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Citopatologia Ecoendoscopica

XX Congreso de la Sociedad Espanola de Citologia

ZARAGOZA

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Why is EUS a Good Idea?

- Decreased US interference from bones
- Decreased interference from gas
- Higher frequency can be used
  - Increased resolution

Indications for EUS

- Imaging +/- sampling of any process not adequately imaged by more standard techniques, if it is seated in:
  - Mediastinum
  - Upper abdomen
  - Retroperitoneum
  - Pelvis

EUS Diagnostic Success

- Staging of malignancies
  - GI tract, pancreas, lung
- GI tract submucosal tumors
- Choledocholithiasis id. safely
- Dx of mild chronic pancreatitis
- Decreased costs

Slow Acceptance of EUS

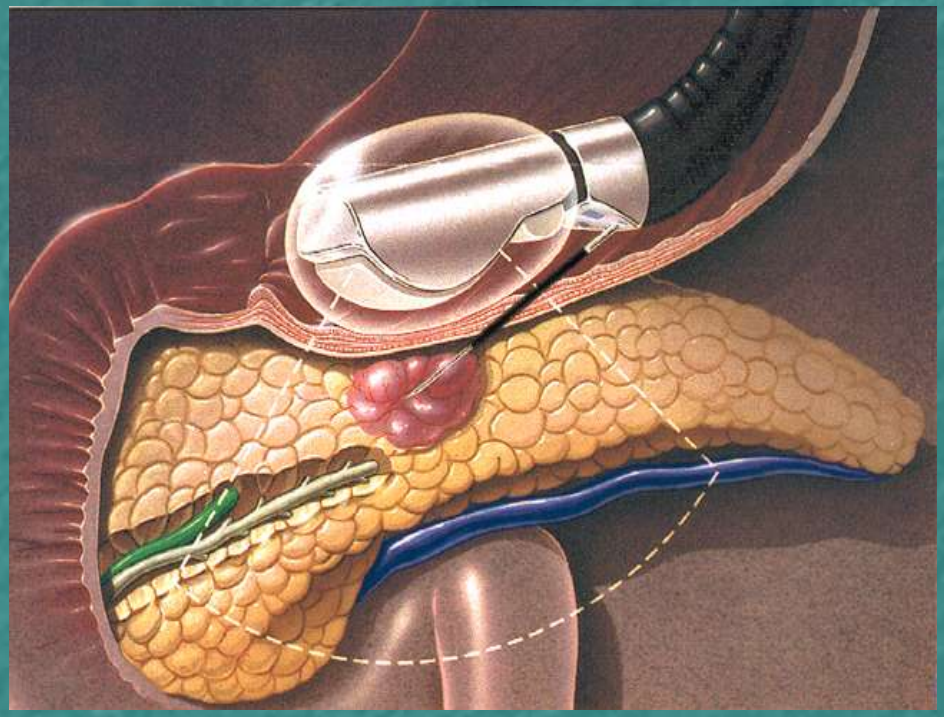
- Early technology was cumbersome
- Nonstandard images of anatomy
  - Unusual angles
  - Poor correspondence with CT, MRI, atlases
- Very special training required
- Few training centers available

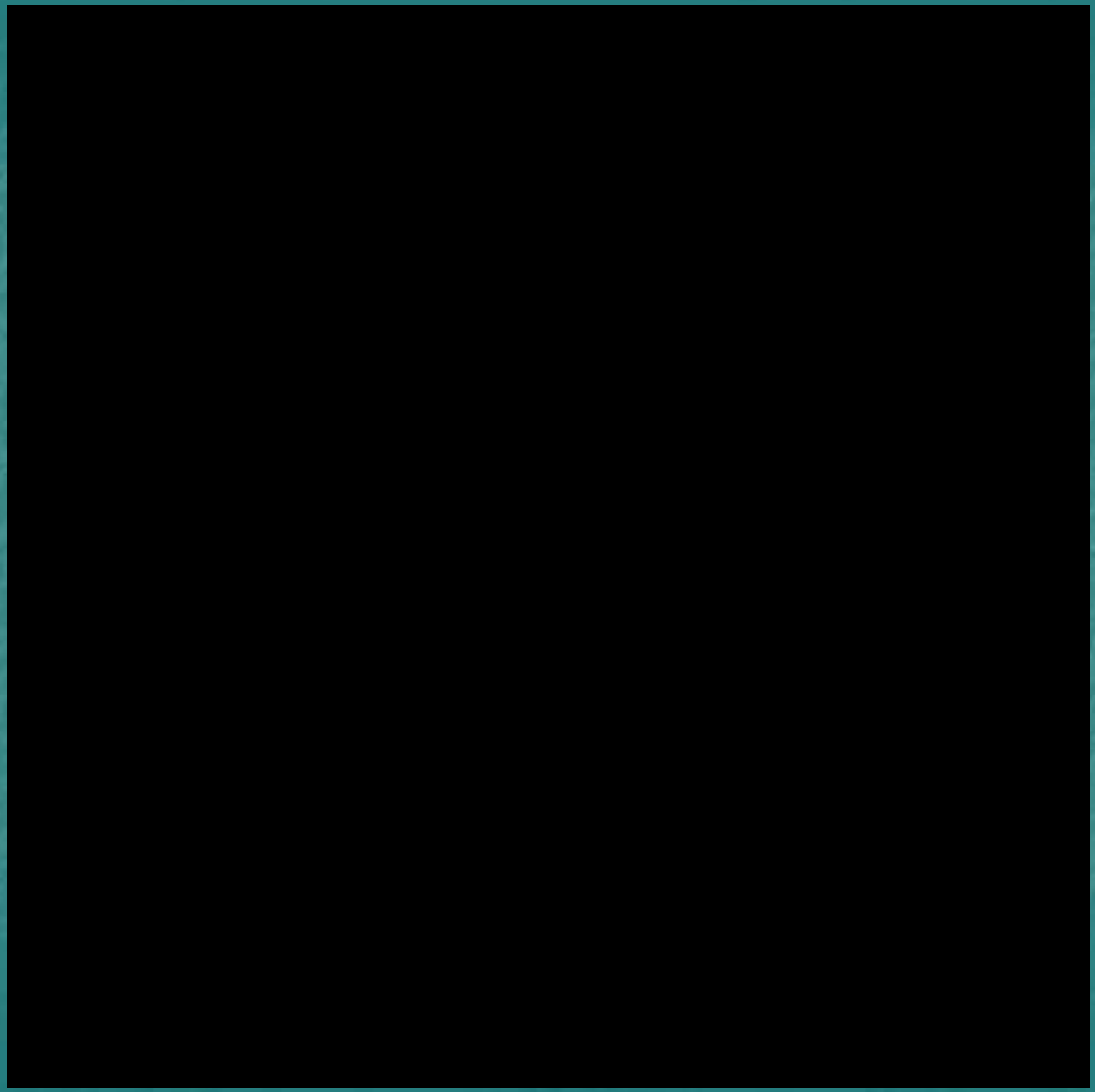
Slow Advance of EUS

- The best technology is very new
- Clinicians are unaware of its uses
- Steep learning curve for endoscopists
- Time required for training endoscopists
- New problems for pathologists
- Currently expanding exponentially

EUS Equipment

- Echoendoscopes
  - Optical imaging
    - Fiberoptic
    - Computerized video
  - Ultrasound imaging
    - Radial
    - Curved linear array
    - Miniprobes
    - Doppler
  - Details: Rad Clin N Am 39: 449-463; 2001.





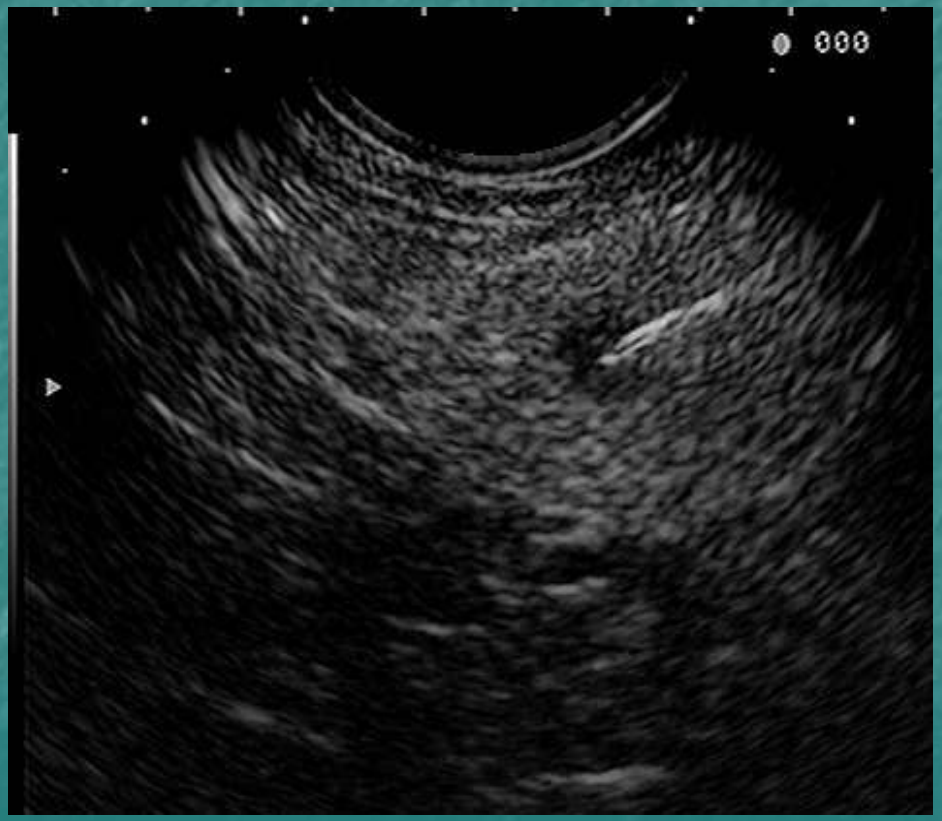
Technical Aspects

- Supervised training: 25 – 30 EUS-FNAs
  - Sensitivity: 80 – 90%
- Number of passes: depends on
  - Operator experience
  - Presence / absence of cytopathologist
  - Target: mass/lymph node/liver mets
    - 5-7/3-5/2-3 without cytopathologist
- Specimen adequacy: needle gauge (25g) and….

