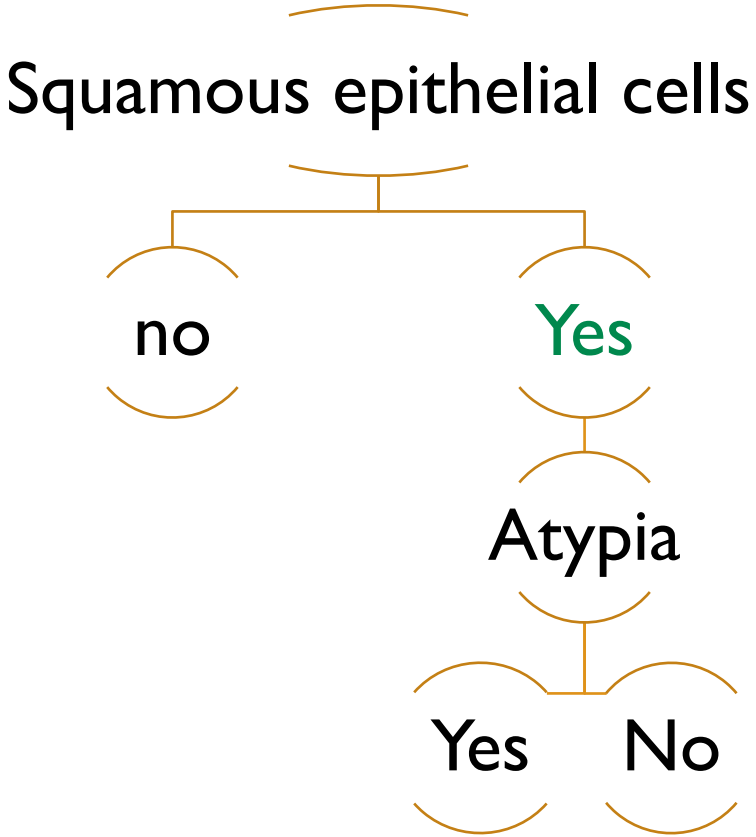


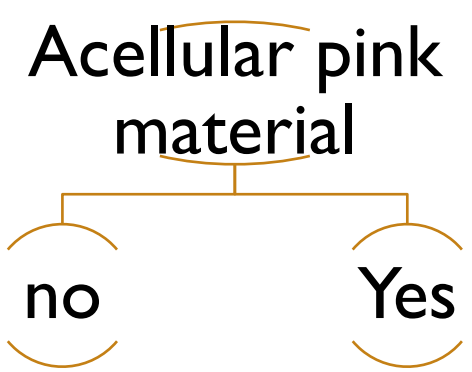
Malignant squamous cells are virtually 100% related to metastatic lymphnodes
If the neck mass is the presentation of disease, clinical investigation of the primary is required
"Branchiogenic carcinoma" is extremely rare (if any) and requires exclusion on HISTOLOGICAL SAMPLES

