Rad Path Conference

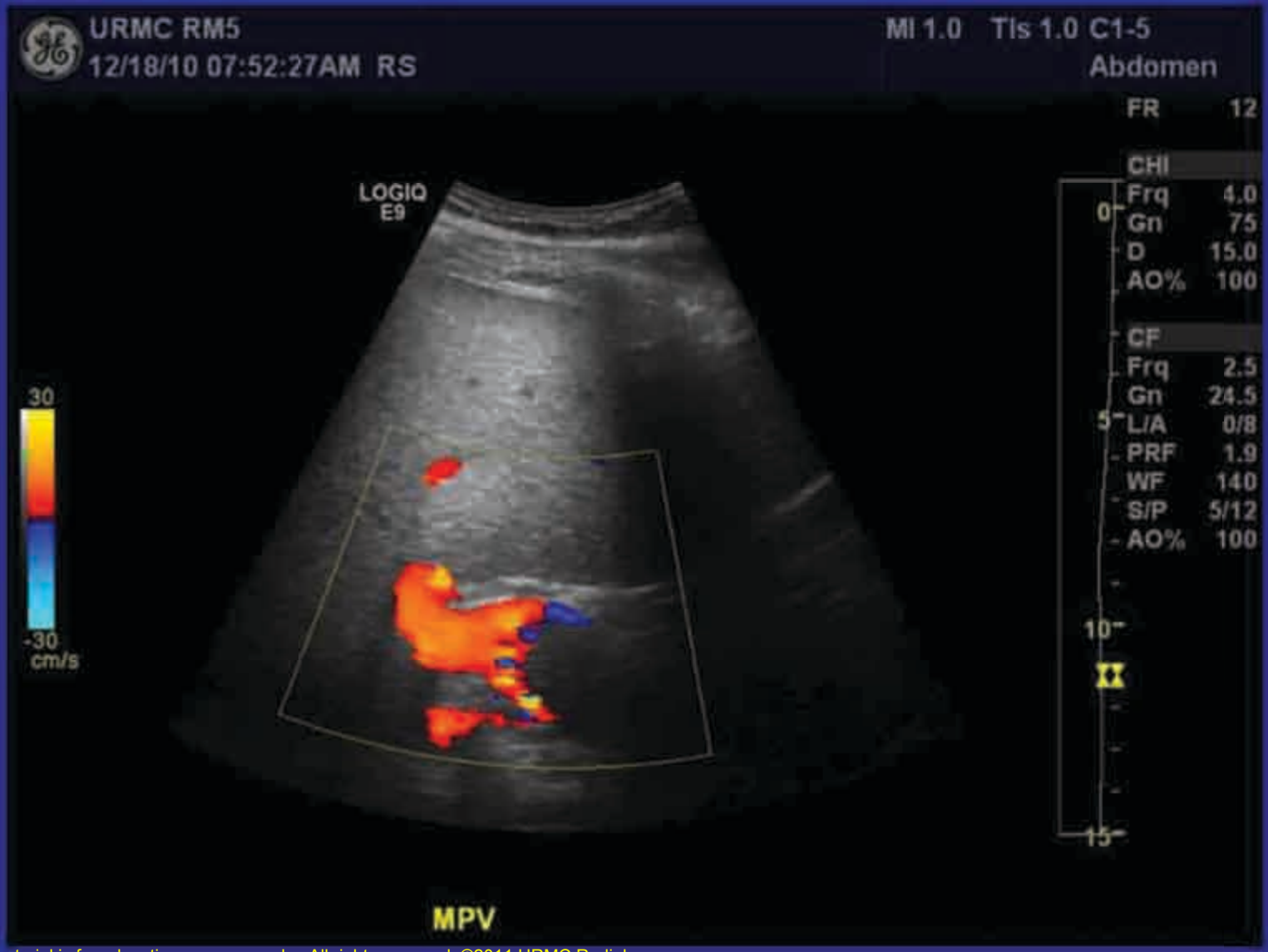
1/28/2011

Five Cases

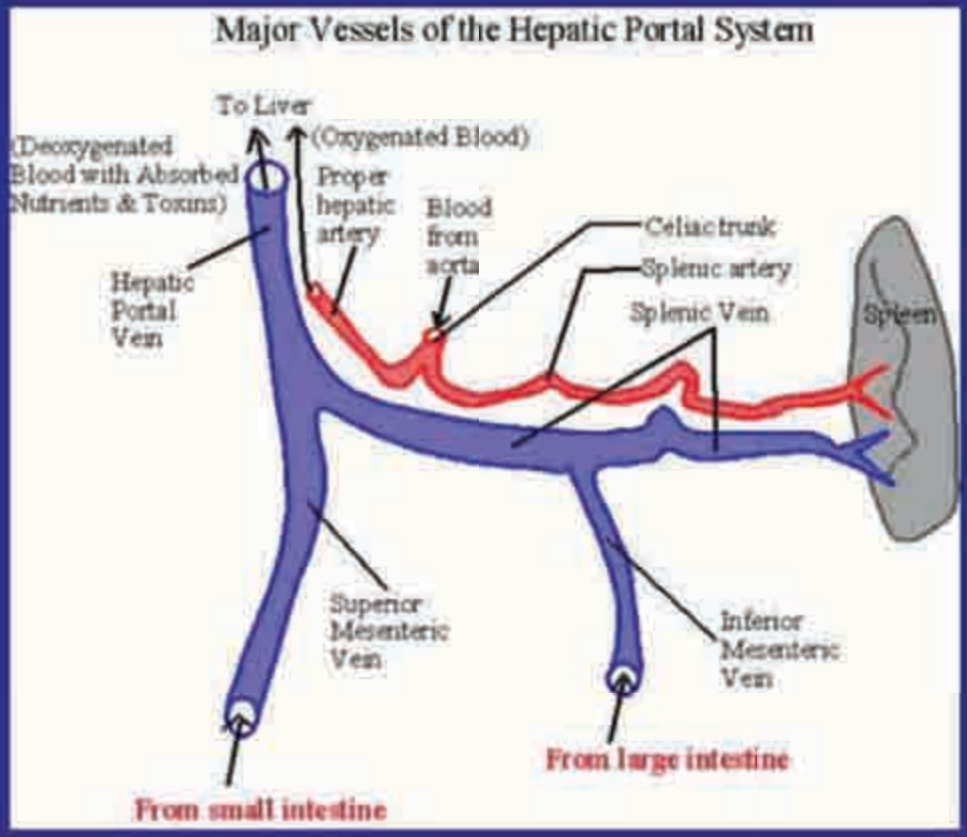
Case 1:

49 year old man with lethargy for four weeks, found to be anemic, who underwent an EGD.

Case 1: What do you see here?



Case 1



http://webanatomy.net/anatomy/portal_system.jpg

Case 1: What DDx is Considered for a Lack of Flow in the Splenic Vein?

Thrombus

Case 1: What DDx is Considered for a Lack of Flow in the Splenic Vein?

Thrombus

- Composed of Bland versus Tumor Thrombus
  - How do you differentiate the two?