EUS Detects Small Tumors Missed By CT

	EUS	CT
Yasuda 1988 (n=7, <2cm)	100%	29%
Rosch 1991 (n=27, <3cm)	100%	55%
Palazzo 1993 (n=7, <2.5cm)	100%	14%
Muller 1994 (n=15, <3cm)	93%	53%
Nakaizumi 1995 (n=8, <2cm)	88%	38%
Midwinter 1999 (n=17, resectable)	94%	65%

EUS Can Detect and Sample Lesions As Small As 3-4 mm



EUS-Guided Diagnostic Cyst Aspiration

Cipro 500 po bid x 5d

Tumor Markers
Mucinous vs Non-Mucinous

Test	Sens	Spec	Acc
EUS Morphology	.56	.45	.51
Cytology	.35	.84	.59
CEA	.73	.84	.79

Brugge, et al, Gastro 2004

Subepithelial Tumors

EUS-Guided FNA

- Adeq specimen ~70-80%
  - vs. 40 % for jumbo bx
- Allows Immunostaining 80%
  - c-Kit
  - Others (S-100, MIB-1)
- Exclude alternate dx

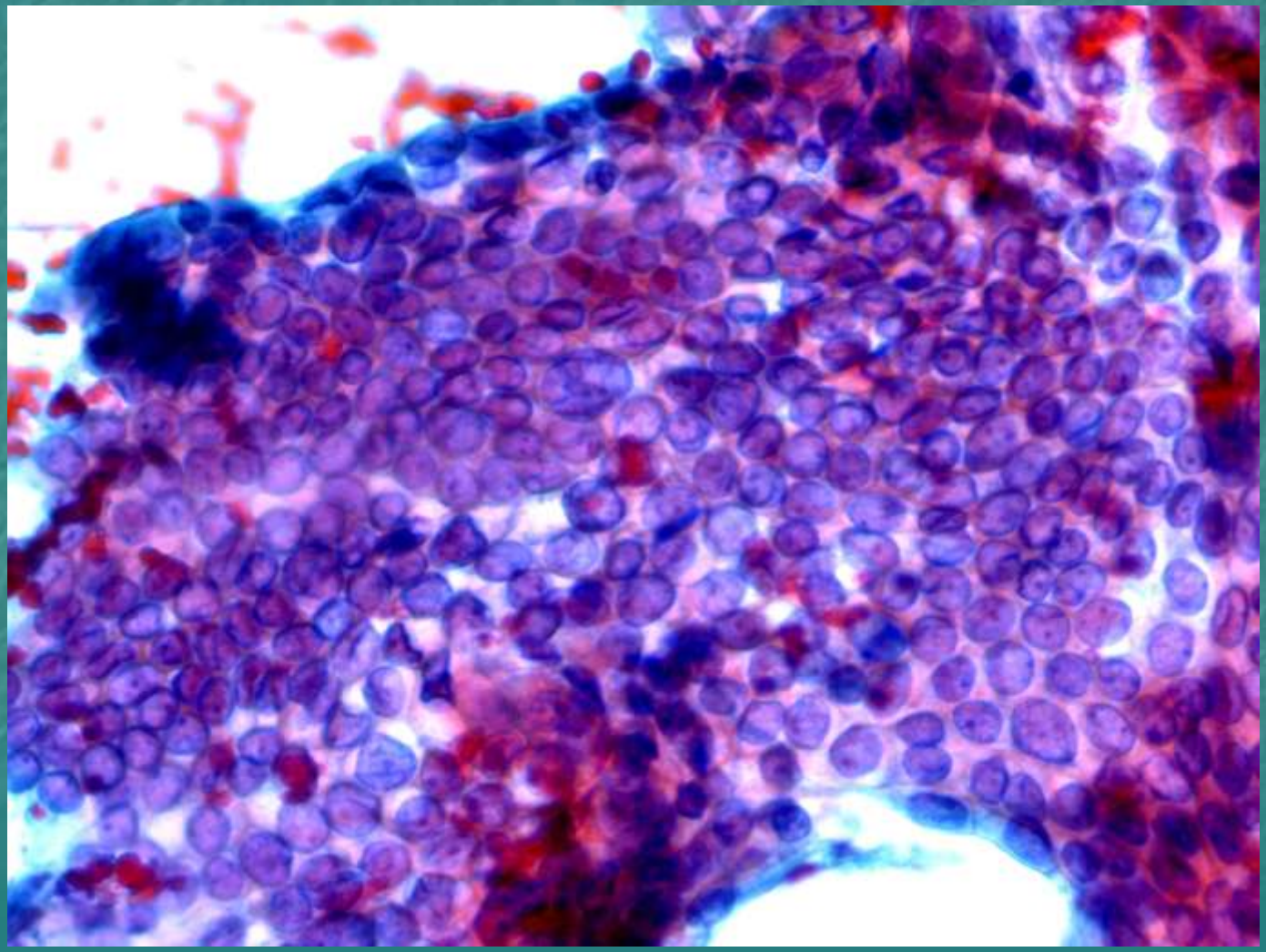
Case #1

- 74 yo WF
- Relapsing pancreatitis 4 yr ago, 3 yr ago, now
- CT 4 yr ago: Cystic lesions in tail
- CT now
  - Near complete replacement of pancreas with cysts
  - No mass
  - Small liver lesions TSTC
- ERCP: Normal
- MRI
  - Cysts: IPMT vs. MCN
  - Suspicious liver lesions

EUS: Cystic Changes in Tail

Liver FNA

Metastatic Adenocarcinoma

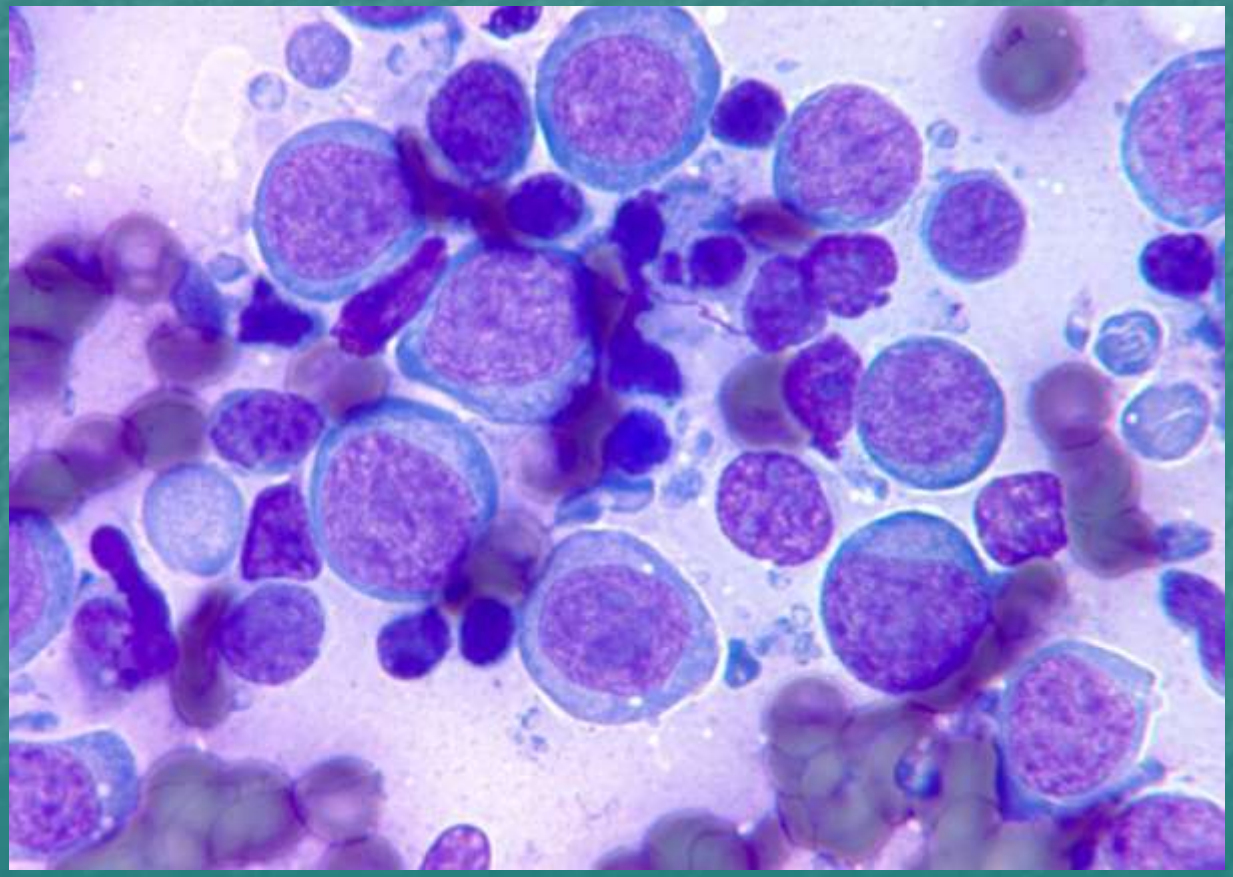


Case #2

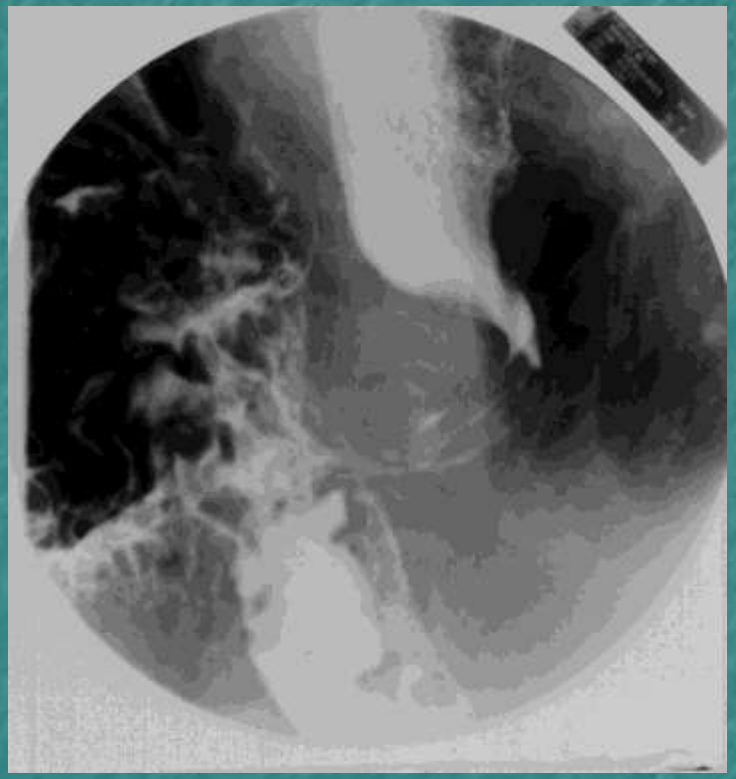
- 25 yo WM
- Unexplained 50 lb weight loss
- Night sweats
- CT: Large 7 cm mass in pancreatic body
  retroperitoneal node
- Radiologist suggests EUS-FNA

EUS: Large Extrapancreatic Mass - FNA

Lymphoma

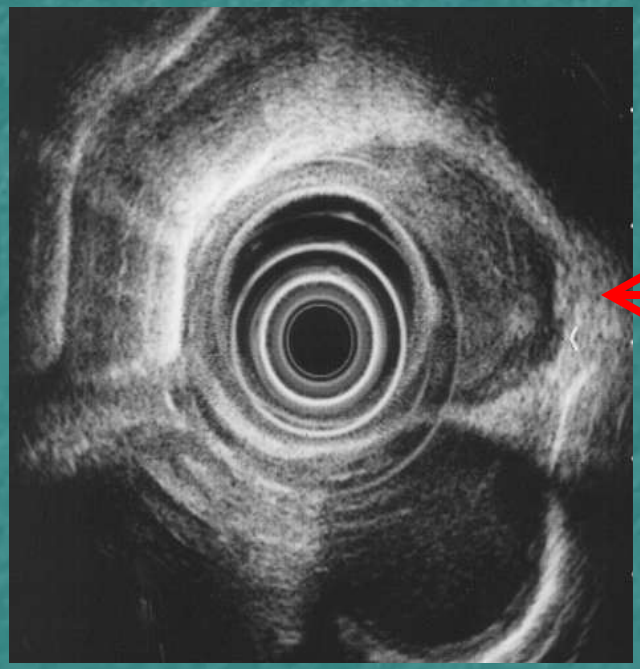


Case 3



- **Progressive dysphagia**
- **EGD: ? Extrinsic compression. Forceps bx – non-Dx**