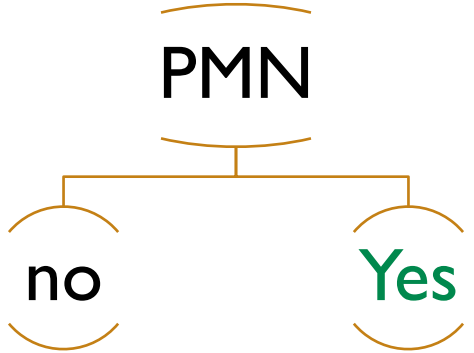
carcinoma

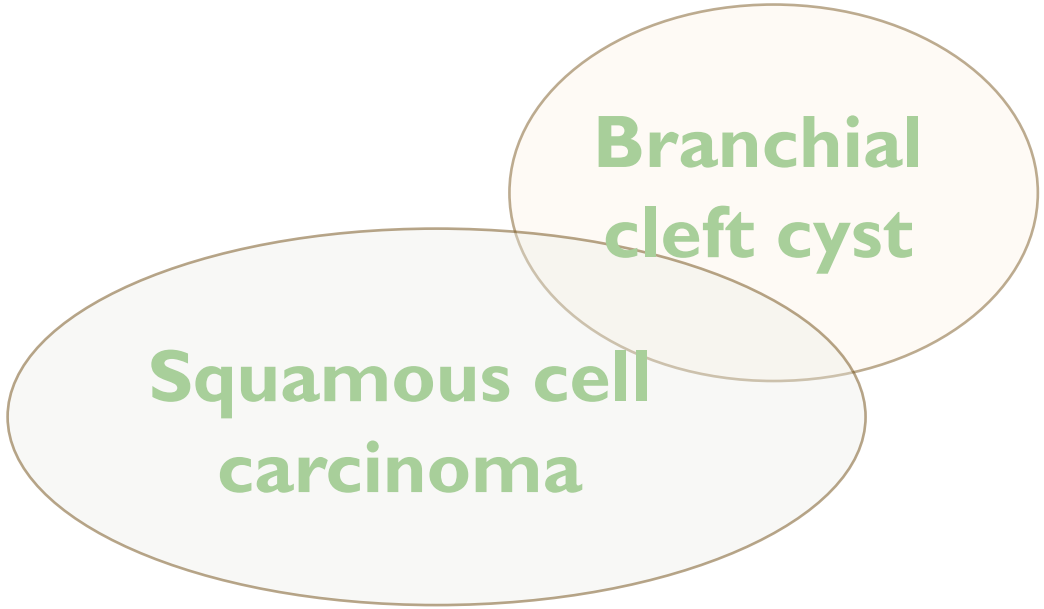


CYTOLOGICAL FINDINGS
SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION



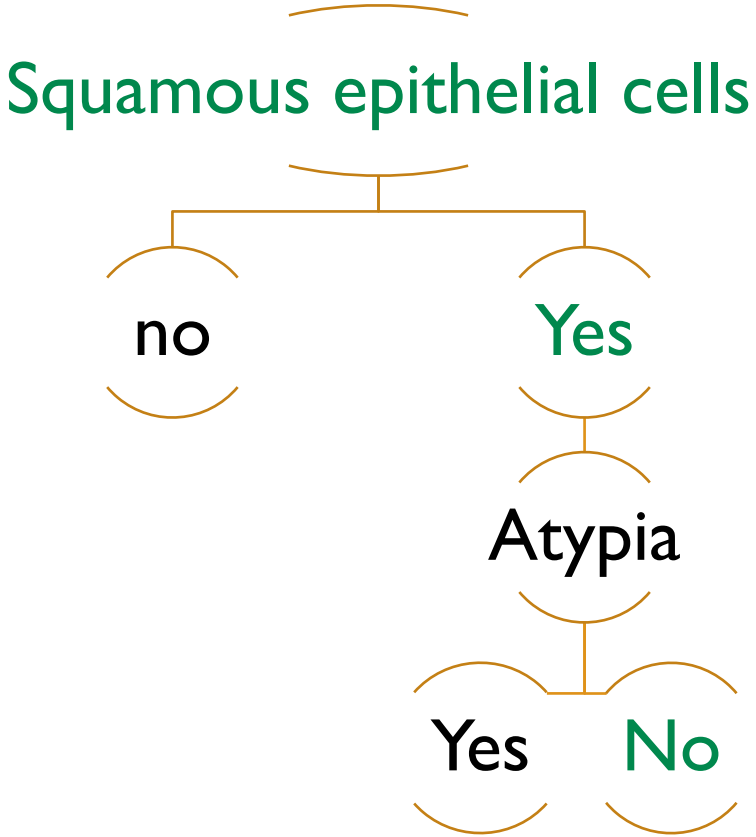


