

A Pot-Pourri of Pitfalls in Non-GYN Cytopathology

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October 26, 2019

Conflict of Interest Disclosure

- Member of the IQMH Cytopathology Scientific Committee

Objectives

- After this session on Non-GYN pitfalls, participants should be able to:
 - Appropriately classify lesions from a variety of Non-GYN sites by correctly applying morphological criteria, ancillary study criteria, and clues from the clinical history;
 - Reflect on diagnostic misses and near misses in Non-GYN cytopathology

Outline



Pitfalls I have encountered in the cytopathological diagnosis of:



- Neuroendocrine Lesions
- Salivary Gland Tumours
 - Thyroid Nodules

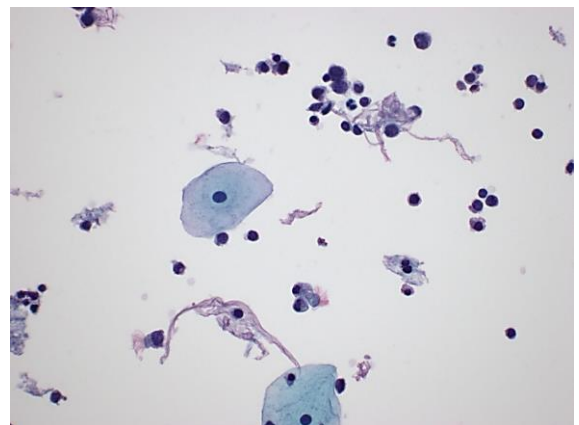
Outline

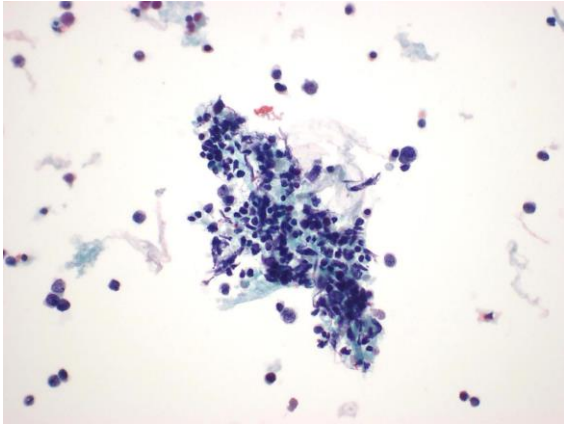


Pitfalls I have encountered in the cytopathological diagnosis of:



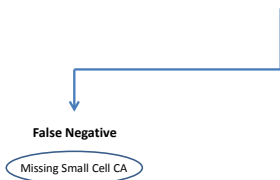
- **Neuroendocrine Lesions**
- Salivary Gland Tumours
 - Thyroid Nodules



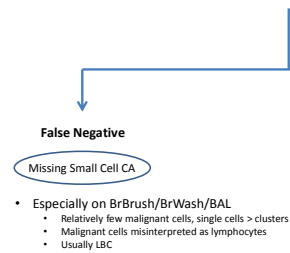


Diagnosis? Pitfall?

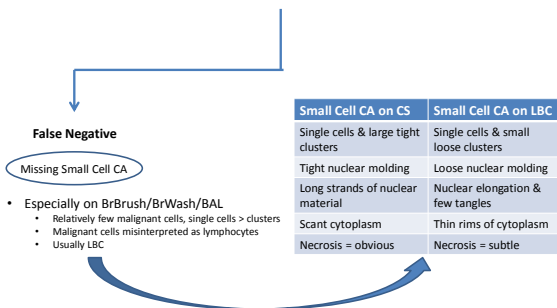
Pitfalls in the Cytopathological Dx of Neuroendocrine Lesions



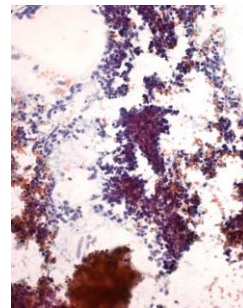
Pitfalls in the Cytopathological Dx of Neuroendocrine Lesions