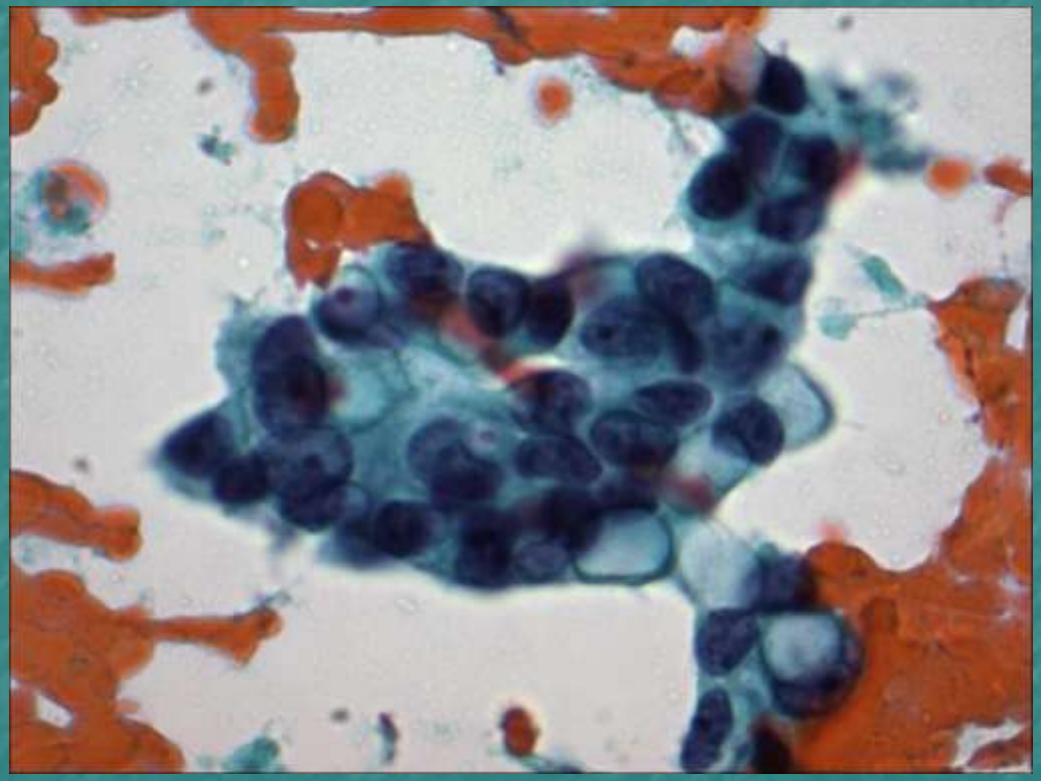
Case 3
EUS



Radial: irregular margins

Linear: FNA

Metastatic Lobular Breast Carcinoma



History of mastectomy 15 yrs prior to presentation

Summary

- EUS allow access for FNA of many lesions that are
  - Difficult to visualize or
  - Difficult to access
- The value of EUS-FNA is critically dependent on experience, sampling, preparation, and cytologic interpretation.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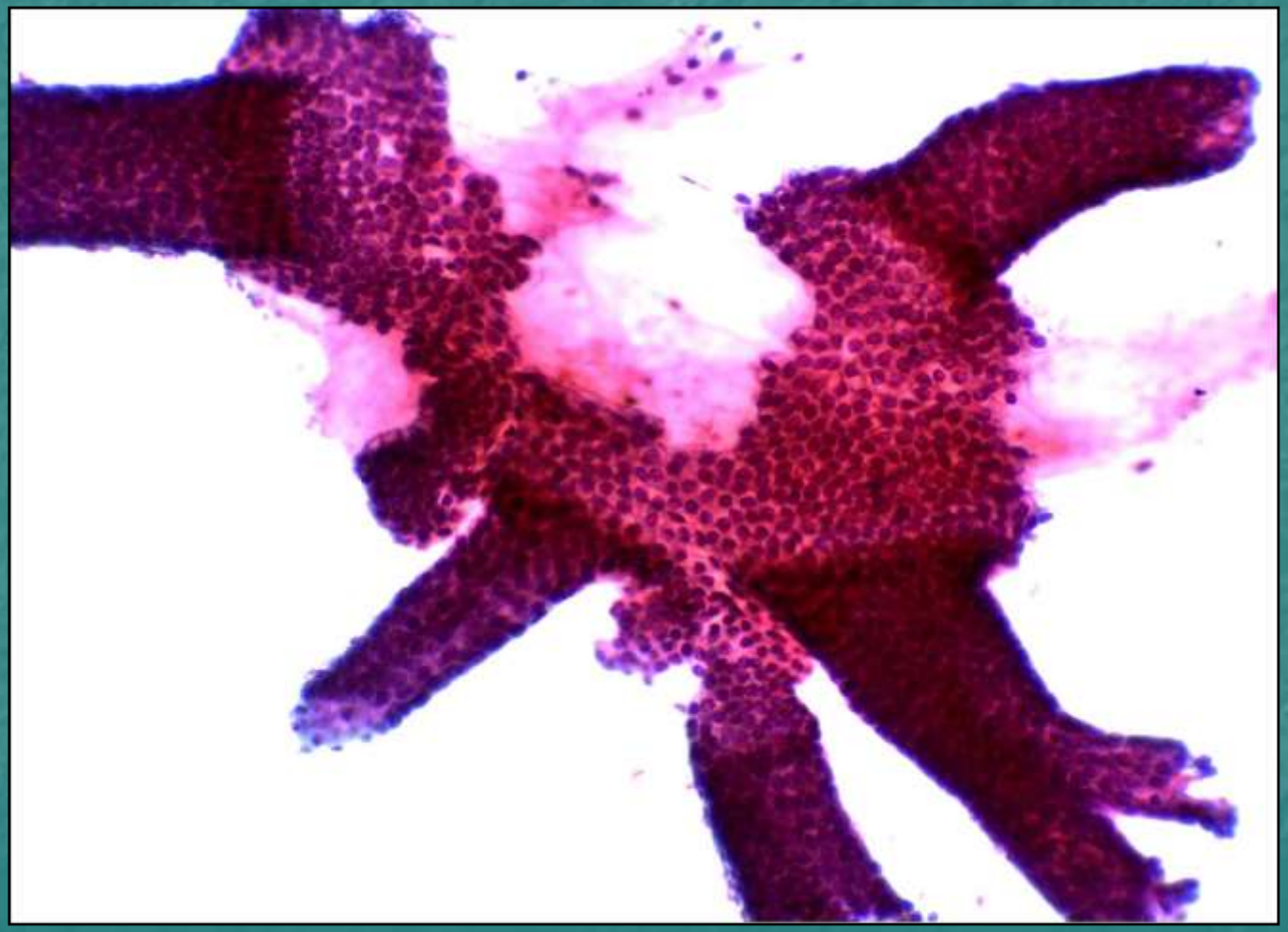
Introduction, General Concepts and Issues, Methods, and the Cytopathologist's Role

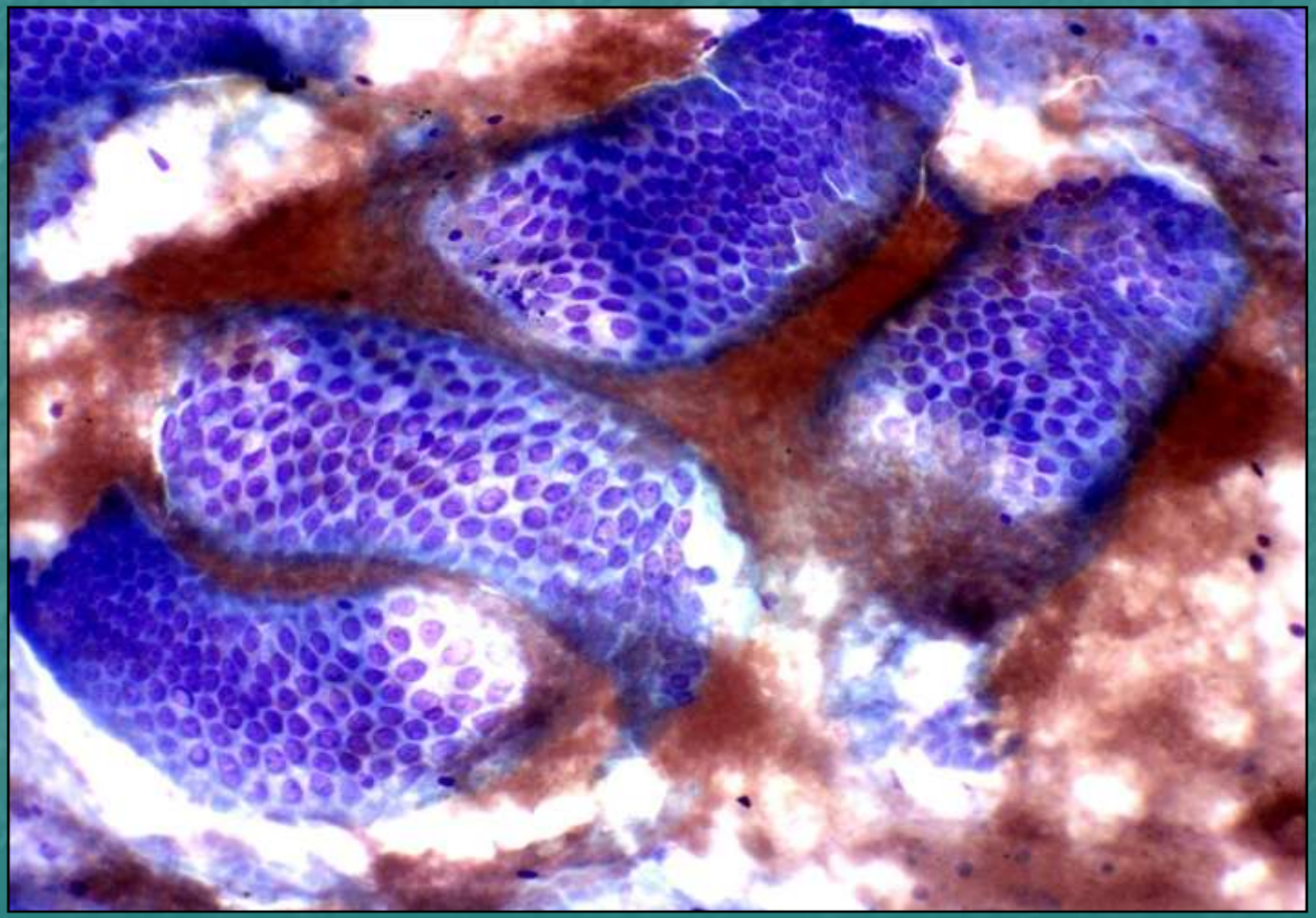
Normal Tissues

- Epithelial
  - esophagus
  - stomach
  - duodenum
  - pancreas and hepatobiliary
- Adrenal (left only)
- Soft tissues
- Lymphoid tissue