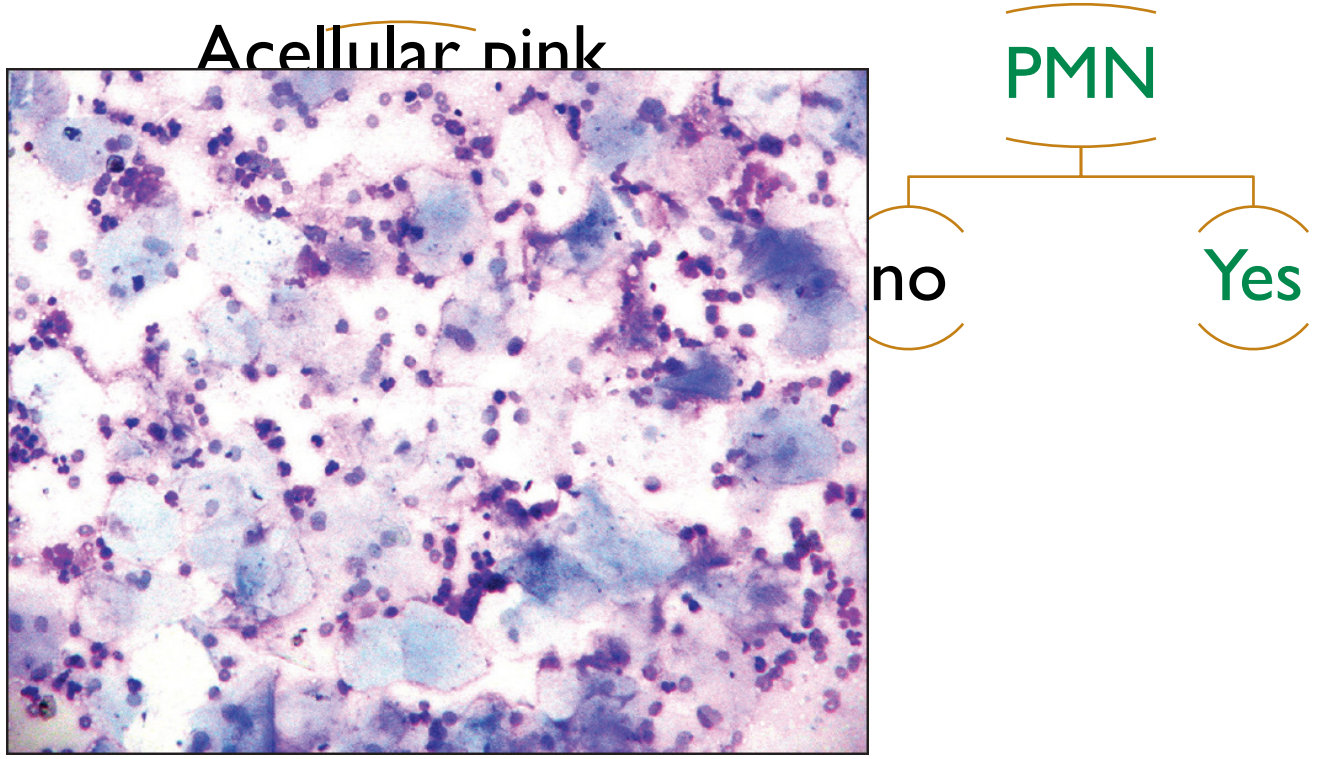




CYTOLOGICAL FINDINGS

SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION

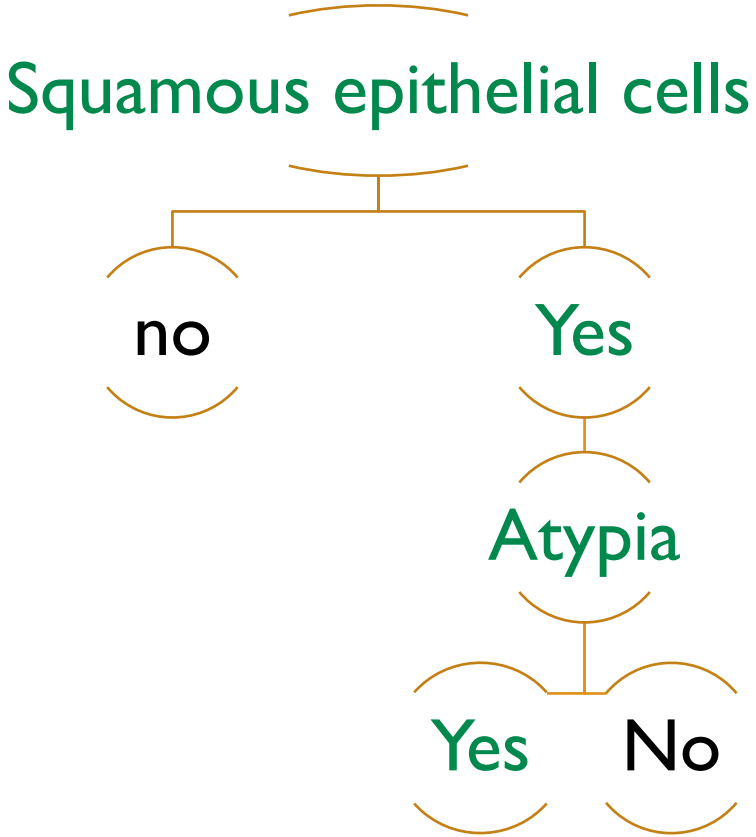


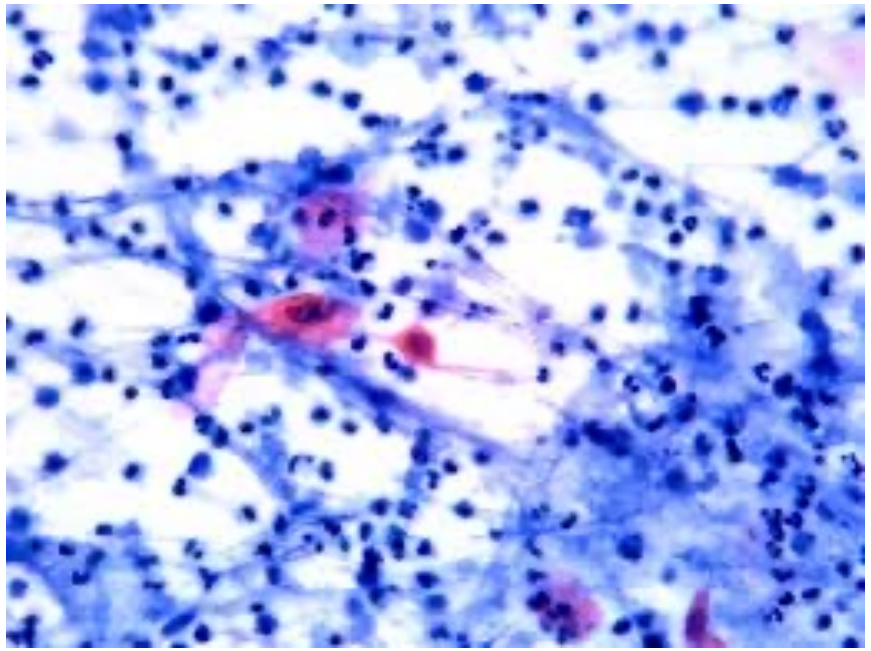


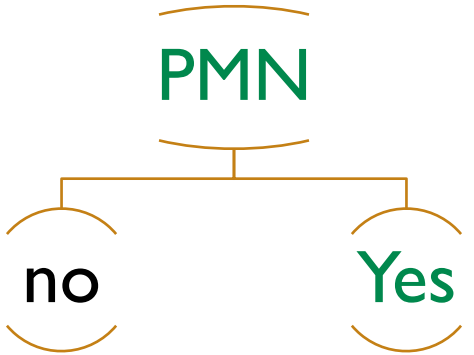
Branchial cleft cyst

CYTOLOGICAL FINDINGS

SQUAMOUS EPITHELIUM <-> SUPPURATIVE INFLAMMATION







Squamous cell carcinoma

(CYSTIC) METASTATIC LYMPHNODES

Differentials:

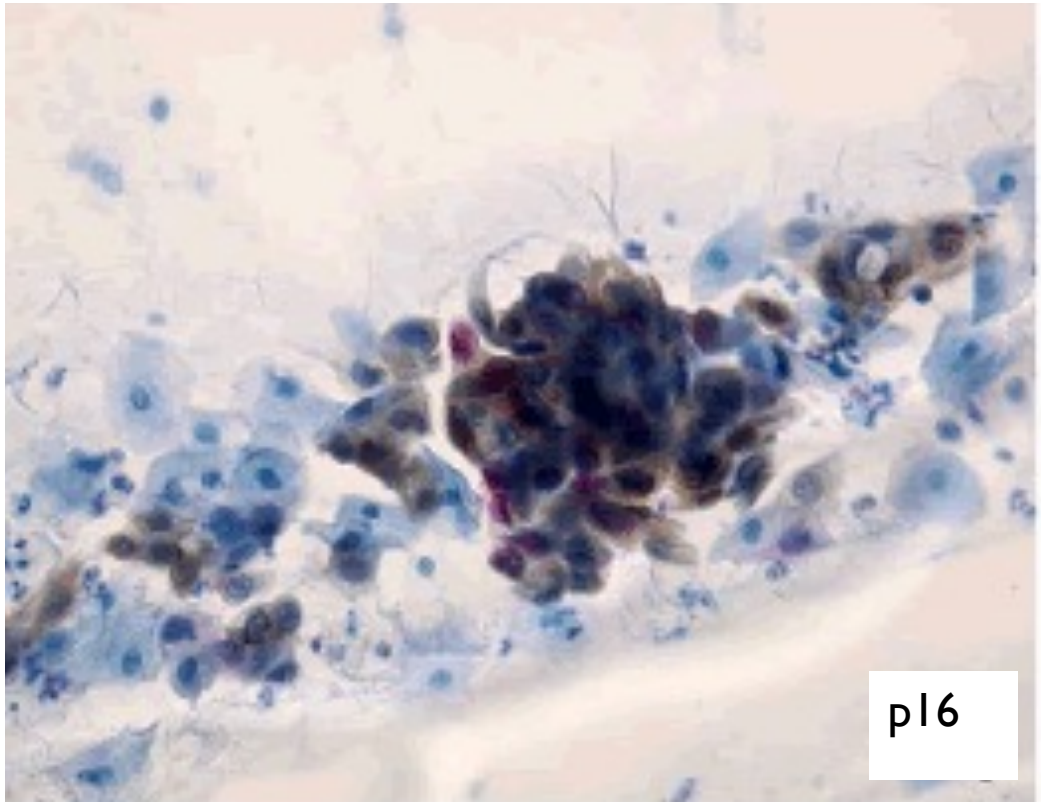
- Previous/synchronous history of H&N SCC
- Carcinoma other than SCC (salivary glands, NEC, lung adenoca, papillary thyroid…)
- TX N+

IMMUNOHISTOCHEMISTRY
(MOLECULAR BIOLOGY)