Pitfalls in the Cytopathological Dx of Neuroendocrine Lesions



Small Cell CA on CS vs LBC

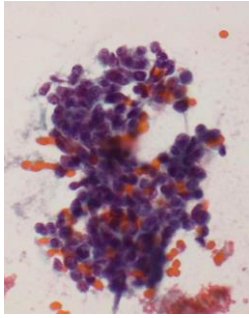


Single Cells & Large Tight Clusters

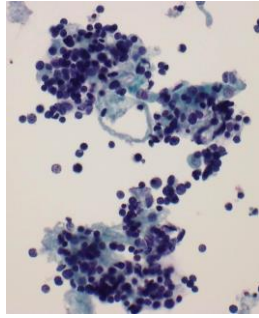


Single Cells & Small Loose Clusters

Small Cell CA on CS vs LBC

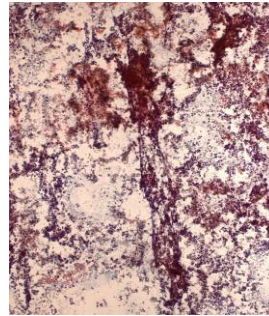


Tight Nuclear Molding

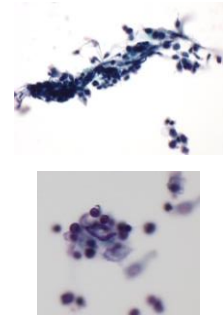


Loose Nuclear Molding

Small Cell CA on CS vs LBC

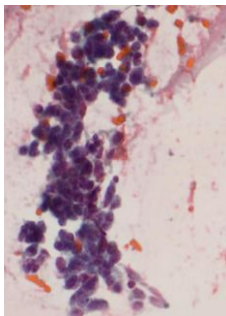


Long Strands of Nuclear Material

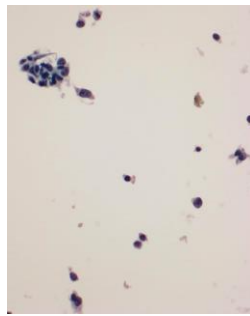


Nuclear Elongation & Few Tangles

Small Cell CA on CS vs LBC

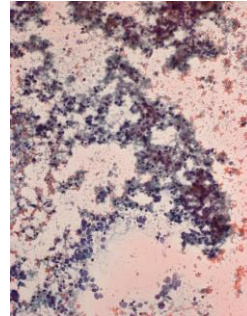


Scant Cytoplasm

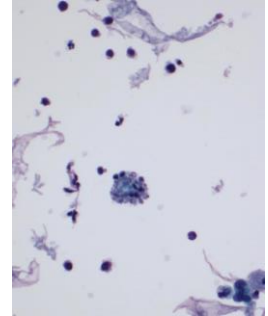


Thin Rims of Cytoplasm

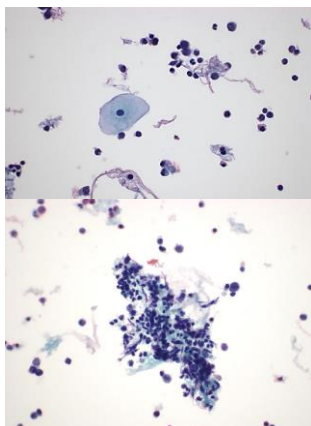
Small Cell CA on CS vs LBC



Abundant Necrosis



Droplets of Amorphous Material w/ Apoptotic Bodies

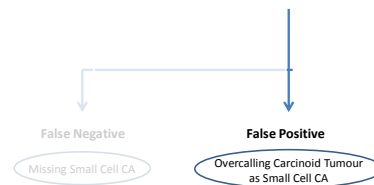


How can this pitfall be avoided?

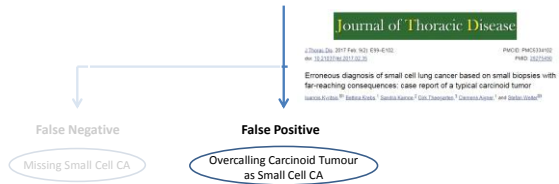
- Pay attention to clusters
- Before dismissing as a "lymphocyte," consider size & shape
- Be aware that the classical cytomorphological features of small cell CA as seen on CS are not as well developed on LBC preps



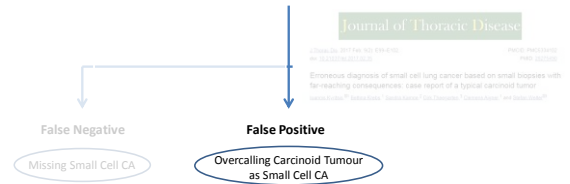
Pitfalls in the Cytopathological Dx of Neuroendocrine Lesions



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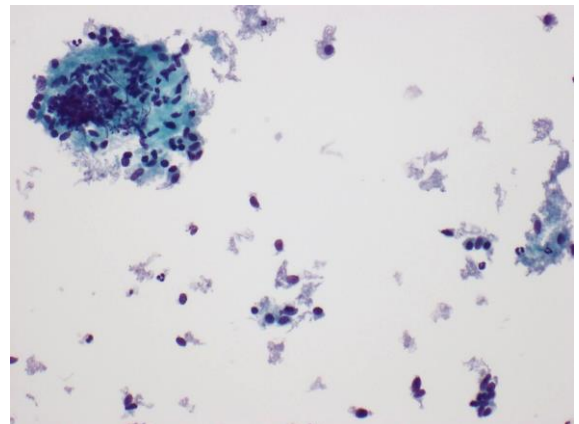
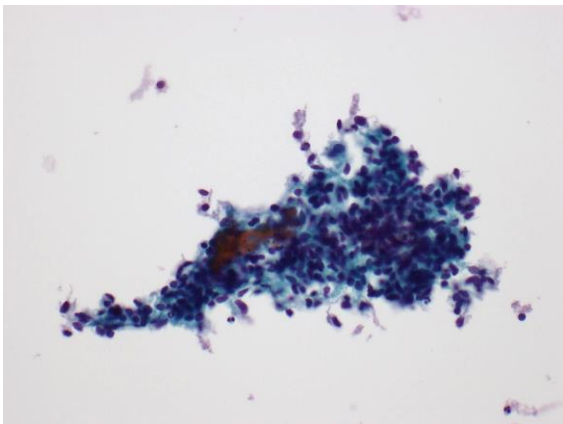
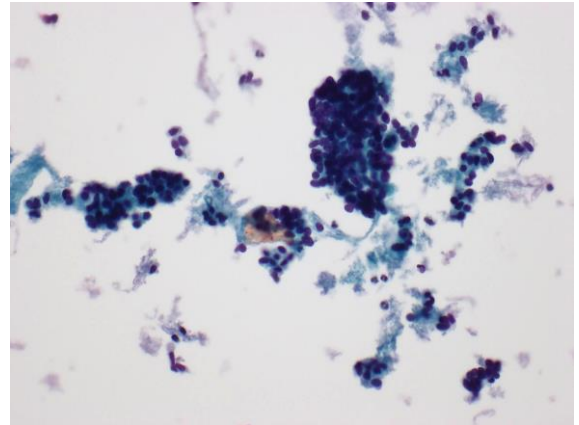
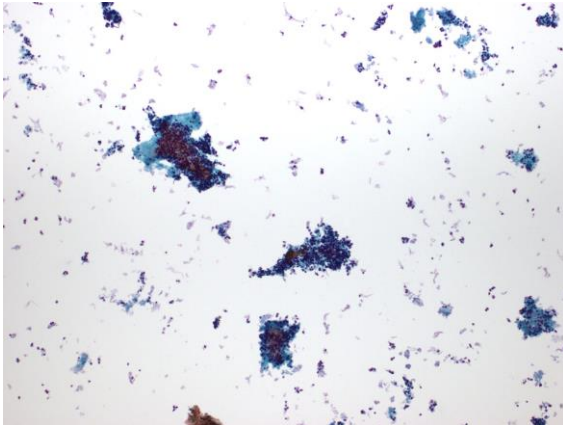
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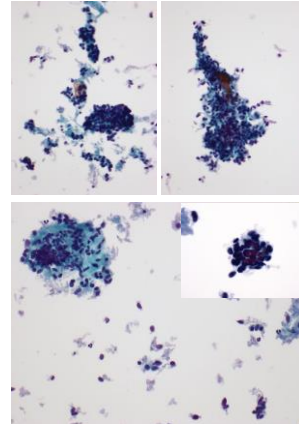
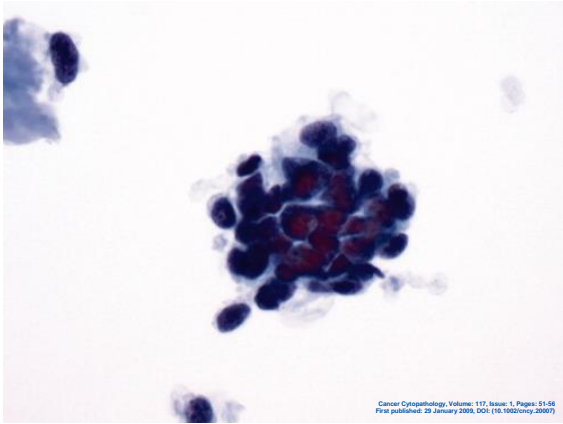