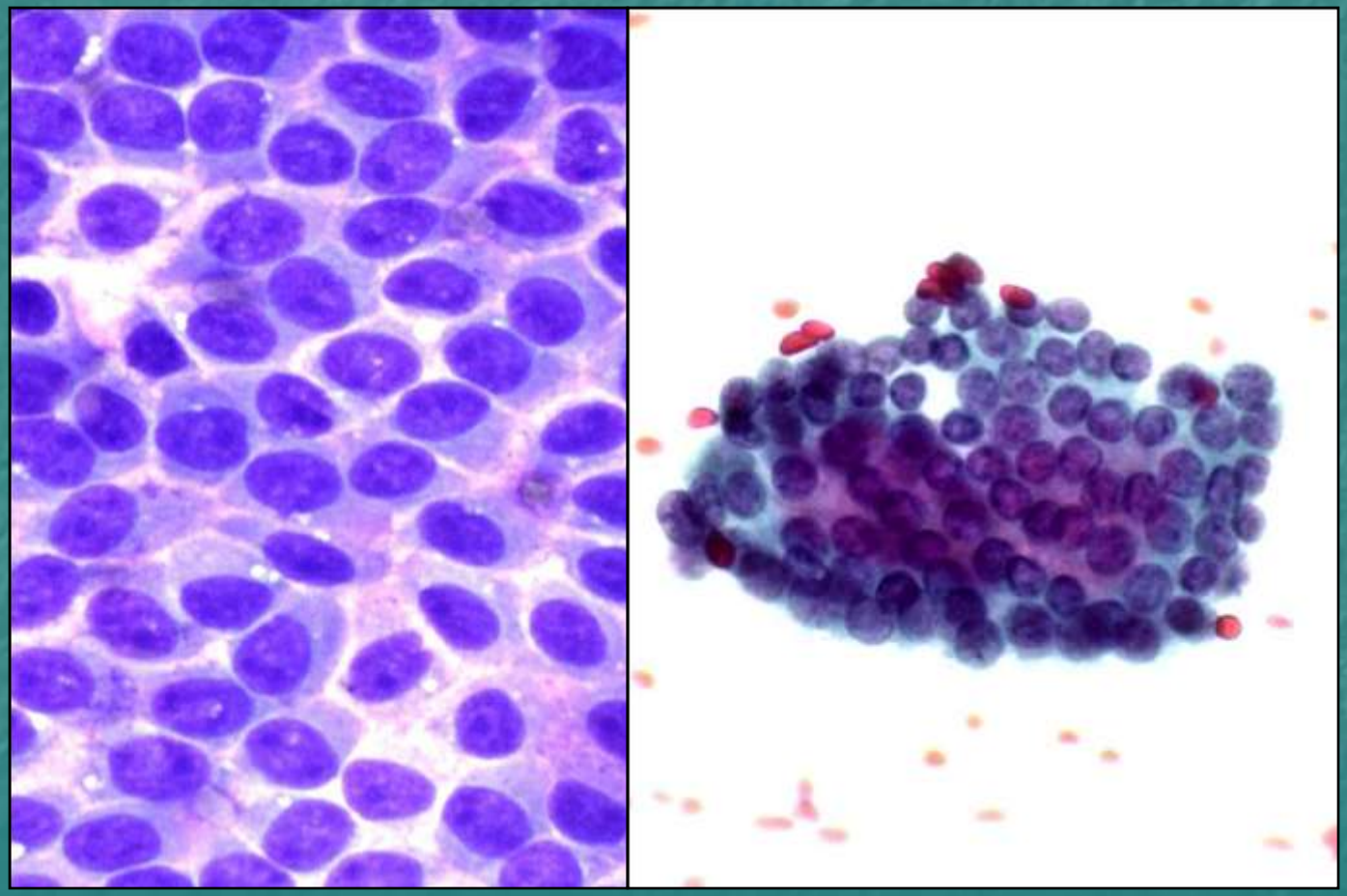
Gastric Pits



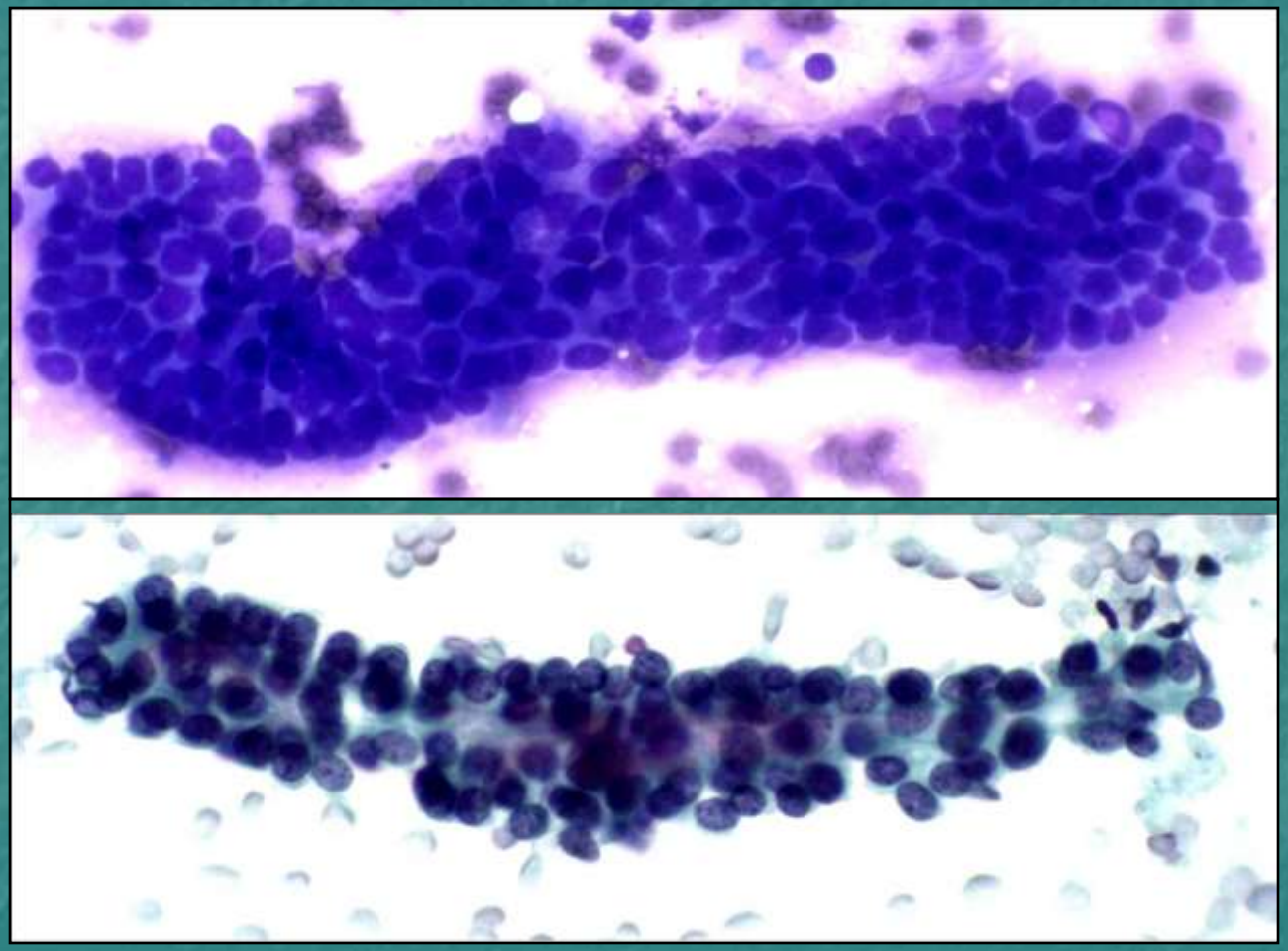
Gastric Pits



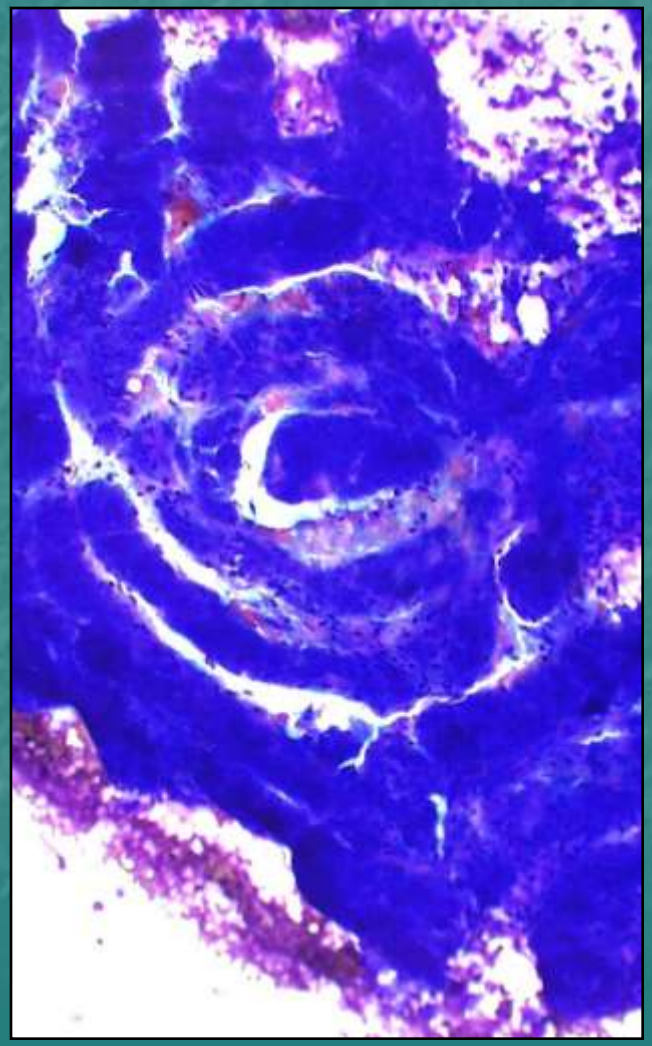
Gastric Surface Mucosa

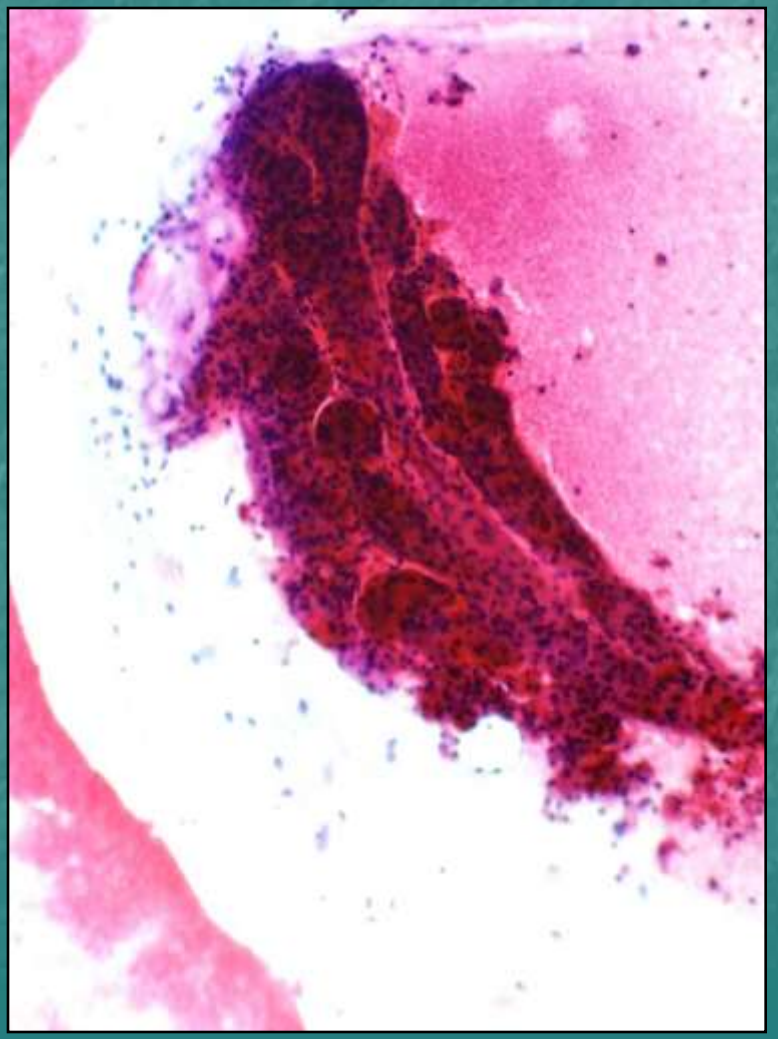


Gastric Glands

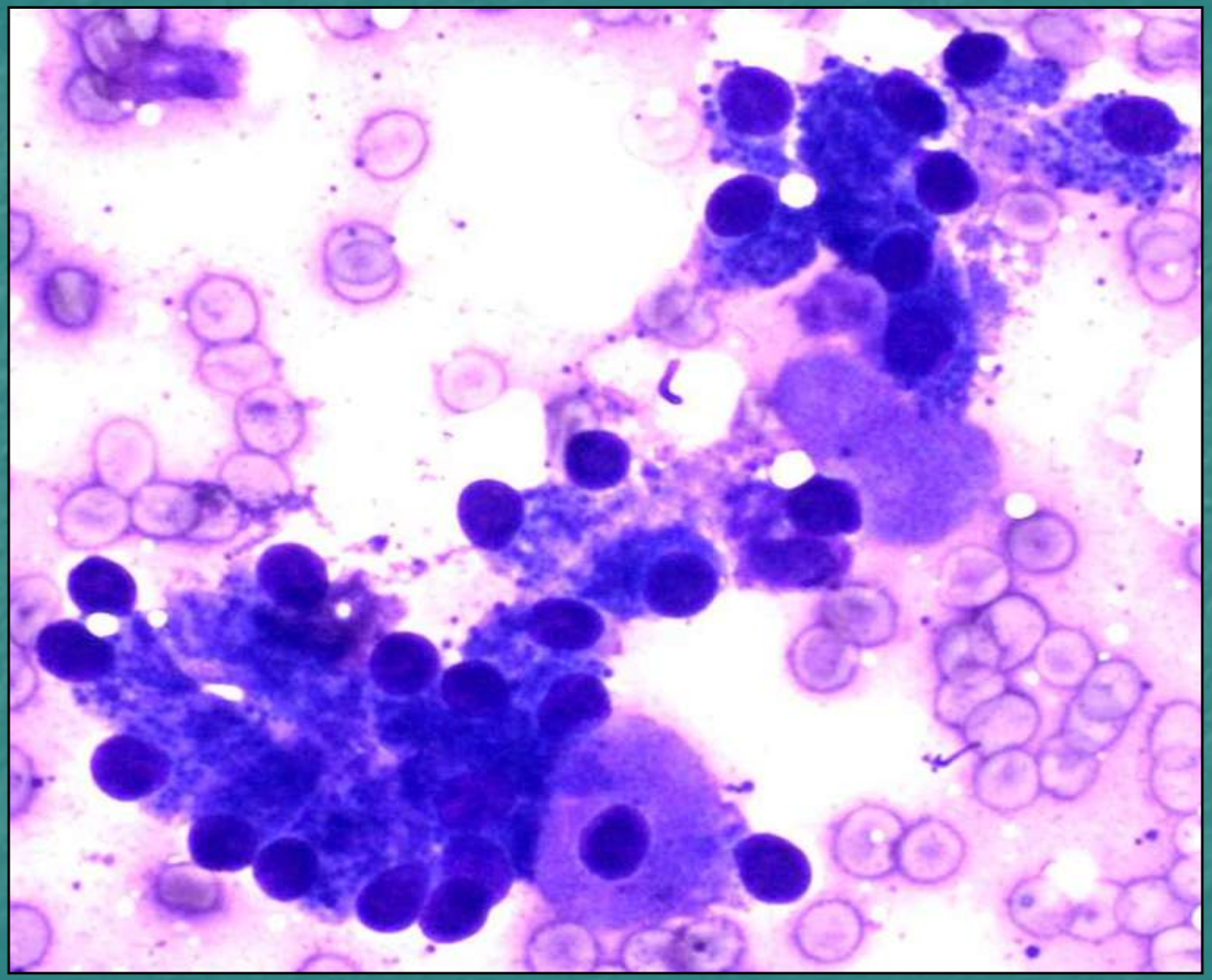


Stomach - Fundic Glands

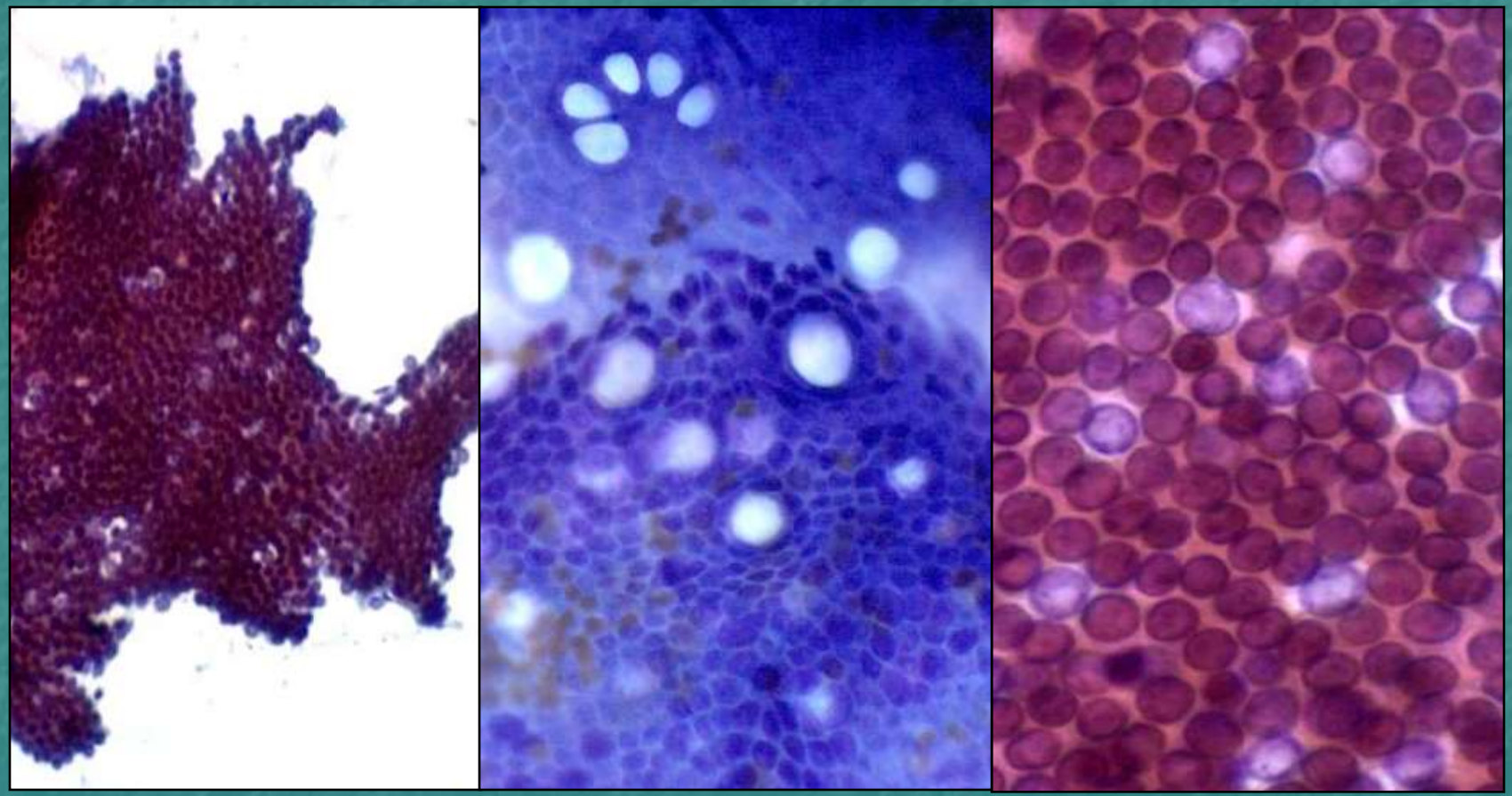