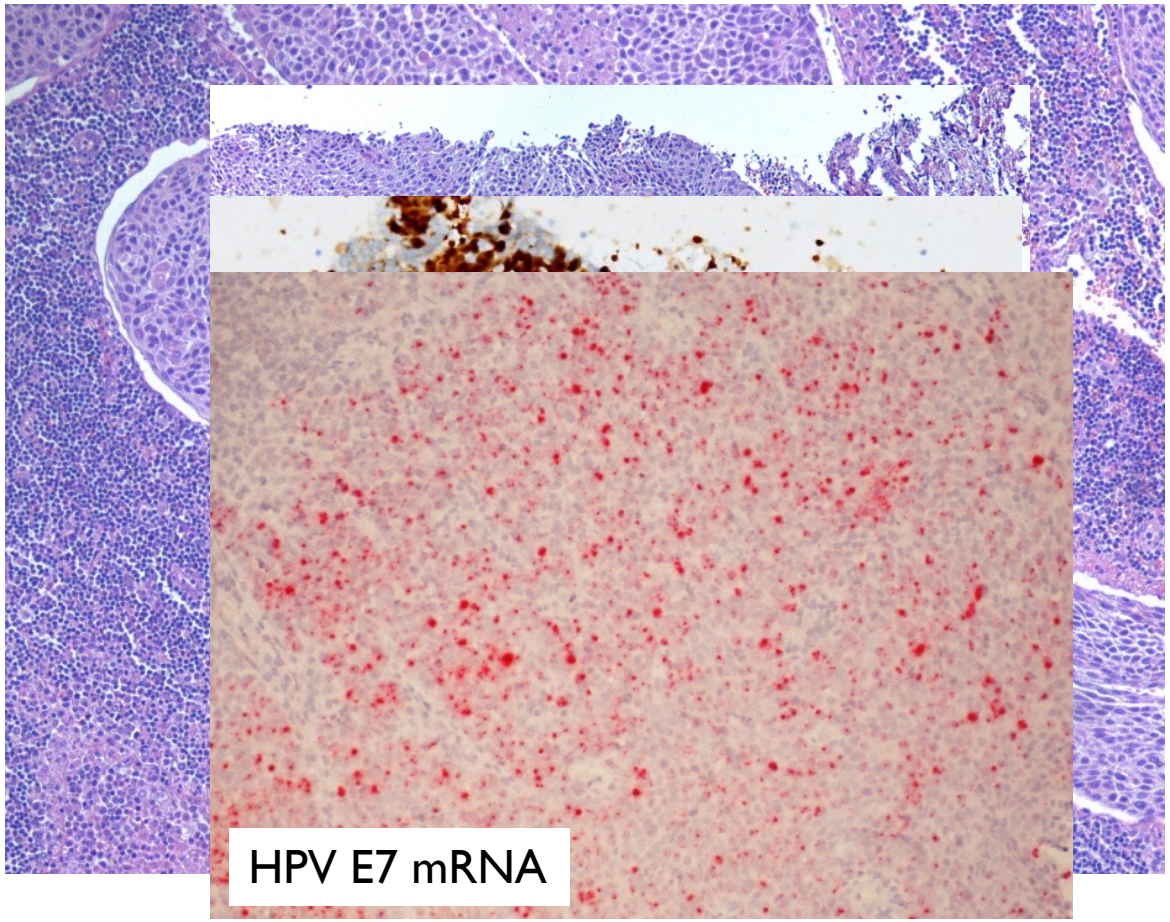
- ✓ ~~Smear~~
- ✓ Cell block
- ✓ ~~Liquid-based~~ cytology
- ✓ Needle core biopsy