Distinguishing Carcinoid Tumor From Small Cell Carcinoma of the Lung

Correlating Cytologic Features and Performance in the College of American Pathologists Non-Gynecologic Cytology Program

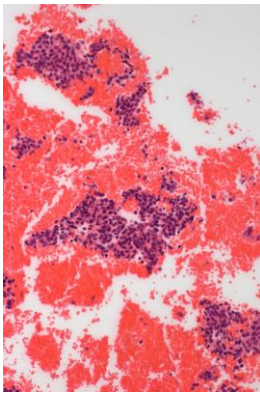
Andrew A. Bittman, MD, Jennifer Hogg, CT(ASCP), Richard L. Luzzani, MD, David C. Wilbur, MD, for the Cytology Committee, College of American Pathologists
 Arch Pathol Lab Med—Vol 121, May 2019



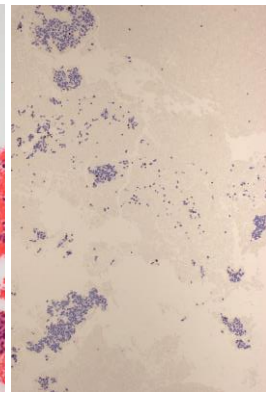


How can this pitfall be avoided?

- Single cells & cells at edges of clusters appear bland and have ample cytoplasm
- Absence of necrosis, apoptotic bodies, and mitotic figures
- Clinical information
- Cell block & Ki67

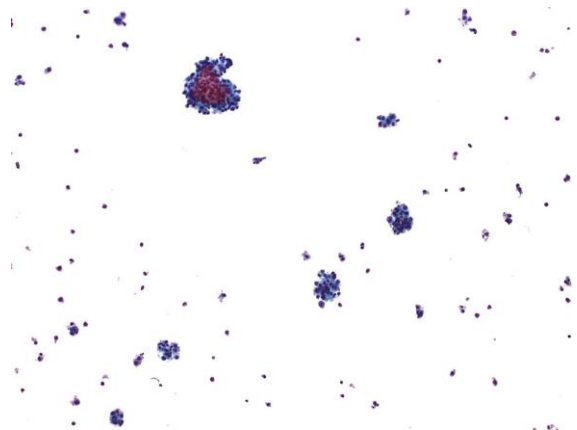
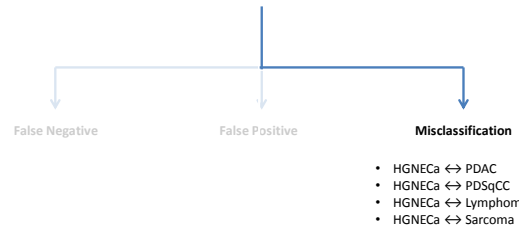