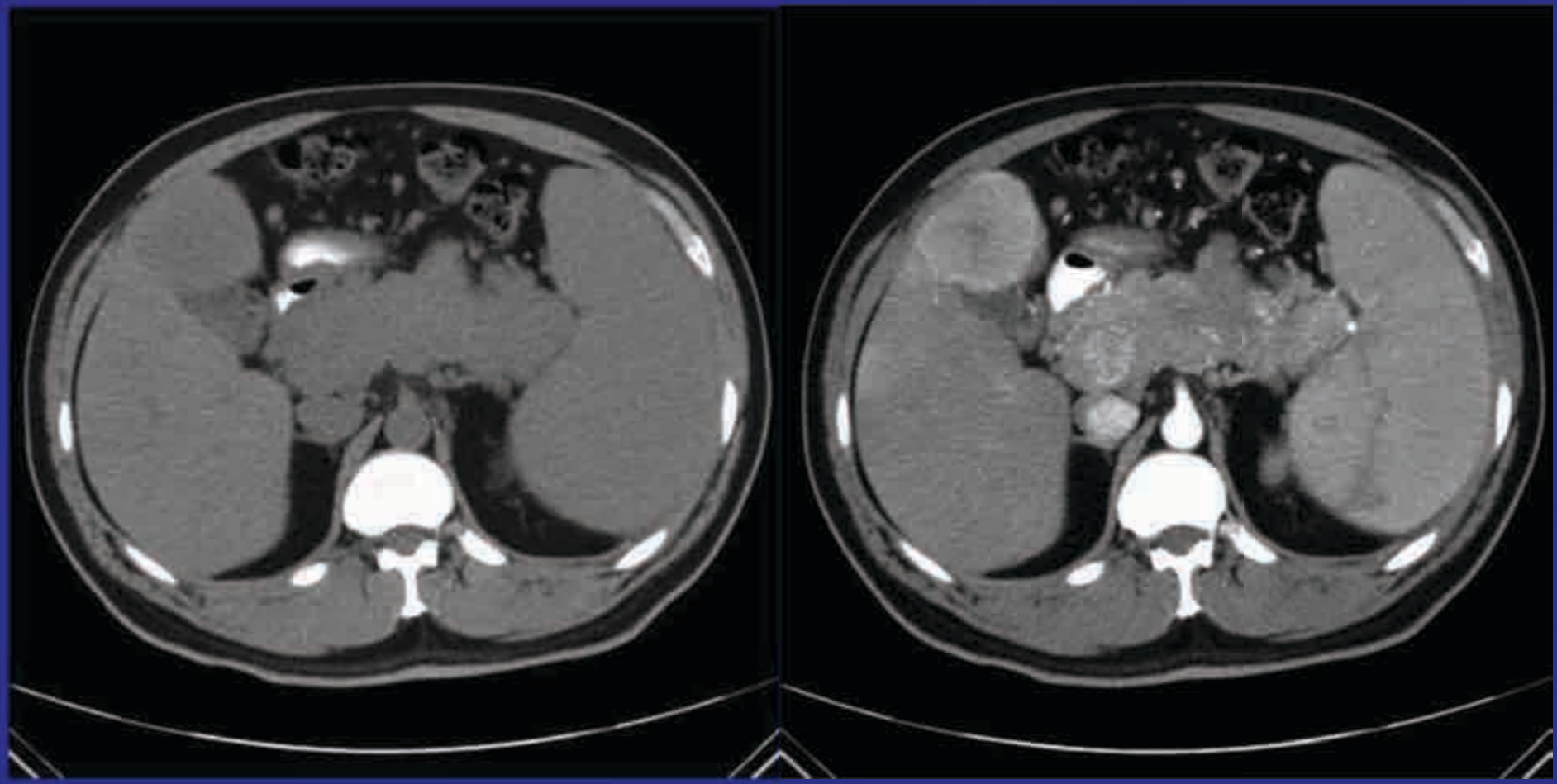
Case 1: What DDx is Considered for a Lack of Flow in the Splenic Vein?

Thrombus

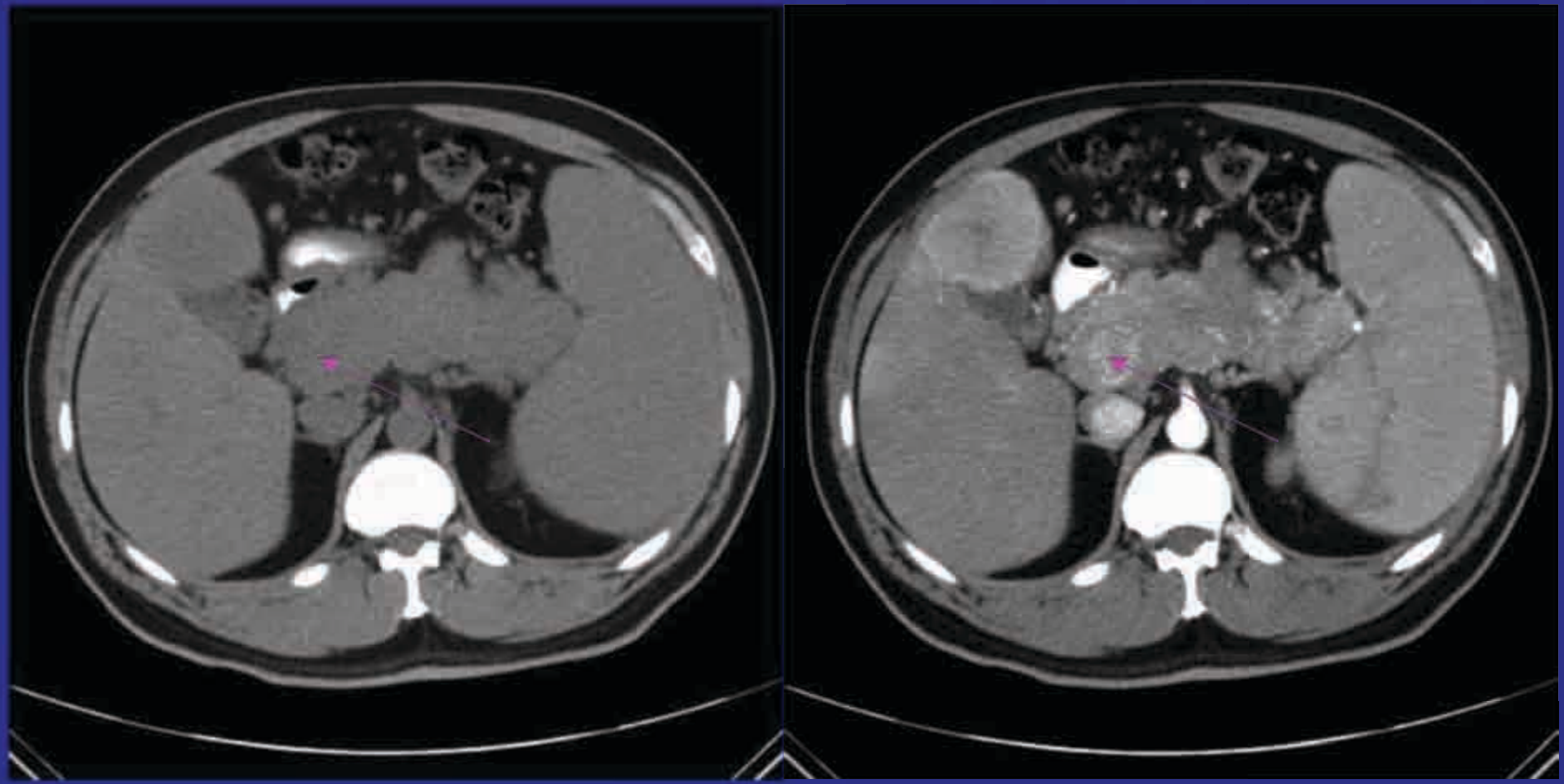
- Composed of Bland versus Tumor Thrombus
  - How do you differentiate the two?