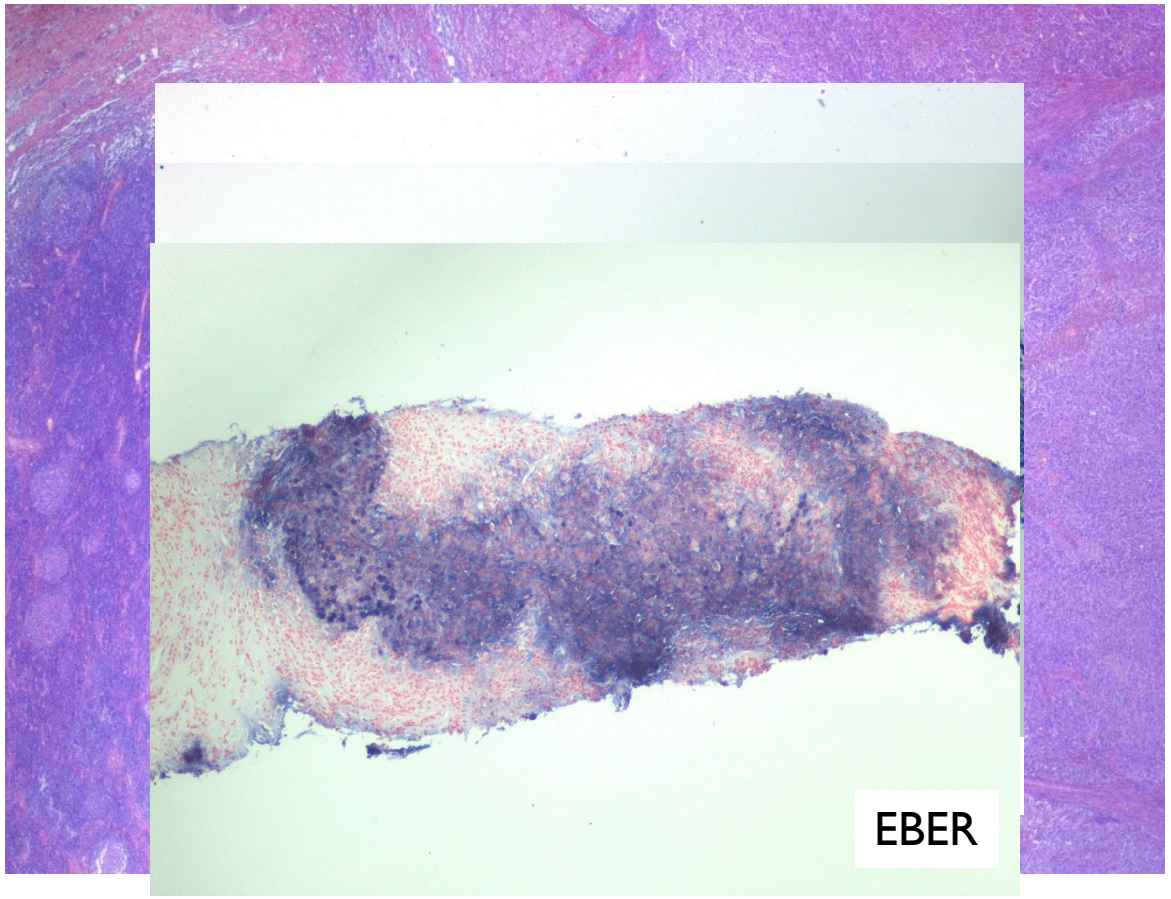
HPV-RELATED METASTATIC (OROPHARYNGEAL) SCC

- ✓Typically presents as a cystic, necrotic nodal mass.
- ✓TX N+ not uncommon
- ✓DX of HPV-related (oropharingeal) SCC relevant for therapy
- ✓p16 expression and HR-HPV DNA should be investigated for DX
- ✓Paraffin block is necessary



(CYSTIC) METASTATIC LYMPHNODES
DOES ONE VIRUS FIT ALL?