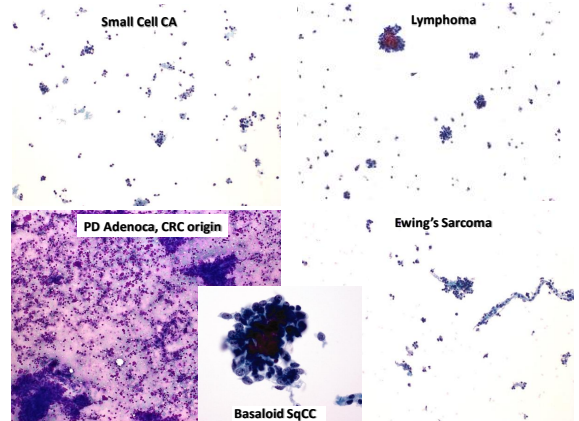
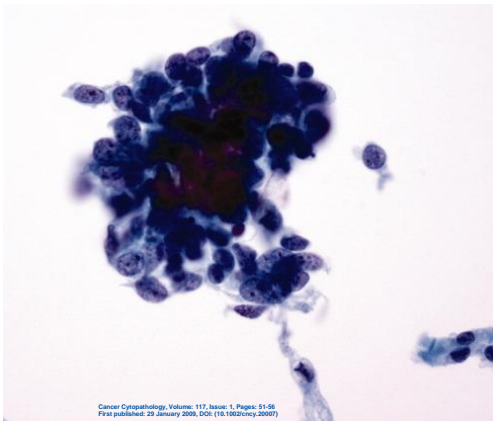
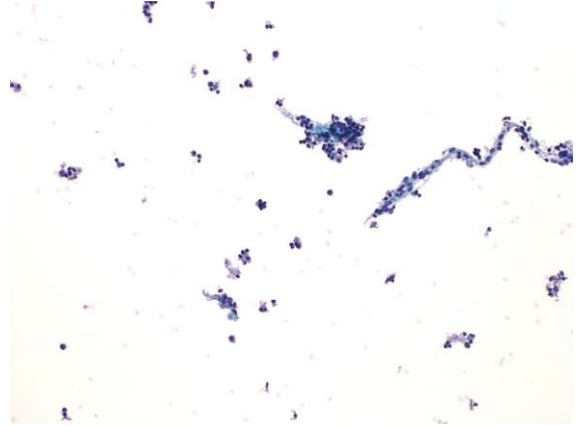
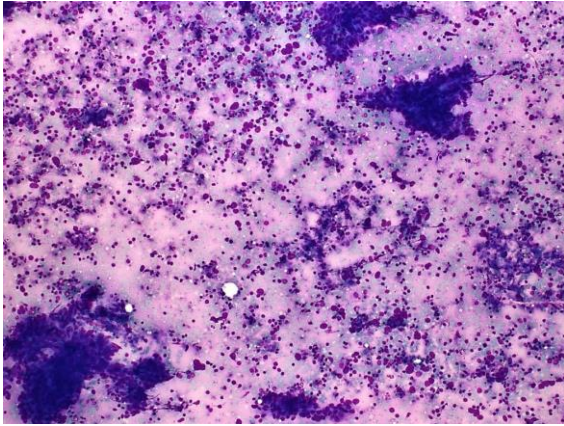
CB



Ki67

Pitfalls in the Cytopathological Dx of Neuroendocrine Lesions





How can this pitfall be avoided?

- If you are going to call small cell CA based on cytomorphological features alone, the cytomorphological features must be absolutely perfect
- Immunostudies
- Second opinion for any case where the Ddx is small cell vs other
- Clinical information



Outline



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- Neuroendocrine Lesions
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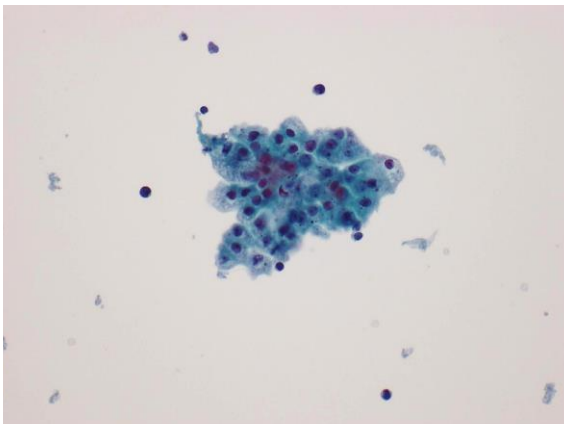
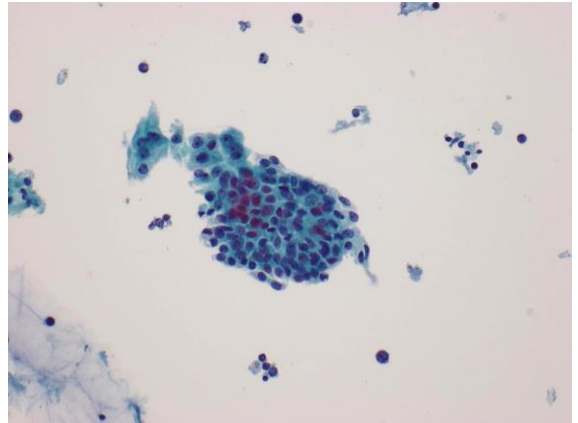
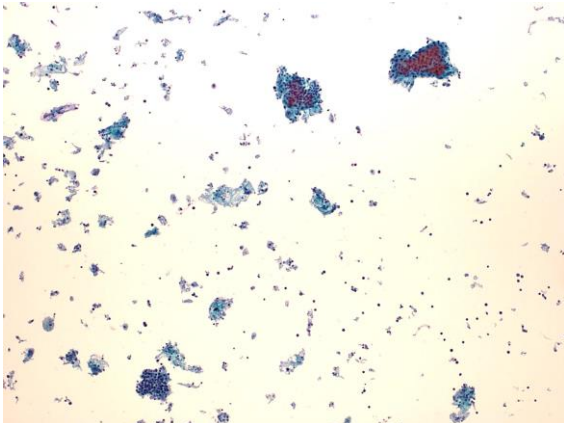
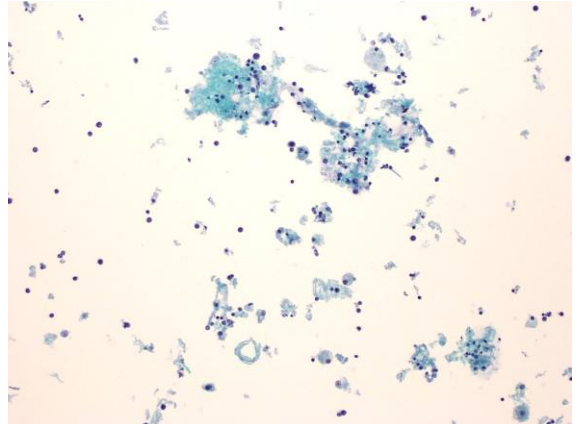
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Pitfalls I have encountered in the
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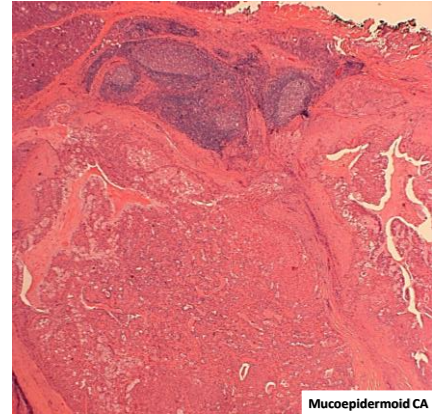
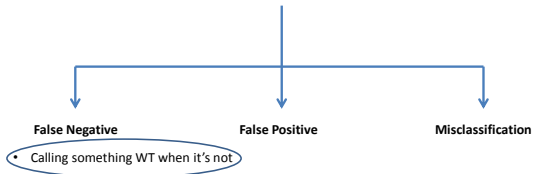