(other not so likely possibilities include Schistosomiasis, Dehydration, Sickle Cell Anemia)

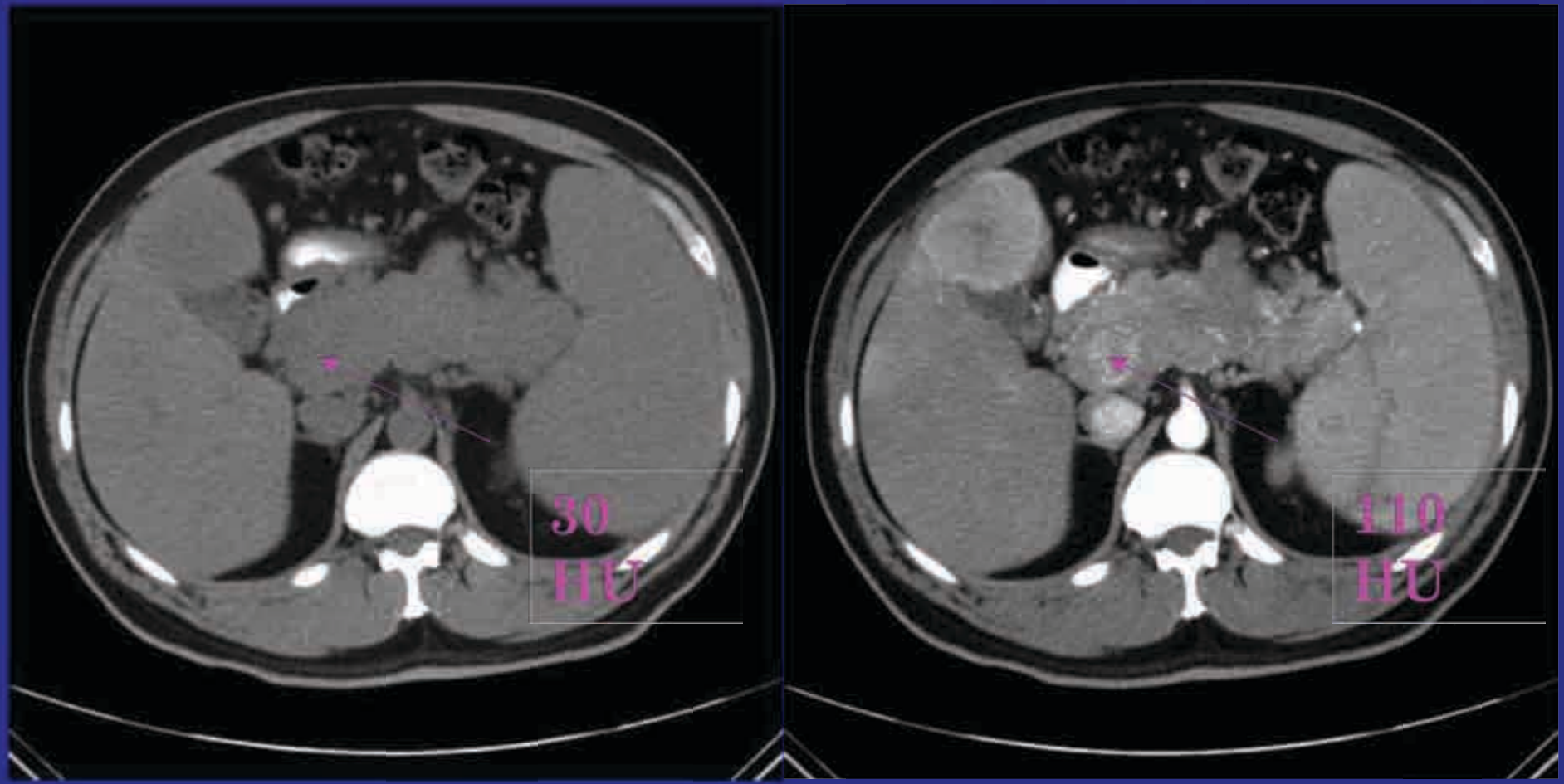