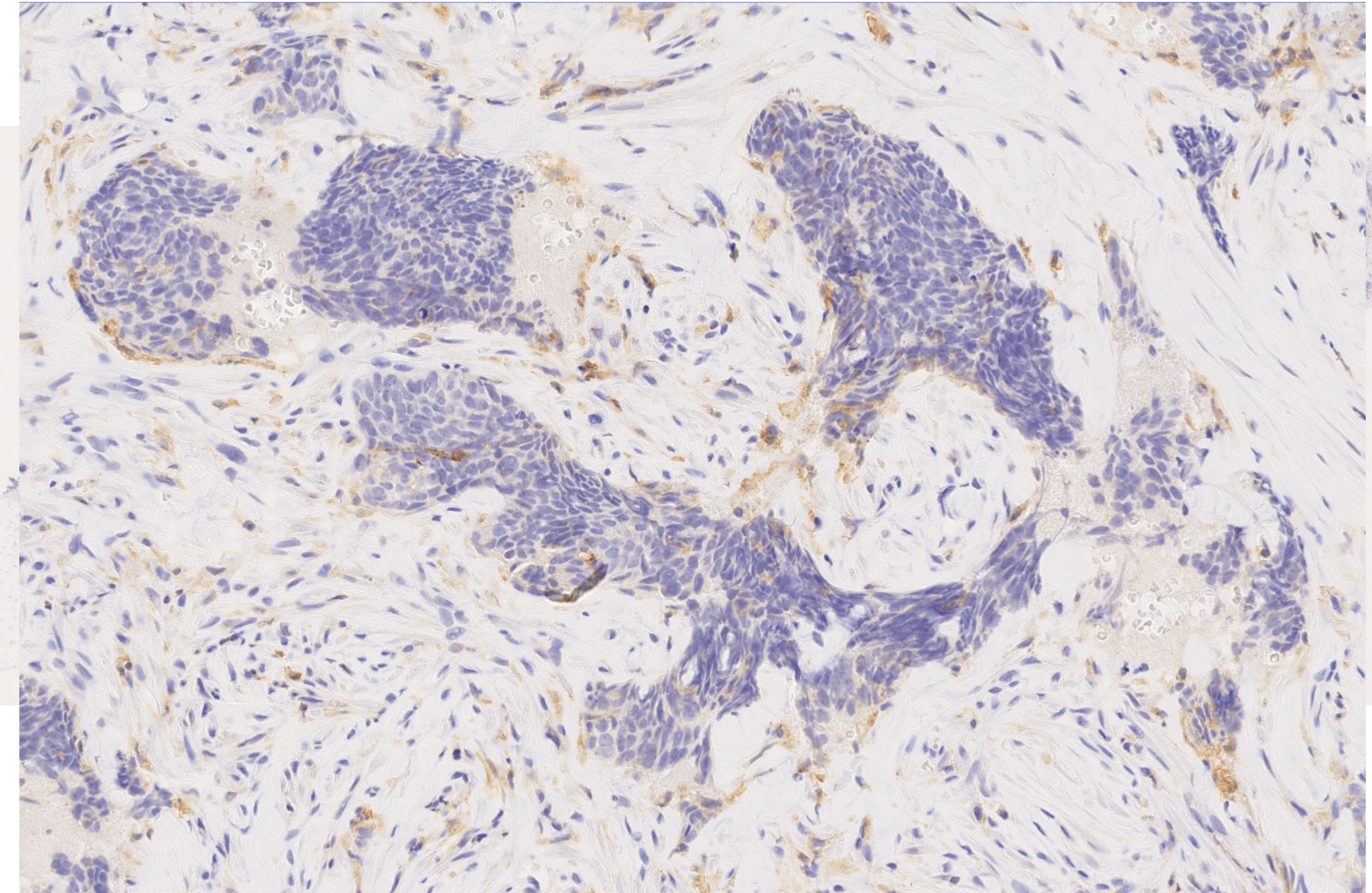


METASTATIC H&N SCC

- ✓ Candidate to adjuvant or neo-adjuvant immune check-point inhibition (pembrolizumab)
- ✓ Assessment of predictive biomarker: PD-L1

IMMUNOHISTOCHEMISTRY

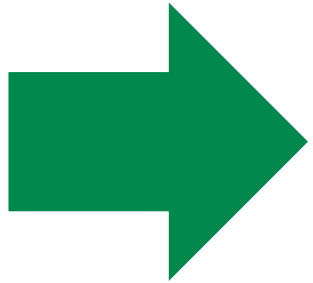
- ✓ ~~Smear~~
- ✓ ~~Cell block~~
- ✓ ~~Liquid-based cytology~~
- ✓ Needle core biopsy



PRIMARY NECK LYMPHOADENOMEGALIES

Differentials:

- Infectious lymphoadenitis
  - ✓Micobacteriosis/tuberculosis (“scrofula”)
  - ✓Actinomicosis
  - ✓Cat-scratch disease
  - ✓Mononucleosis
- Non-infectious granulomatosis (sarcoidosis)
- Reactive nodal hyperplasia
- Lymphoma

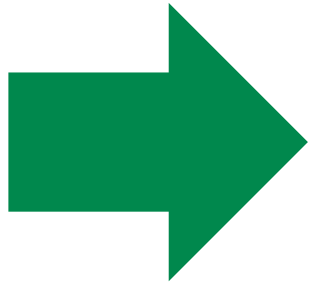


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- ✓~~S~~mear
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Surgical sample