- Neuroendocrine Lesions
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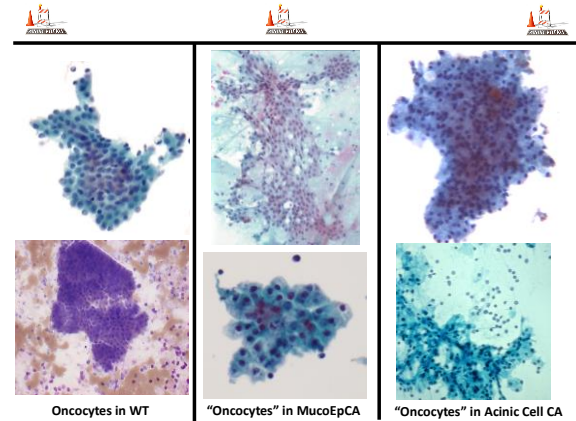
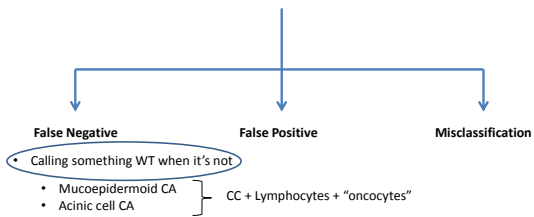


Diagnosis? Pitfall?

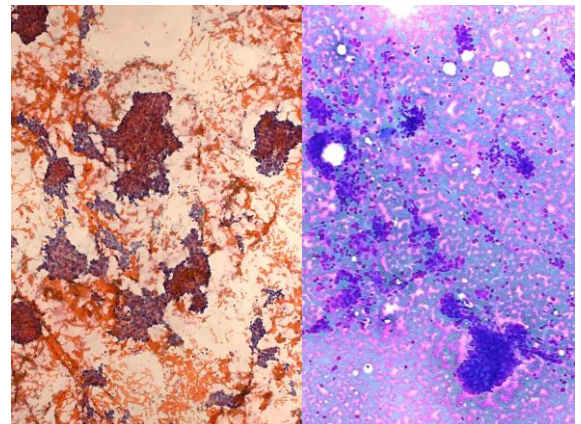
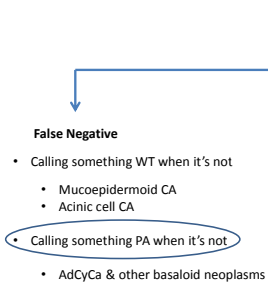
Pitfalls in the Cytopathological Dx of Salivary Gland Tumours

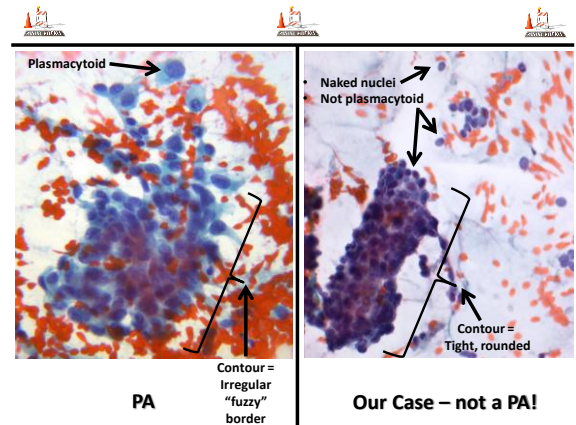
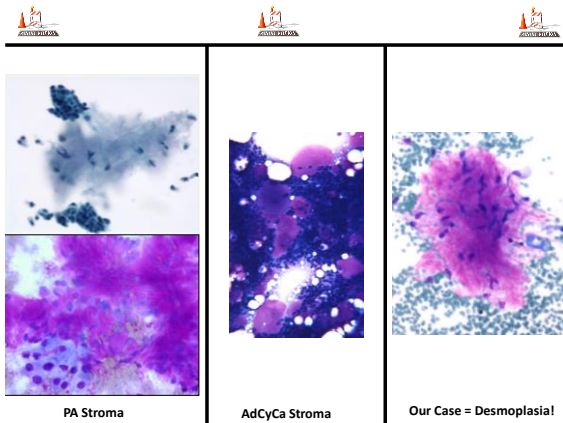
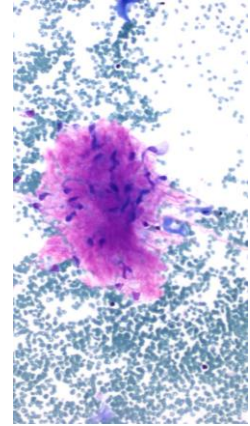
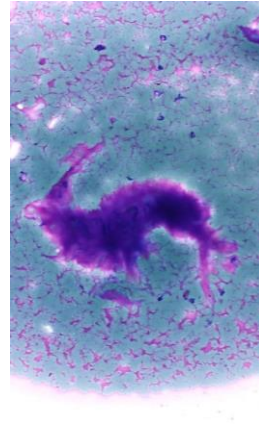
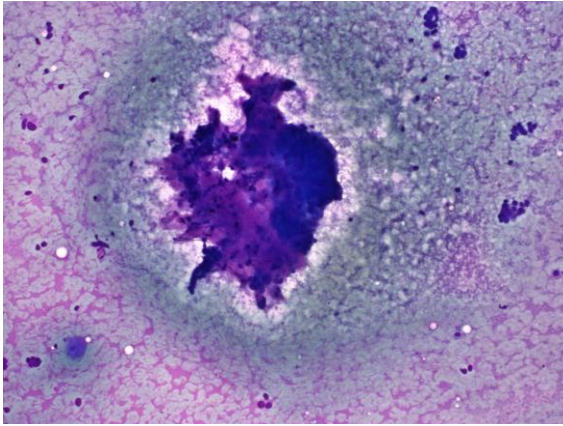