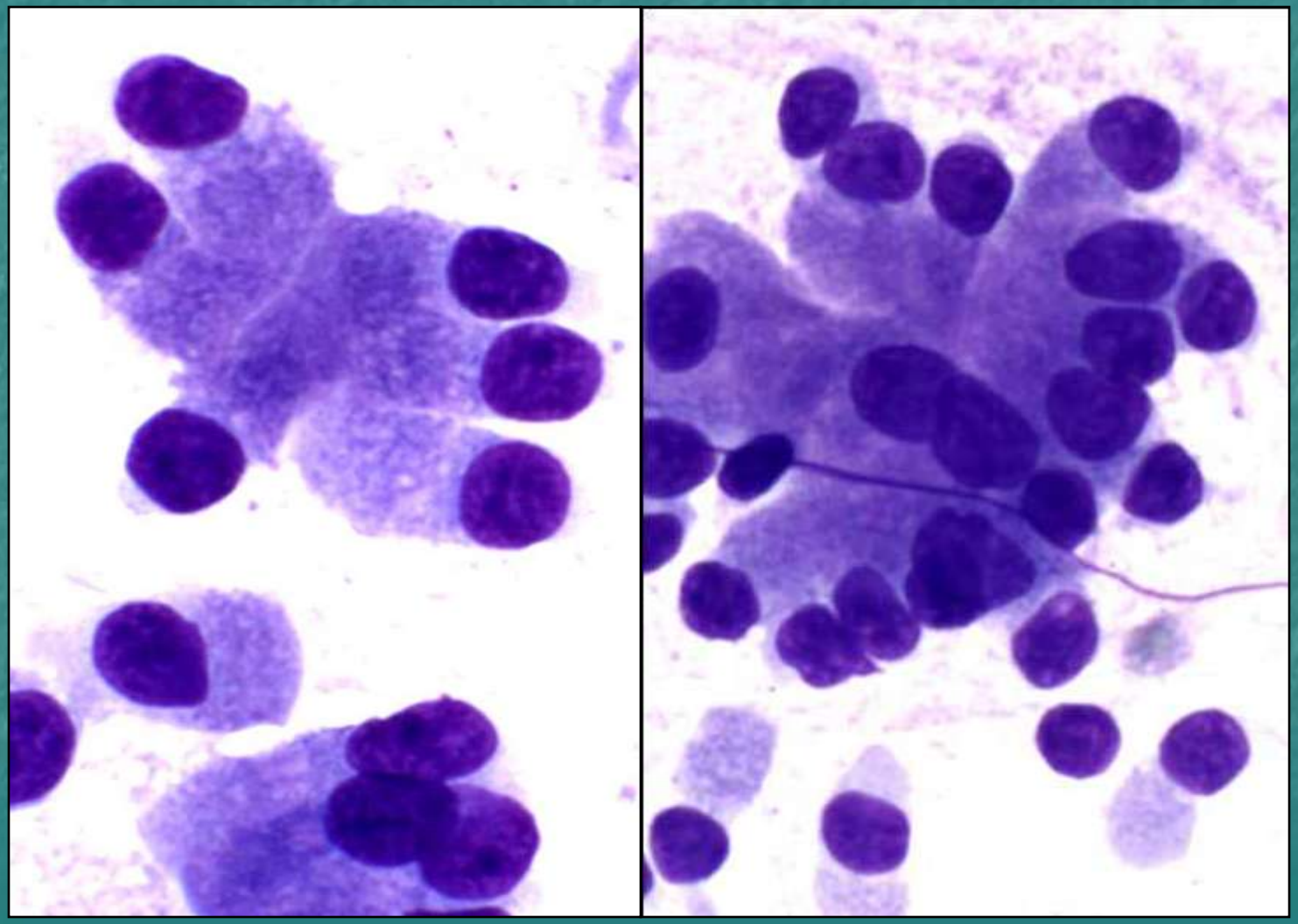
Chief Cells and Parietal Cells



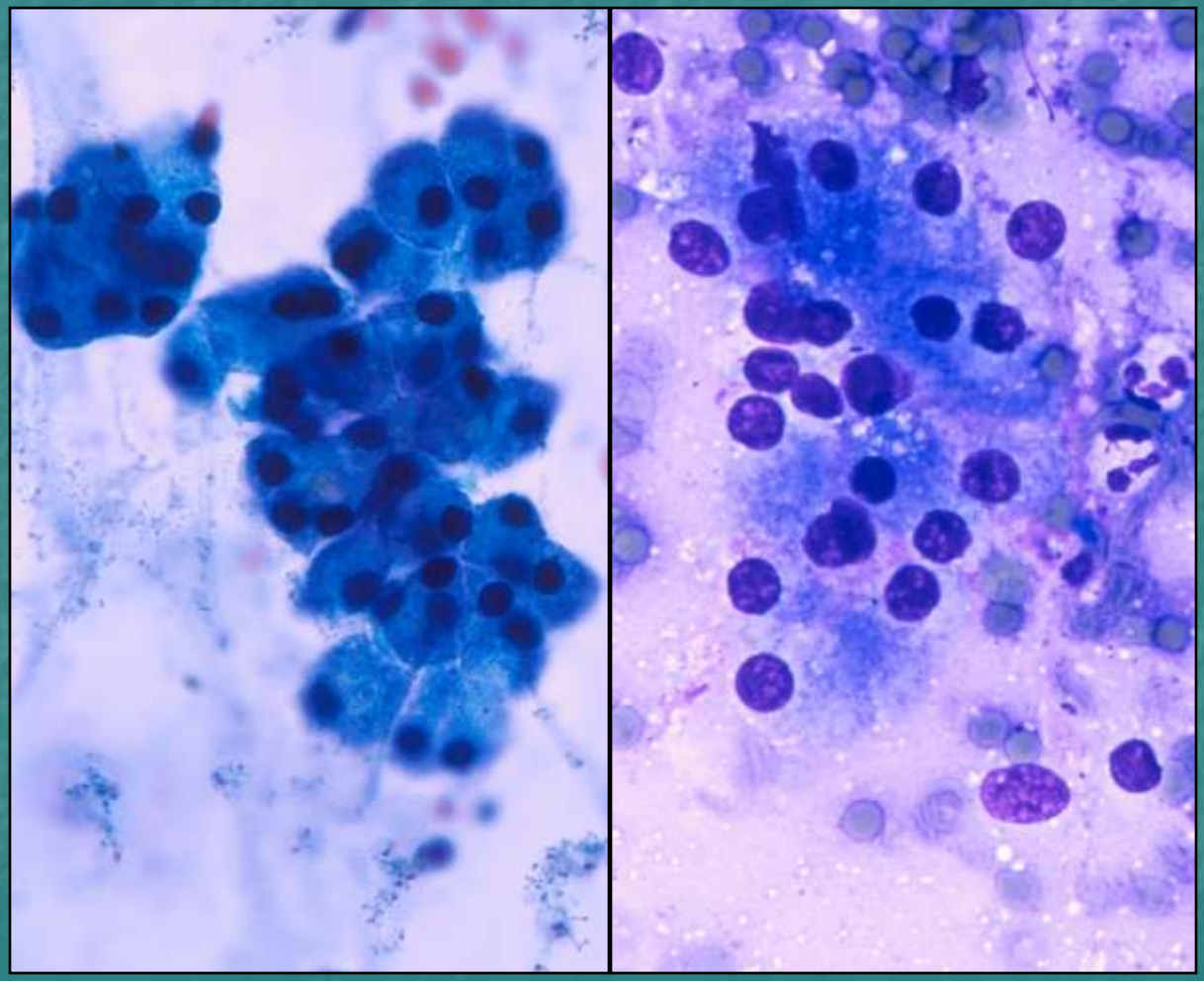
Duodenal Mucosa



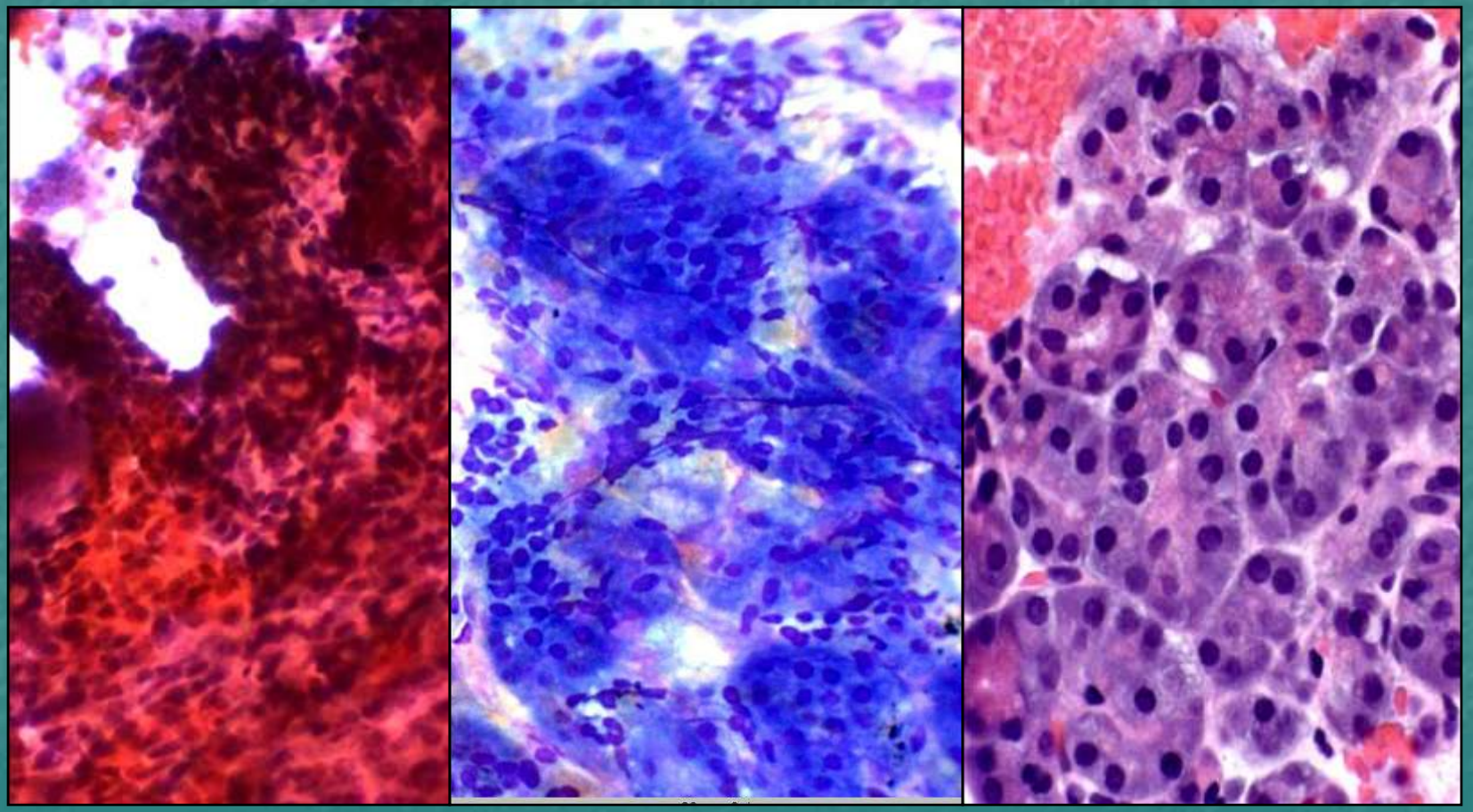
Brunner's Glands



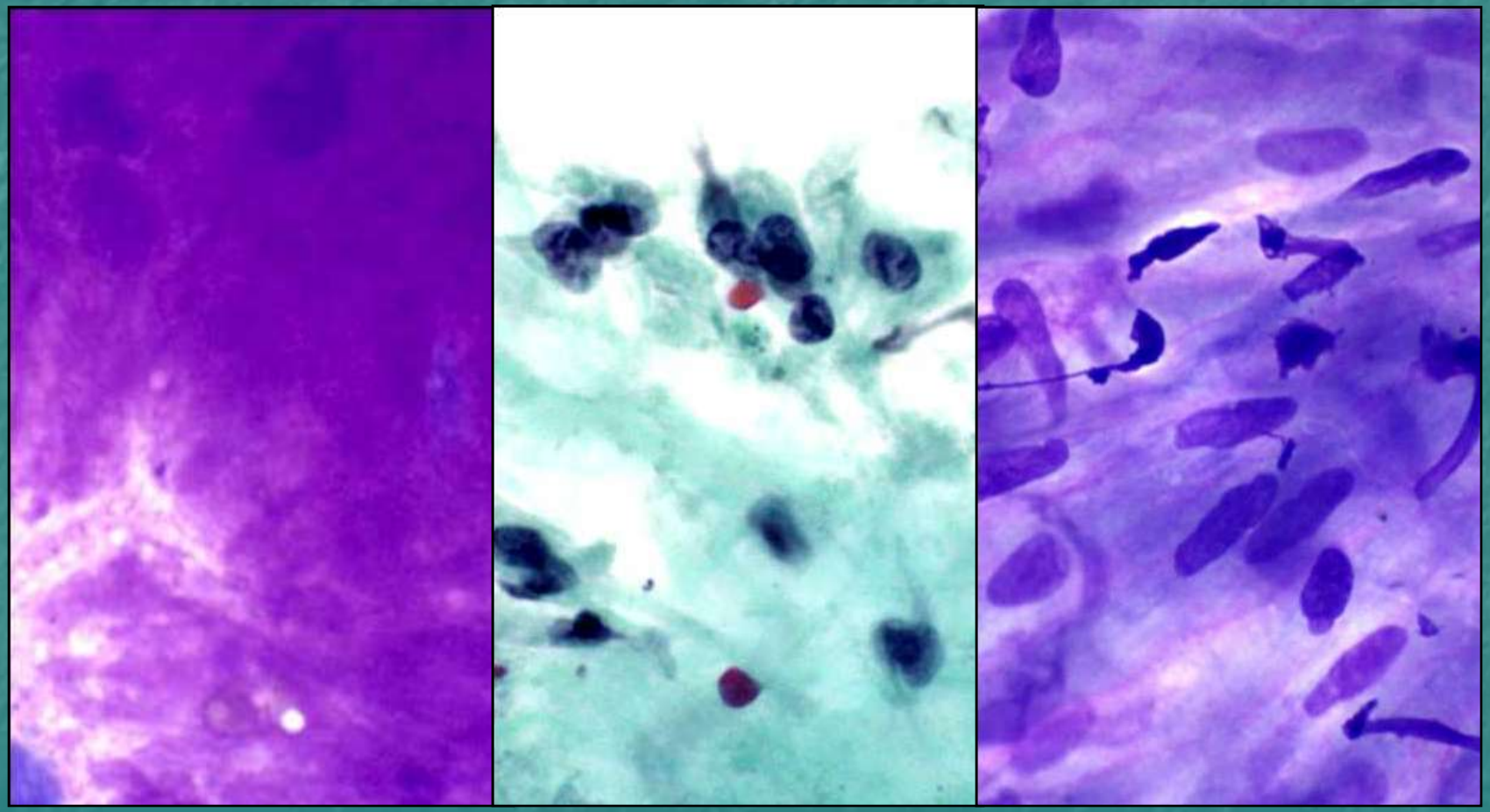
Pancreatic Acini



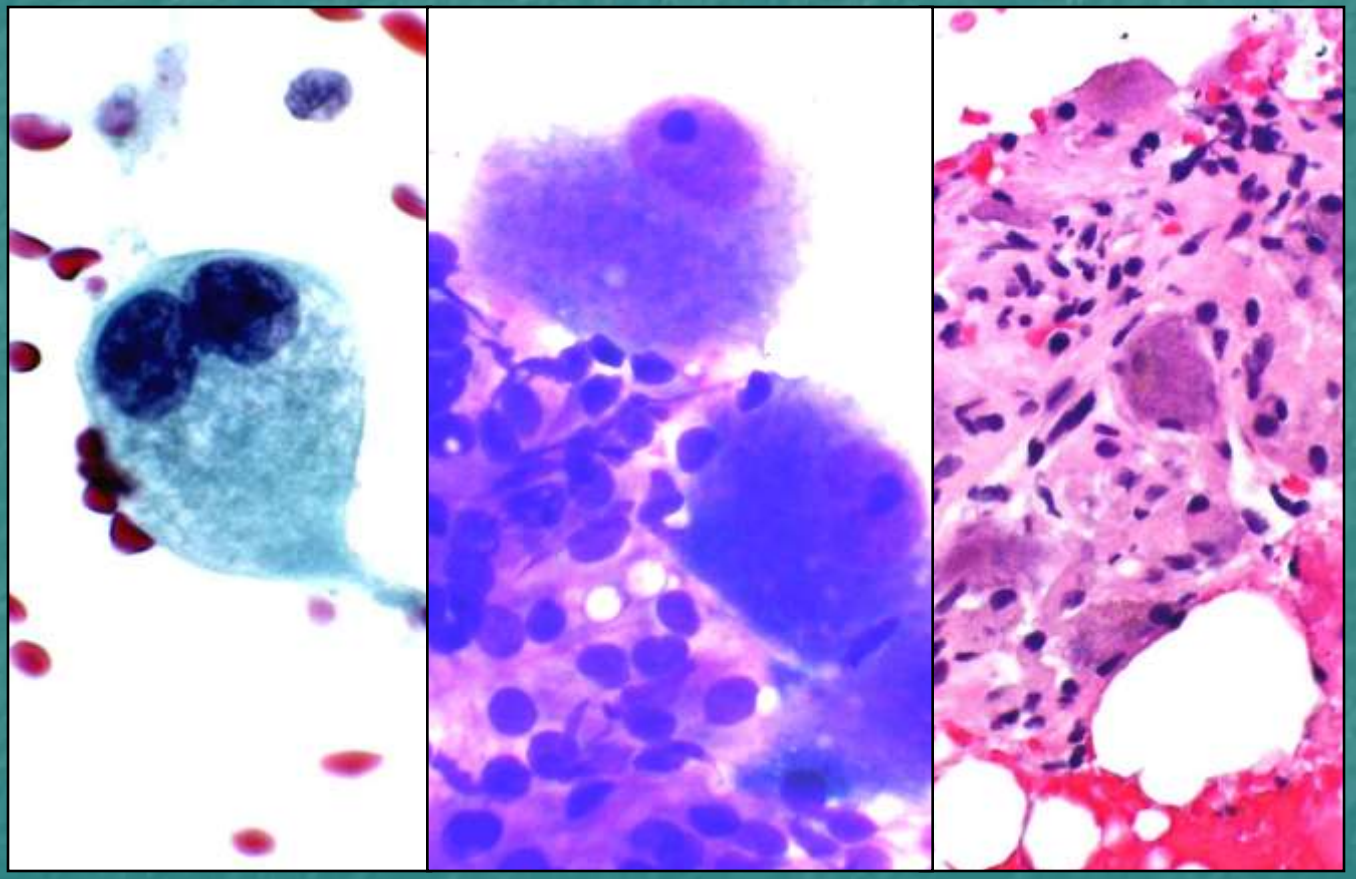
Normal Pancreatic Acinar Tissue