Case 1: CT with and without IV Contrast



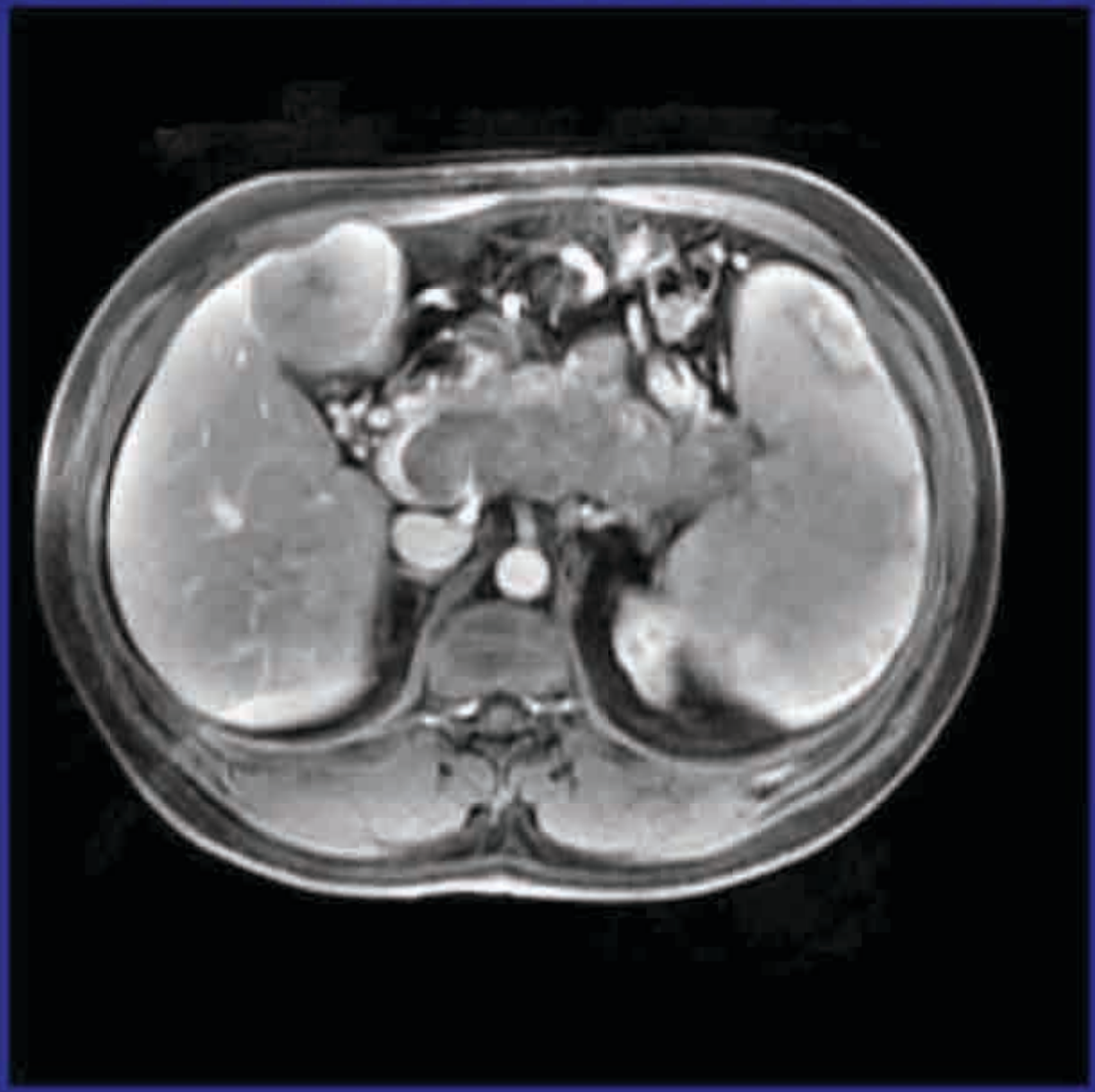
Case 1: CT with and without IV Contrast



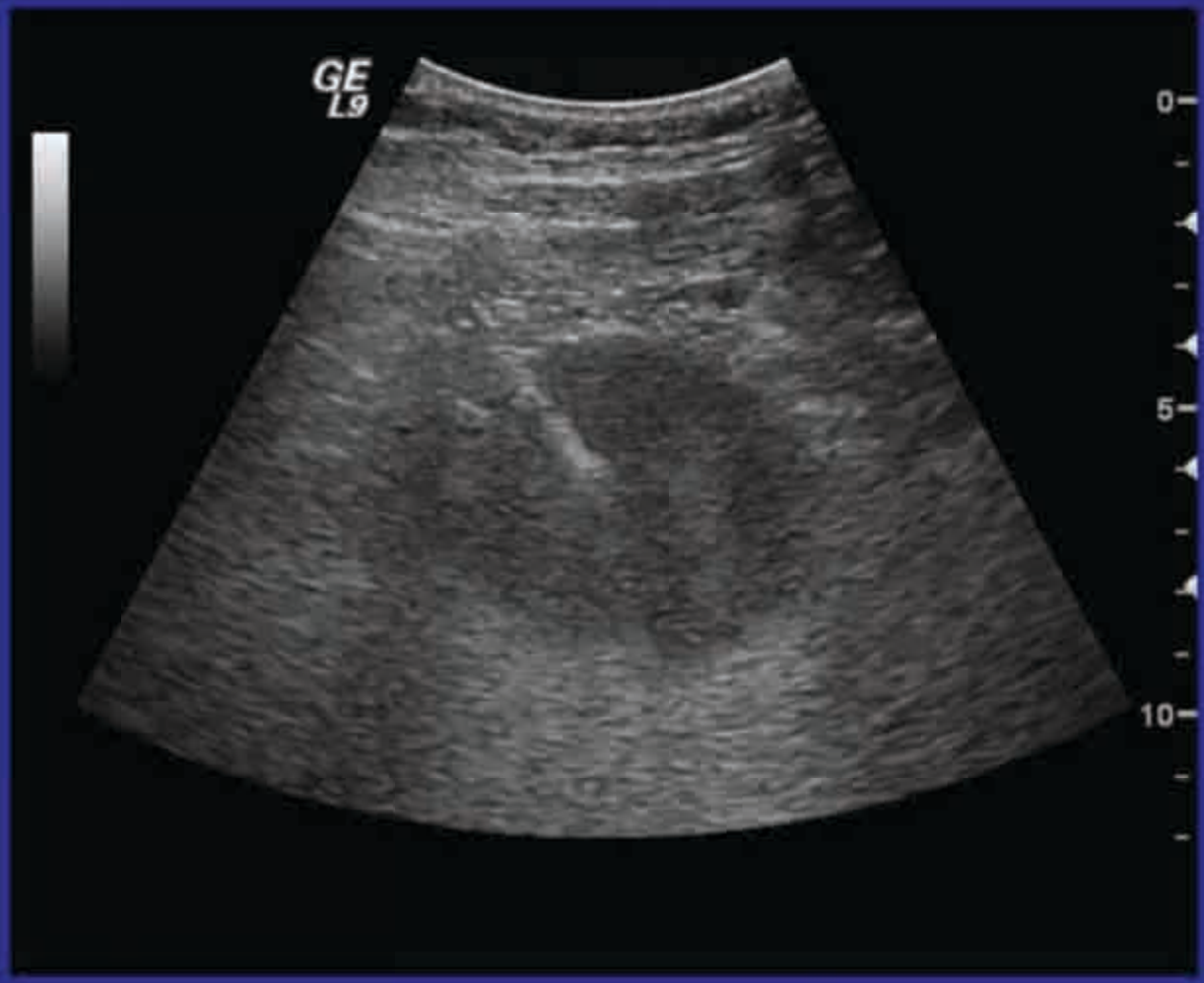