Pitfalls in the Cytopathological Dx of Salivary Gland Tumours

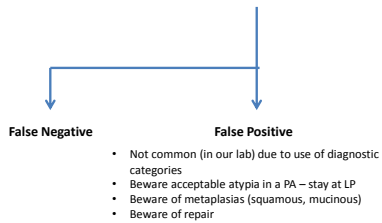


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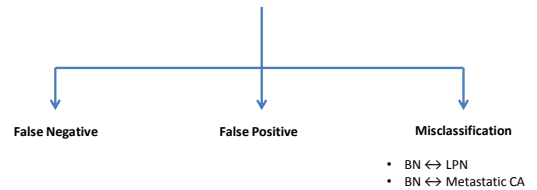


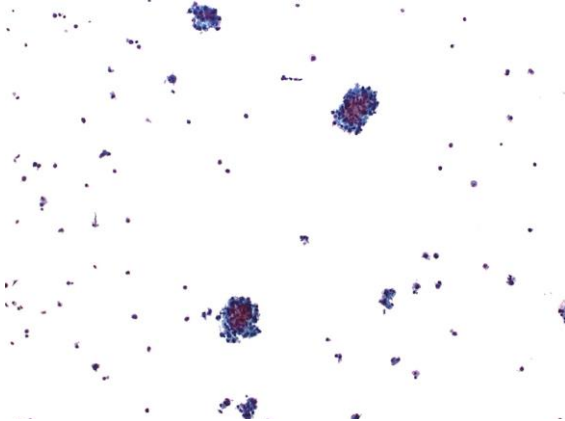


Pitfalls in the Cytopathological Dx of Salivary Gland Tumours



Pitfalls in the Cytopathological Dx of Salivary Gland Tumours





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Pitfalls I have encountered in the cytopathological diagnosis of:



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- **Thyroid Nodules**

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Pitfalls I have encountered in the cytopathological diagnosis of:



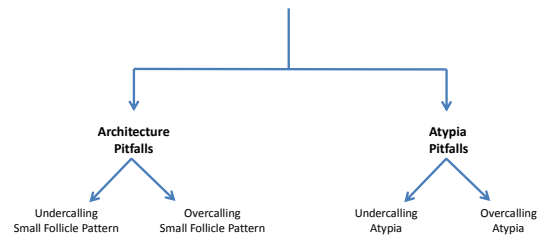
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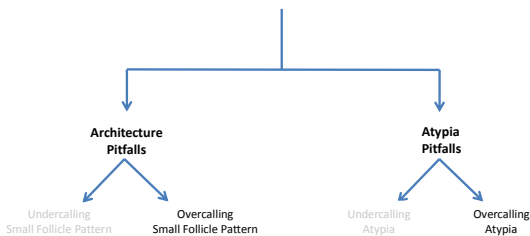
Special Acknowledgement: Dr. M. Weir



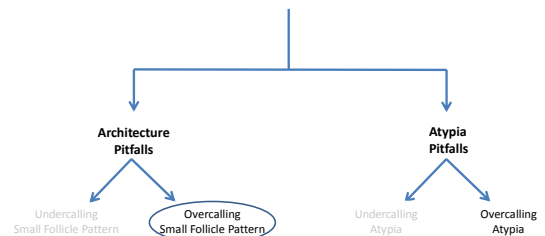
Pitfalls in the Cytopathological Dx of Thyroid Nodules



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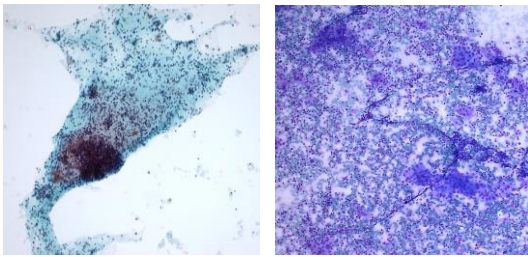
Before classifying as FN/HCN...

1. Is there chronic thyroiditis?
2. Is there fragmentation?
3. Is evaluation of architecture limited due to blood clot?
4. Could this be parathyroid?

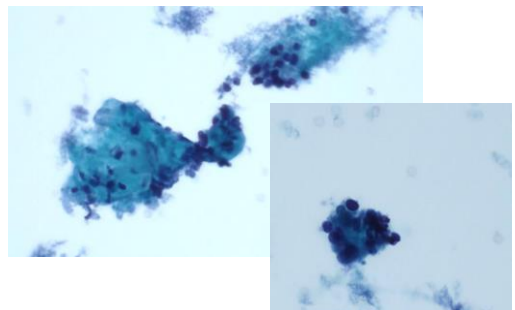
Before classifying as FN/HCN...