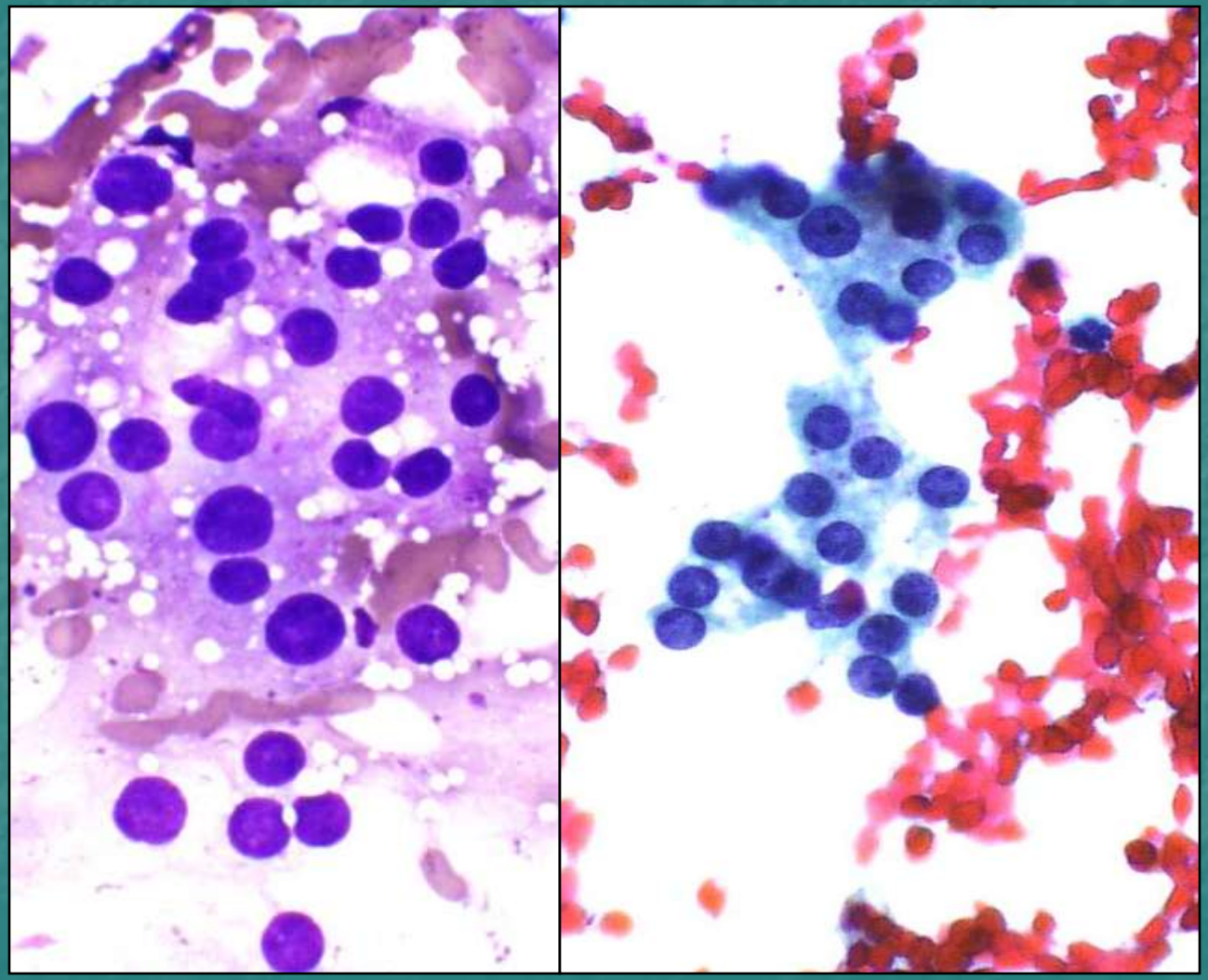
GI Wall Connective Tissues



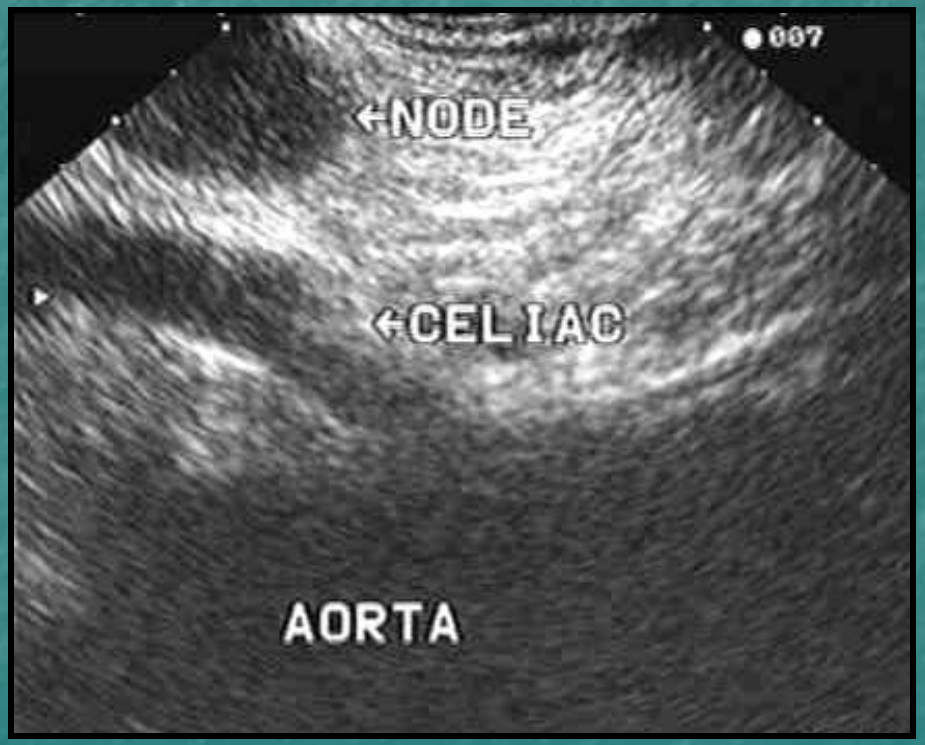
Ganglia

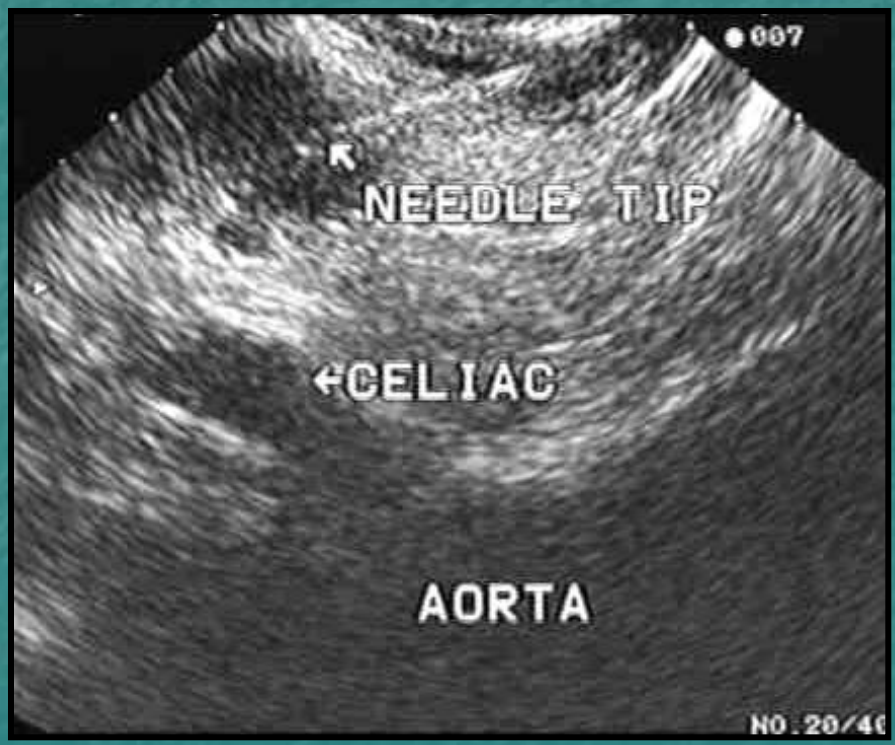


Adrenal Cortical Tissue

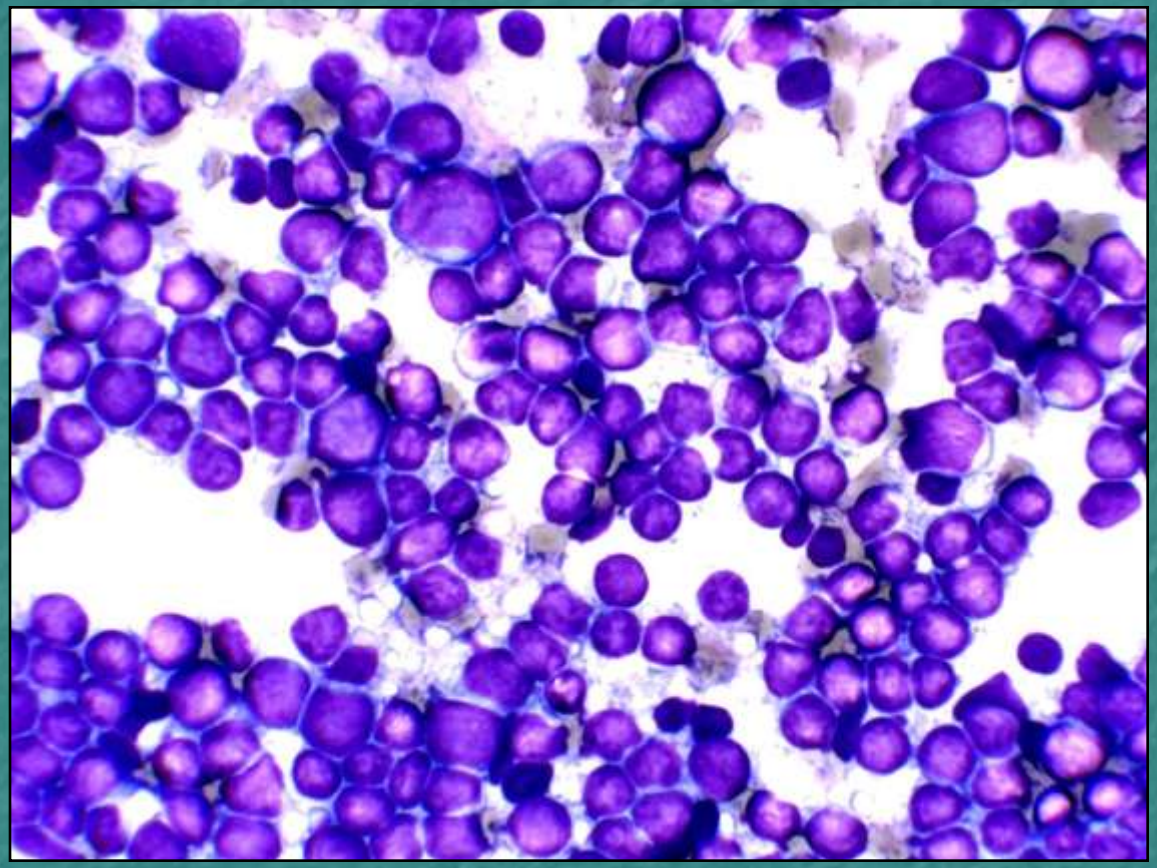


Abdominal Lymph Node FNA





Benign Lymphoid Tissue



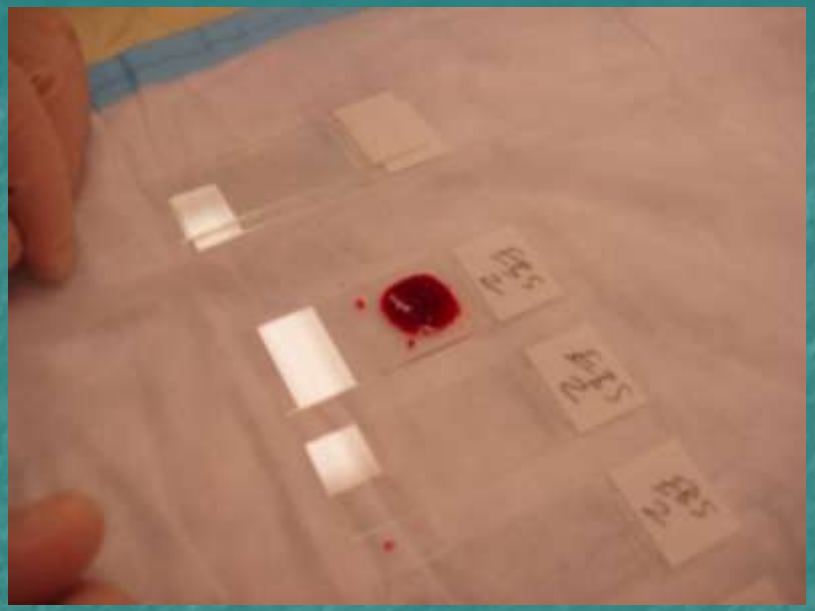
Cytopathologist's Role