Case 1: CT with and without IV Contrast

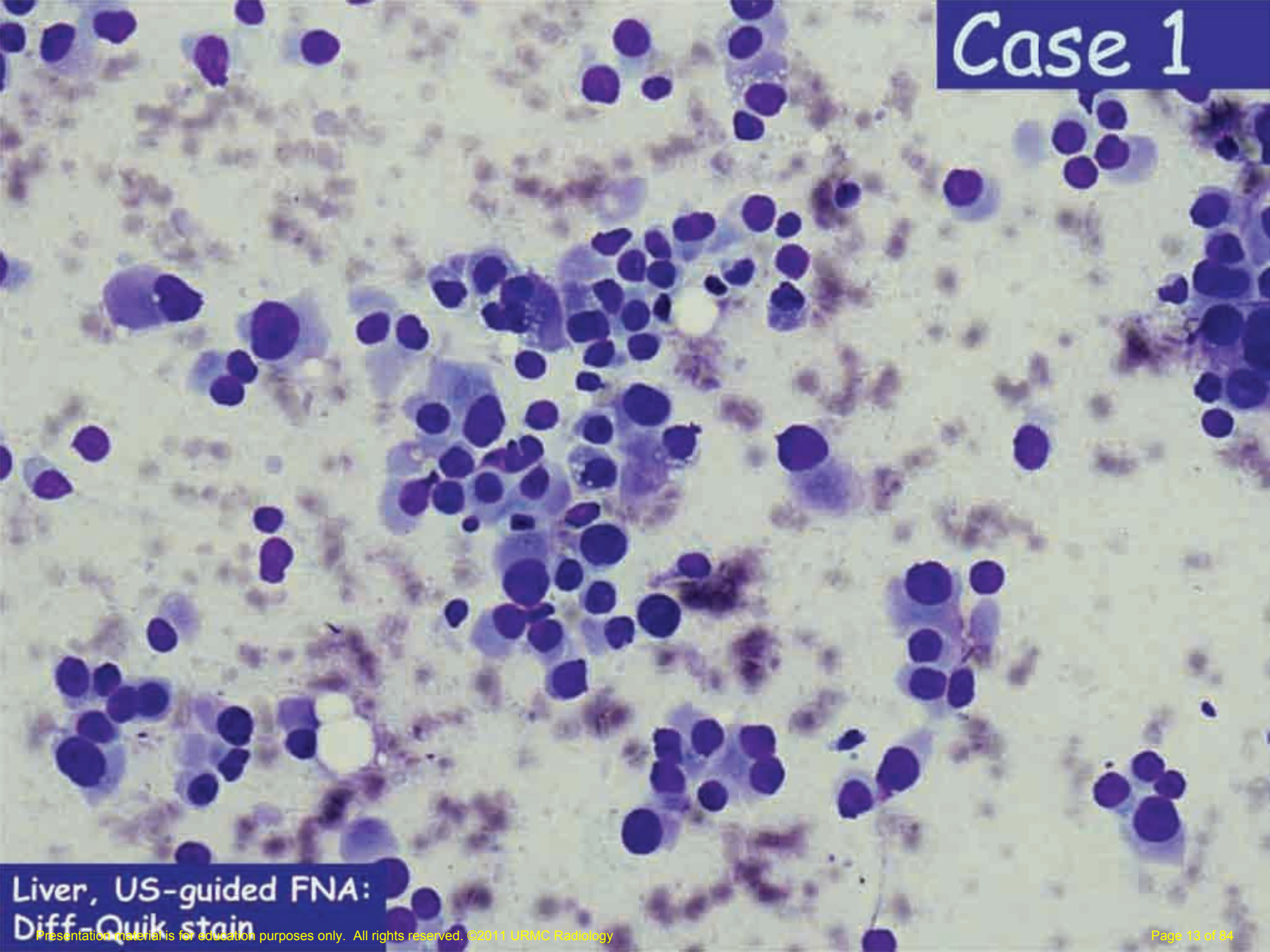


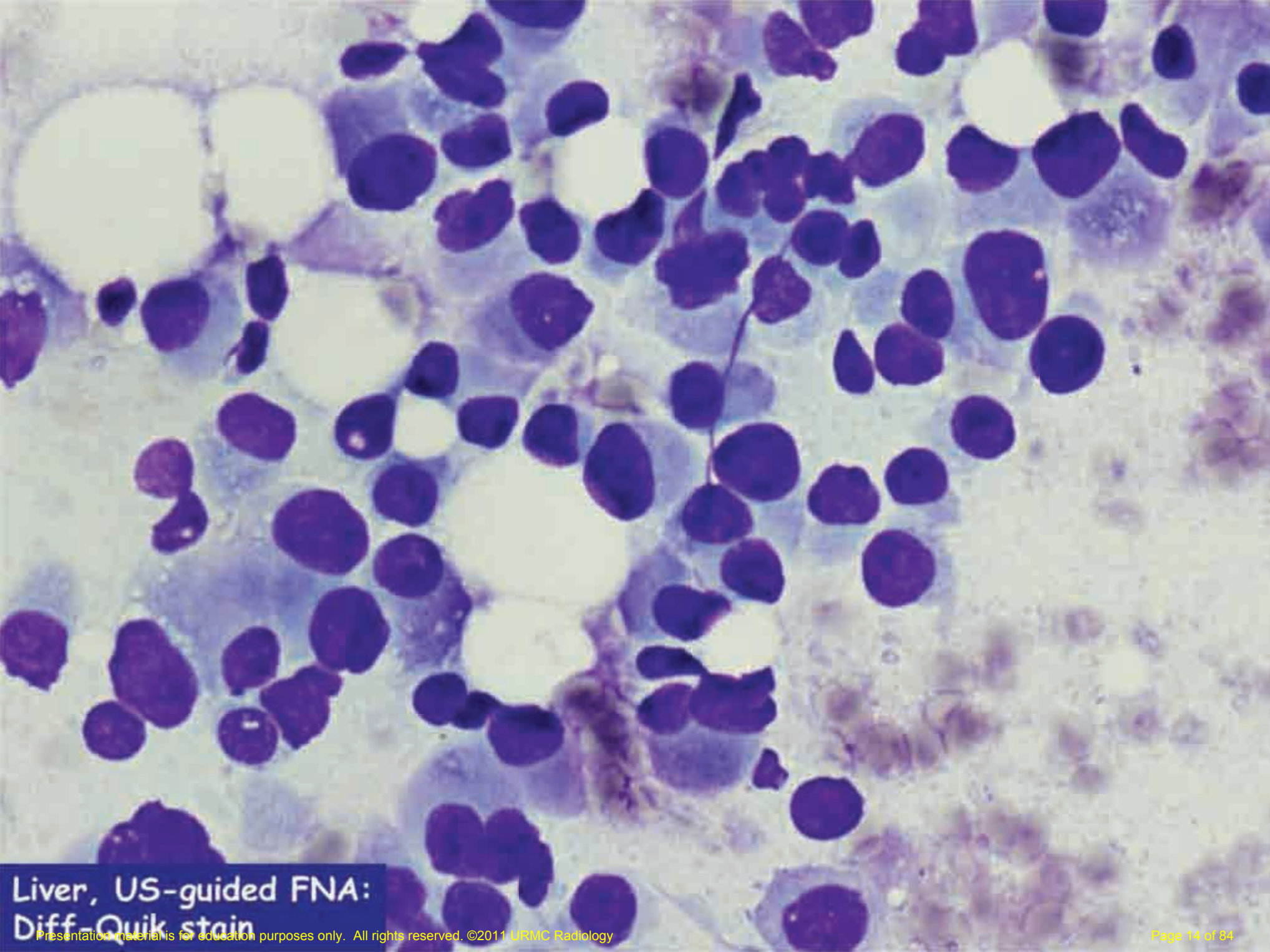
Case 1: Where Is the Tumor?