1. *Is there chronic thyroiditis?*
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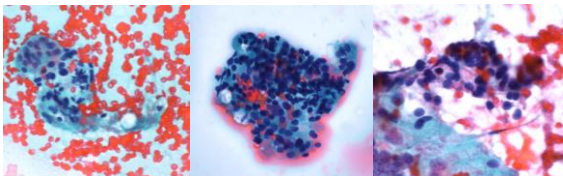
Chronic thyroiditis is **easy** to recognize when it looks like this...



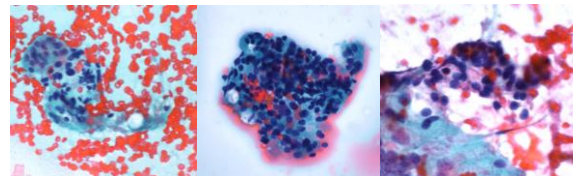
Chronic thyroiditis is **harder** to recognize when it looks like this...



Or this...



Or this...



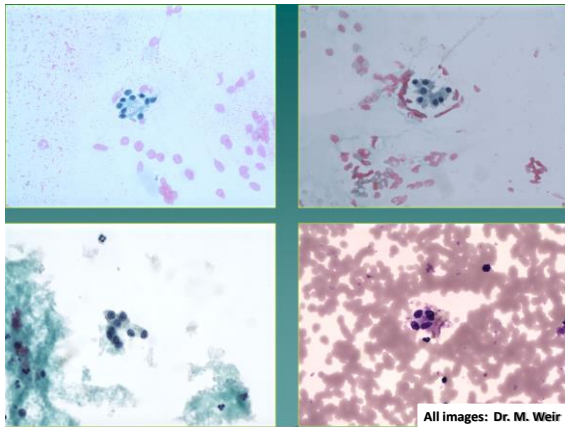
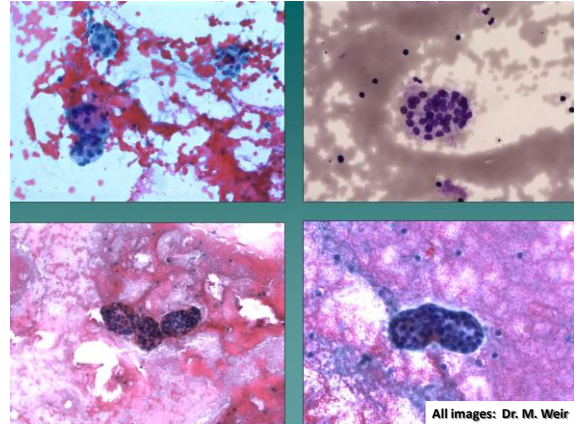
Lymphoid tangles & fibrosis
Lymphoid aggregates



"Sticky follicles"
Not true microfollicles!

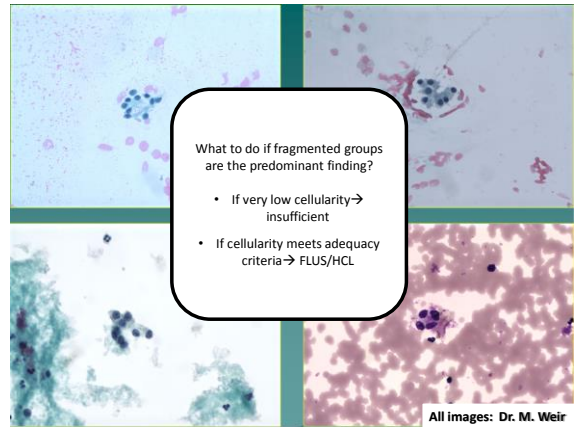
Before classifying as FN/HCN...

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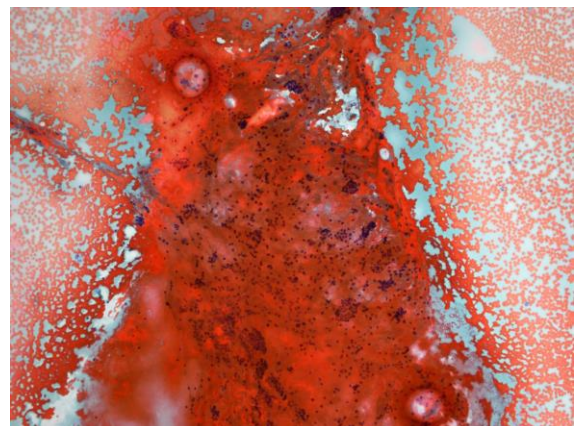
What to do if fragmented groups are the predominant finding?

- If very low cellularity → insufficient
- If cellularity meets adequacy criteria → FLUS/HCL



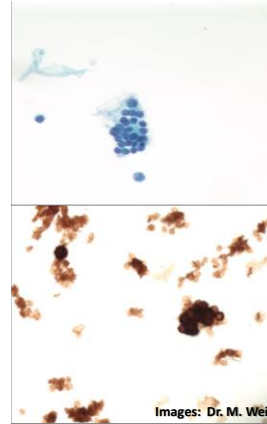
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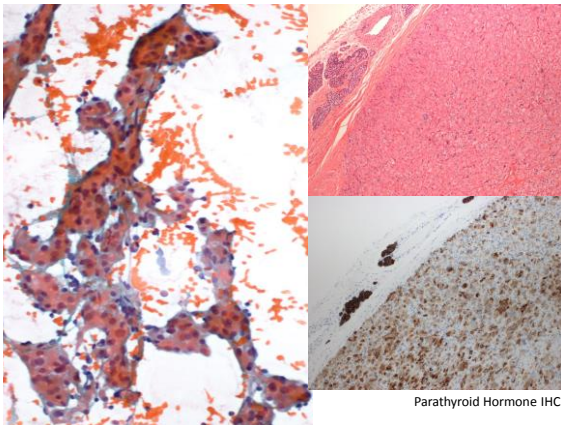