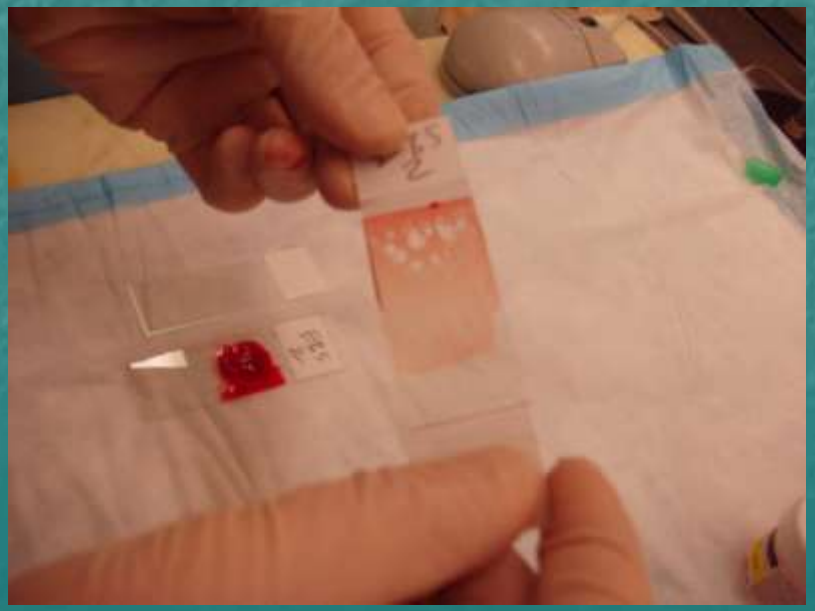
- Communication with endoscopist during procedure
- Rapid assessment of material
- Triaging of specimen

The Value of On-Site Cytology

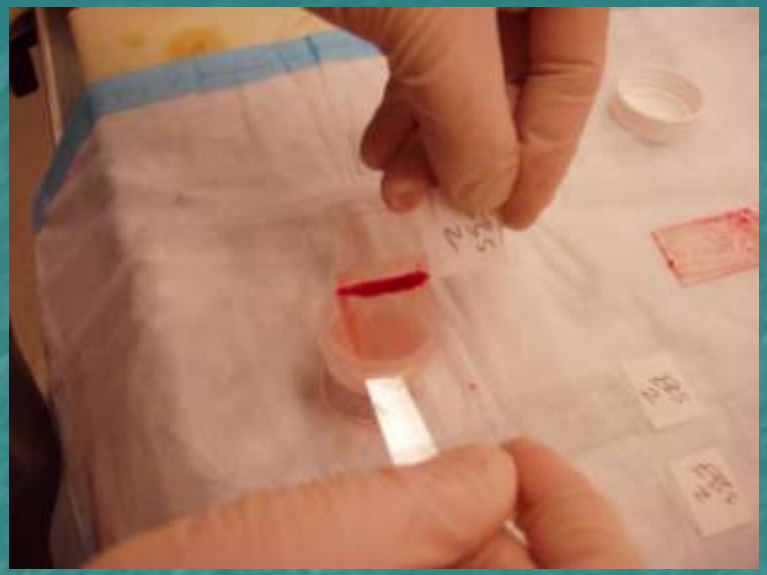
- Immediate feedback
- Change technique/needle gauge
- Change location within lesion
- Change site
  - ? Other node, other liver lesion, primary vs met
- Special processing
  - lymphoma
  - culture
  - cell block
  - core biopsy needed?

Slide Preparation





Cell Block Preparation



To Follow…..

Smear Interpretation and Diagnosis!

QUESTIONS?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CONGRESO LATINOAMERICANO E IBEROAMERICANO DE CITOLOGIA

GRACIAS

Lima, Peru Junio 19-23, 2011