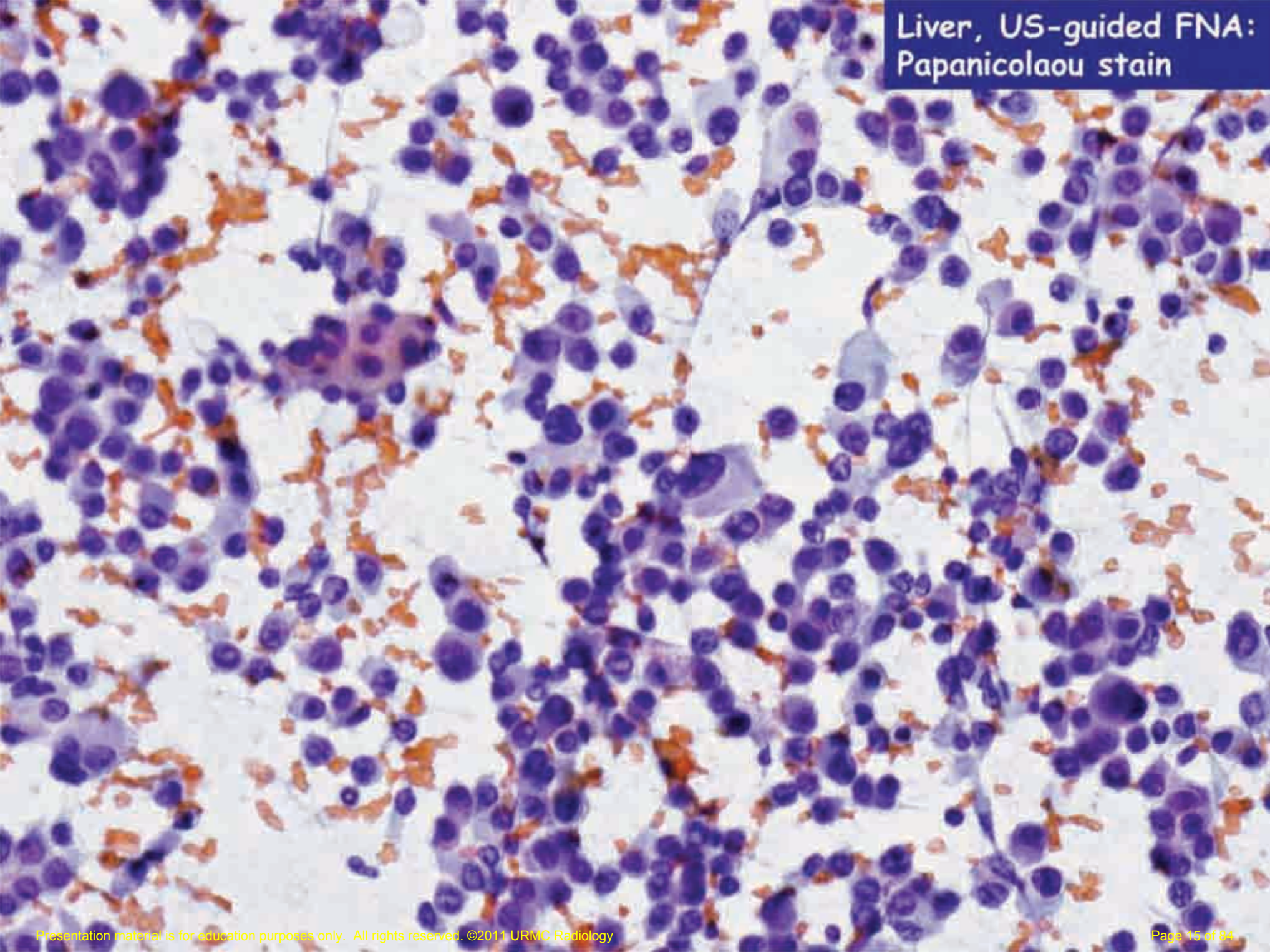


Case 1: Ultrasound Guided Biopsy

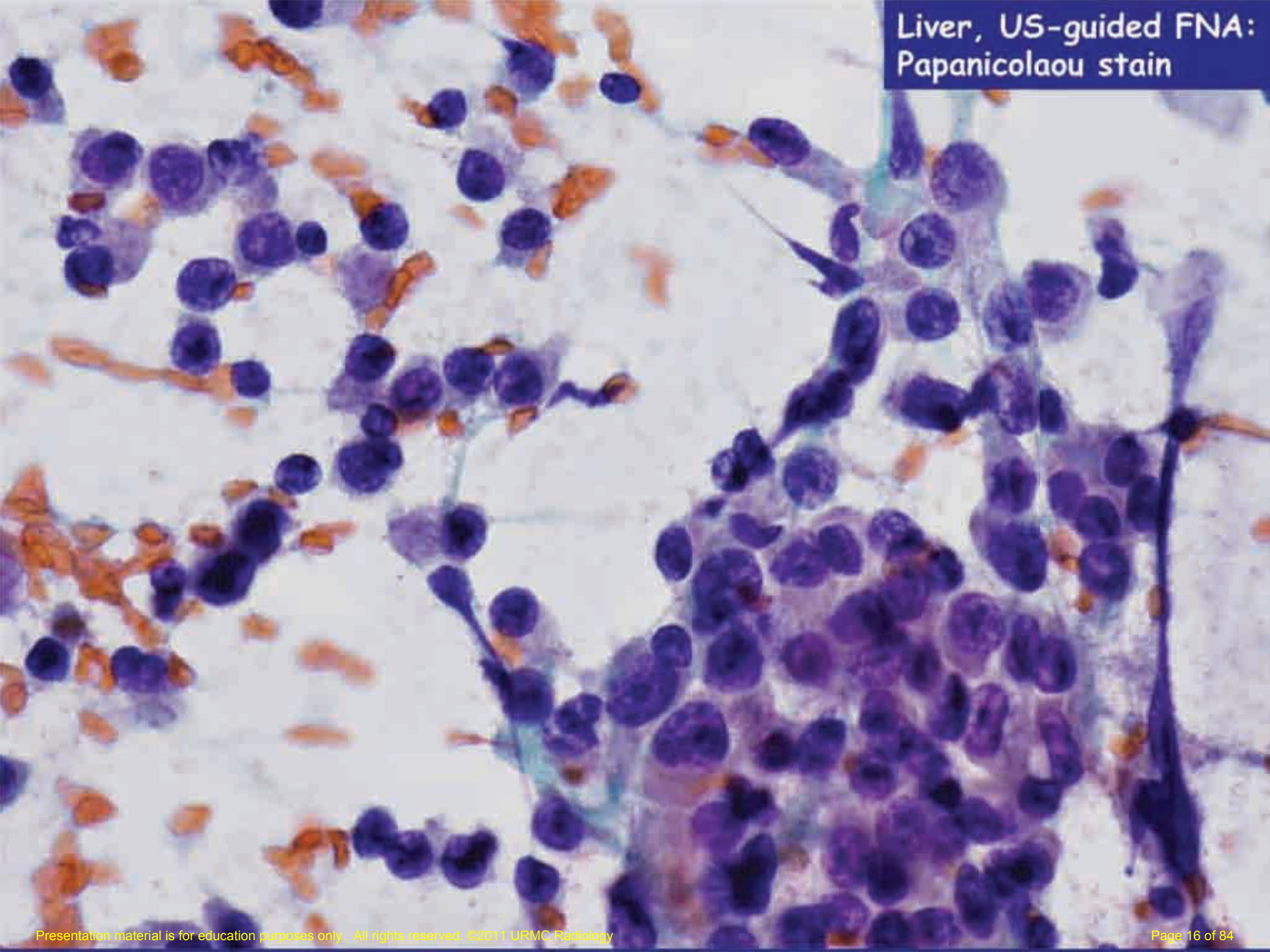




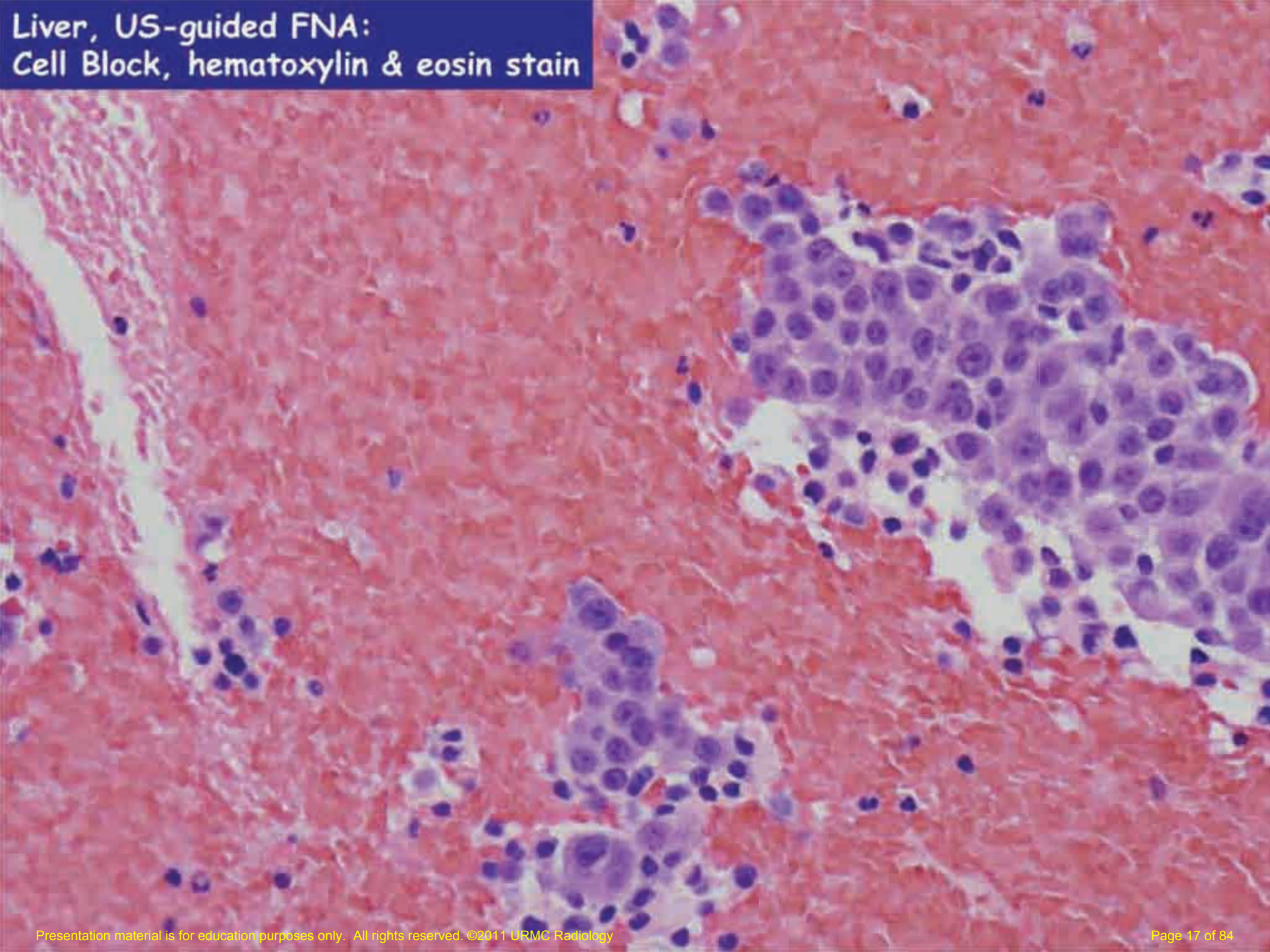




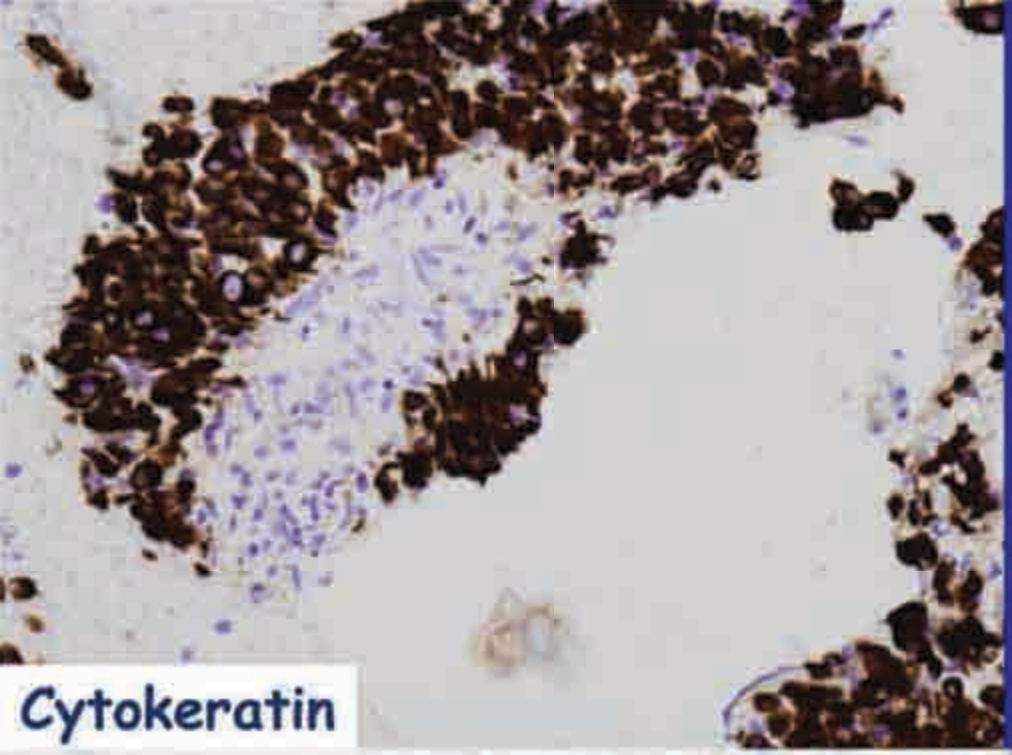
Liver, US-guided FNA: Papanicolaou stain