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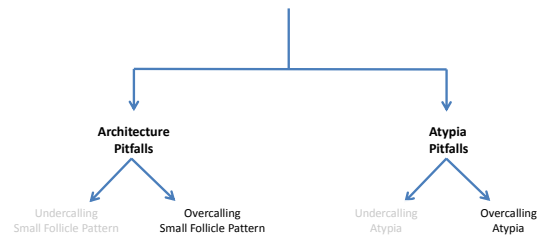
1. Is there chronic thyroiditis?
2. Is there fragmentation?
3. Is evaluation of architecture limited due to blood clot?
4. *Could this be parathyroid?*



- Microfollicles
- +/- Colloid-like material
- Tiny cuboidal cells, very uniform
- Lateral/unusual location
- Prior thyroidectomy
- Hypercalcemia



Pitfalls in the Cytopathological Dx of Thyroid Nodules



Respect atypia, but...

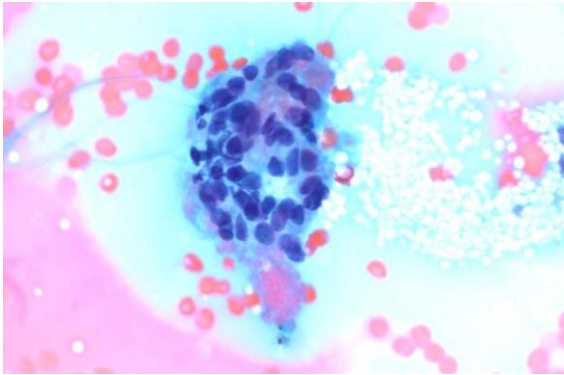
Increase atypia threshold if...

1. Chronic thyroiditis
2. Cyst repair
3. Hurthle cells

Respect atypia, but...

Increase atypia threshold if...

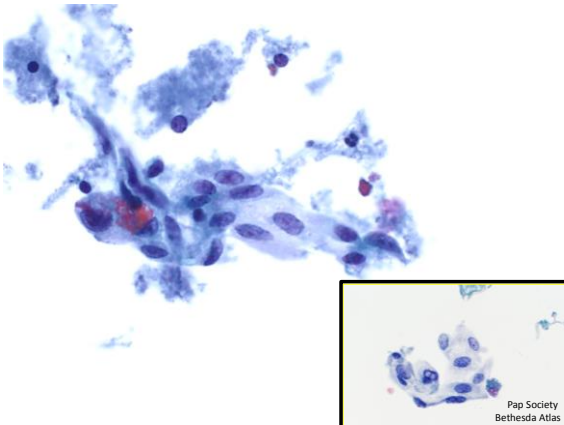
1. *Chronic thyroiditis*
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1. Chronic thyroiditis
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Respect atypia, but...

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3. *Hurthle cells*

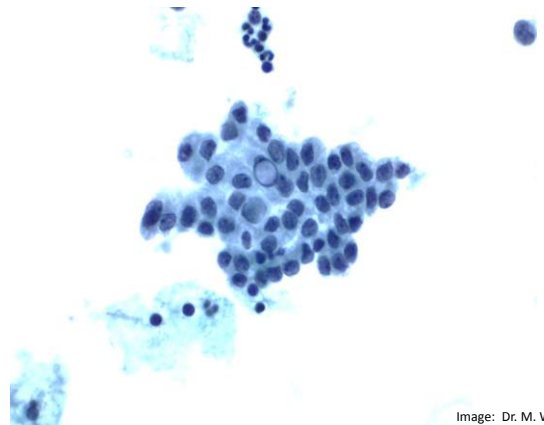
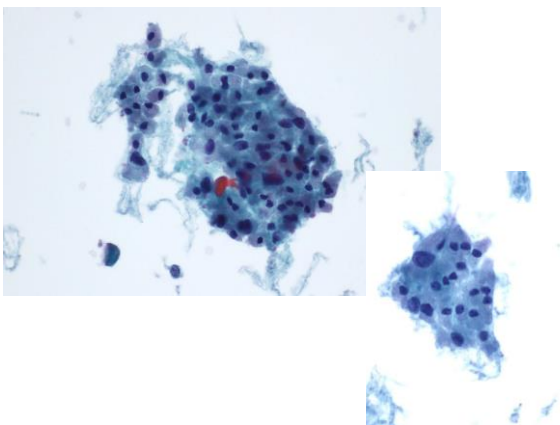
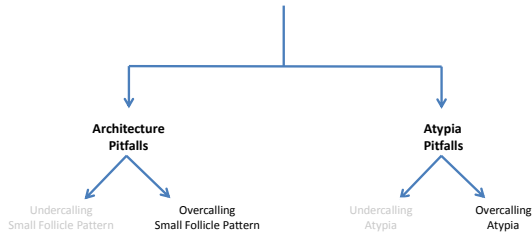


Image: Dr. M. Weir

Pitfalls in the Cytopathological Dx of Thyroid Nodules



Outline



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Conclusions

- **Neuroendocrine Pitfalls**
 - Small cell CA can be easily missed → be aware of morphological criteria on LBC preparations
 - Carcinoid tumour can be misdiagnosed as small cell → awareness of morphological criteria, clinical parameters, use of Ki67
 - Small cell CA is a morphological diagnosis, BUT → beware of mimics, use ancillary studies & 2nd opinions as necessary
- **Salivary Gland Pitfalls**
 - Avoid FN → strict criteria for a definitive diagnosis of WT or PA
 - Avoid FP → diagnostic categories
 - Misclassification → lymphomas, small cell CA, metastatic CA may mimic BNs
- **Thyroid Pitfalls**
 - Before ascribing a microfollicular architecture, consider → CT, fragmentation, blood clot, PT
 - Before flagging nuclear atypia, consider → CT, cyst repair, Hurthle cell changes