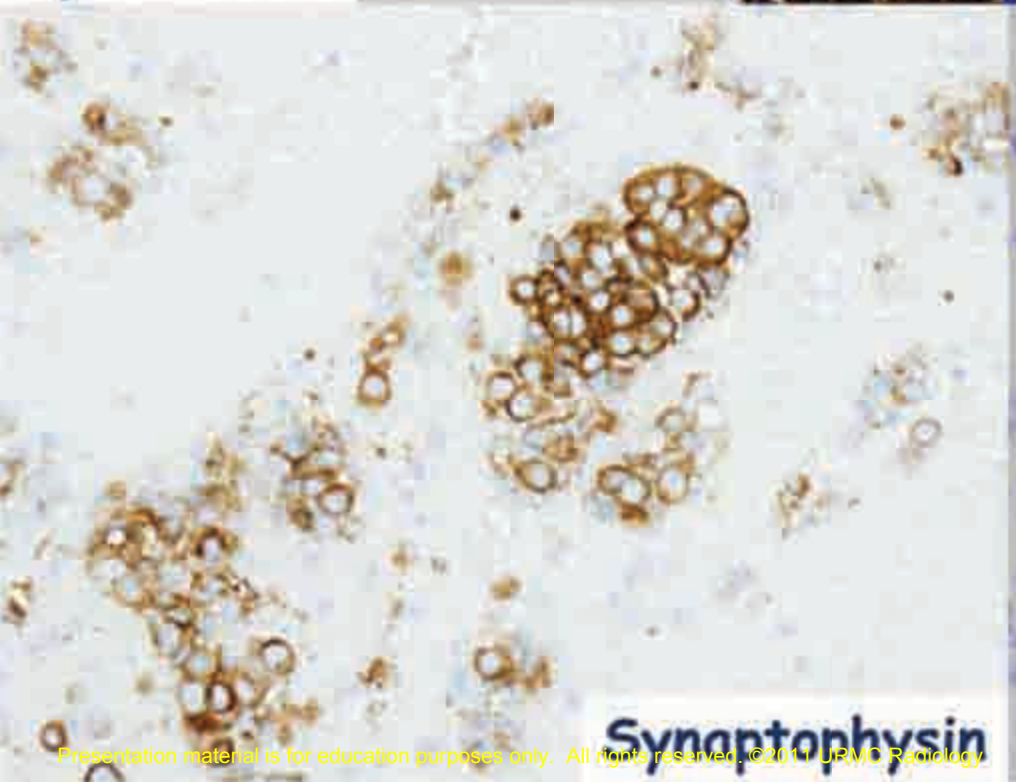
Liver, US-guided FNA: Cell Block, hematoxylin & eosin stain



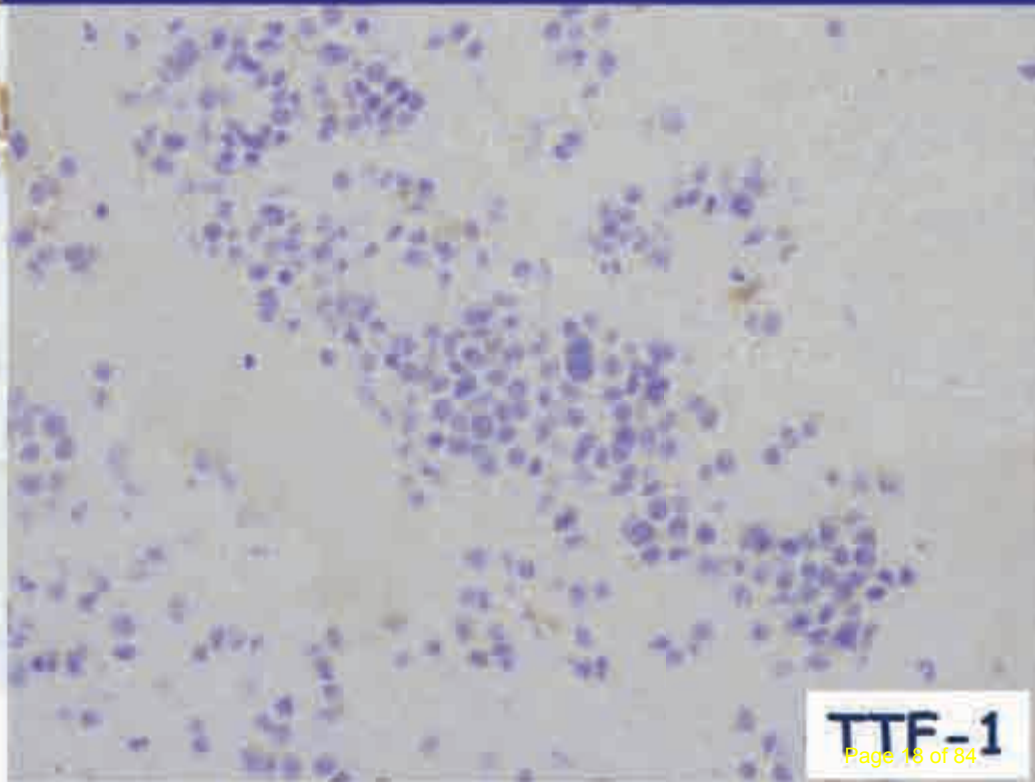
Liver, US-guided FNA, Cell block:
Immunohistochemical stains



Cytokeratin



Synaptophysin



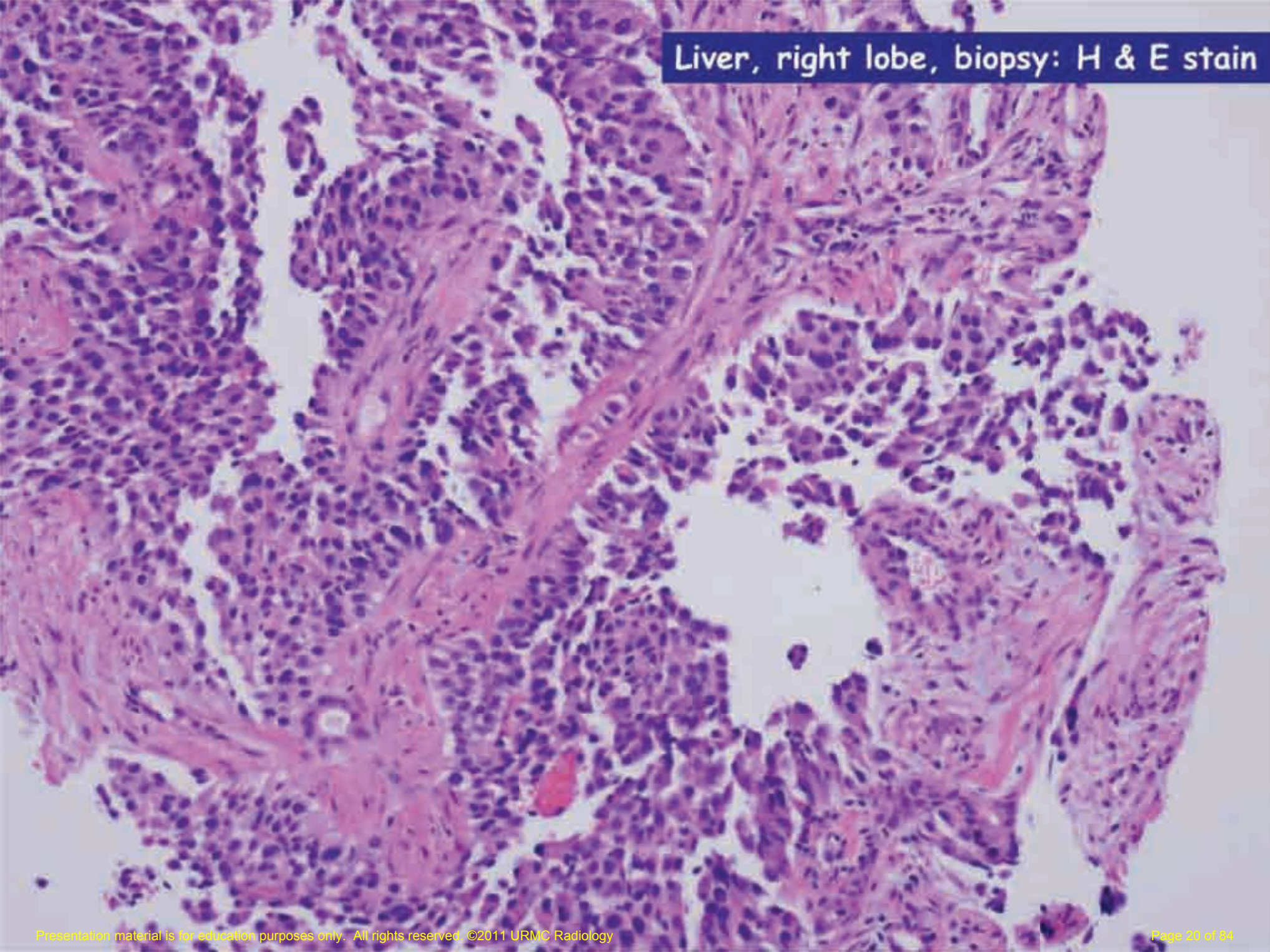
TTF-1

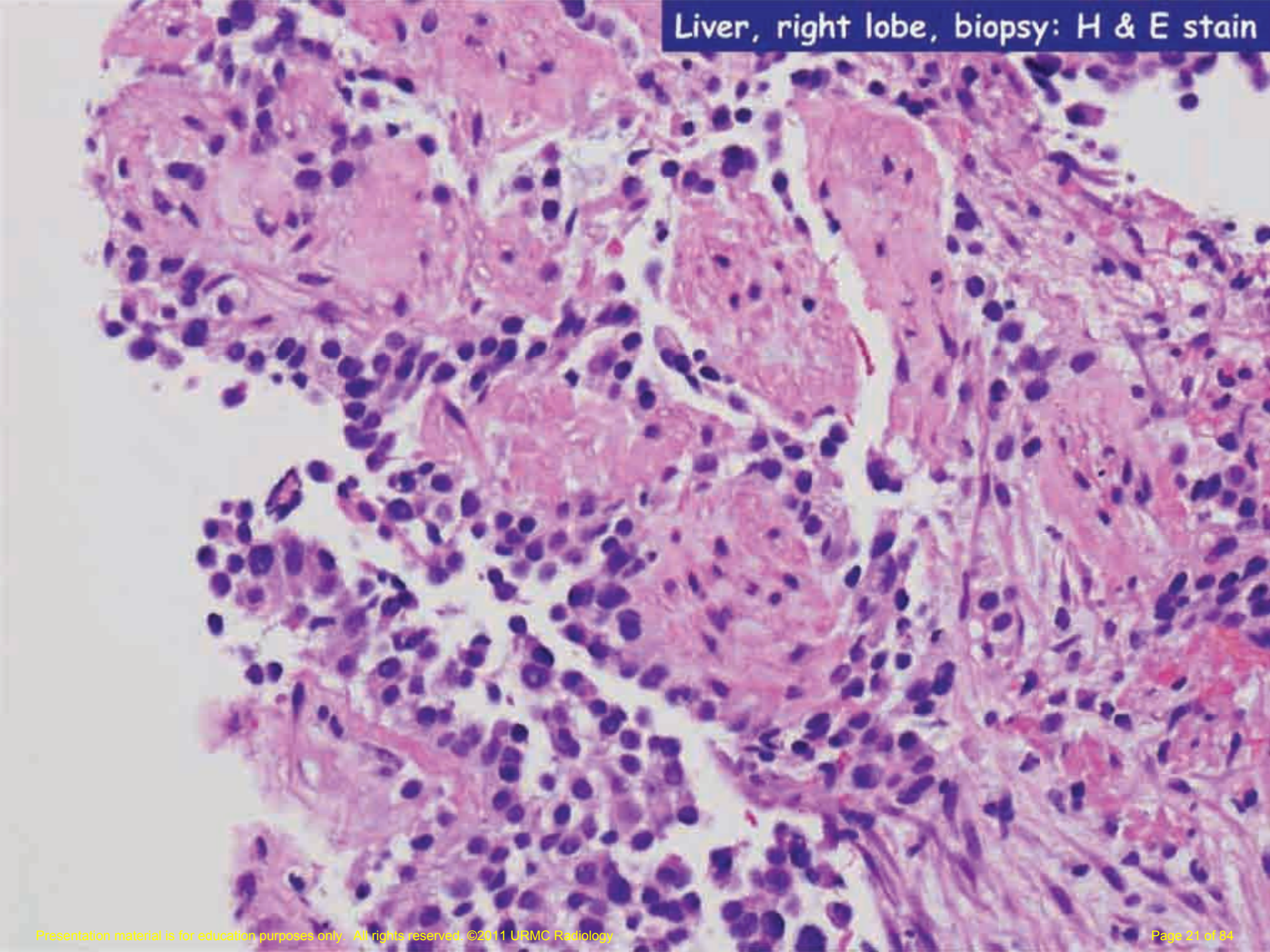
Liver, ultrasound-guided fine needle aspiration:

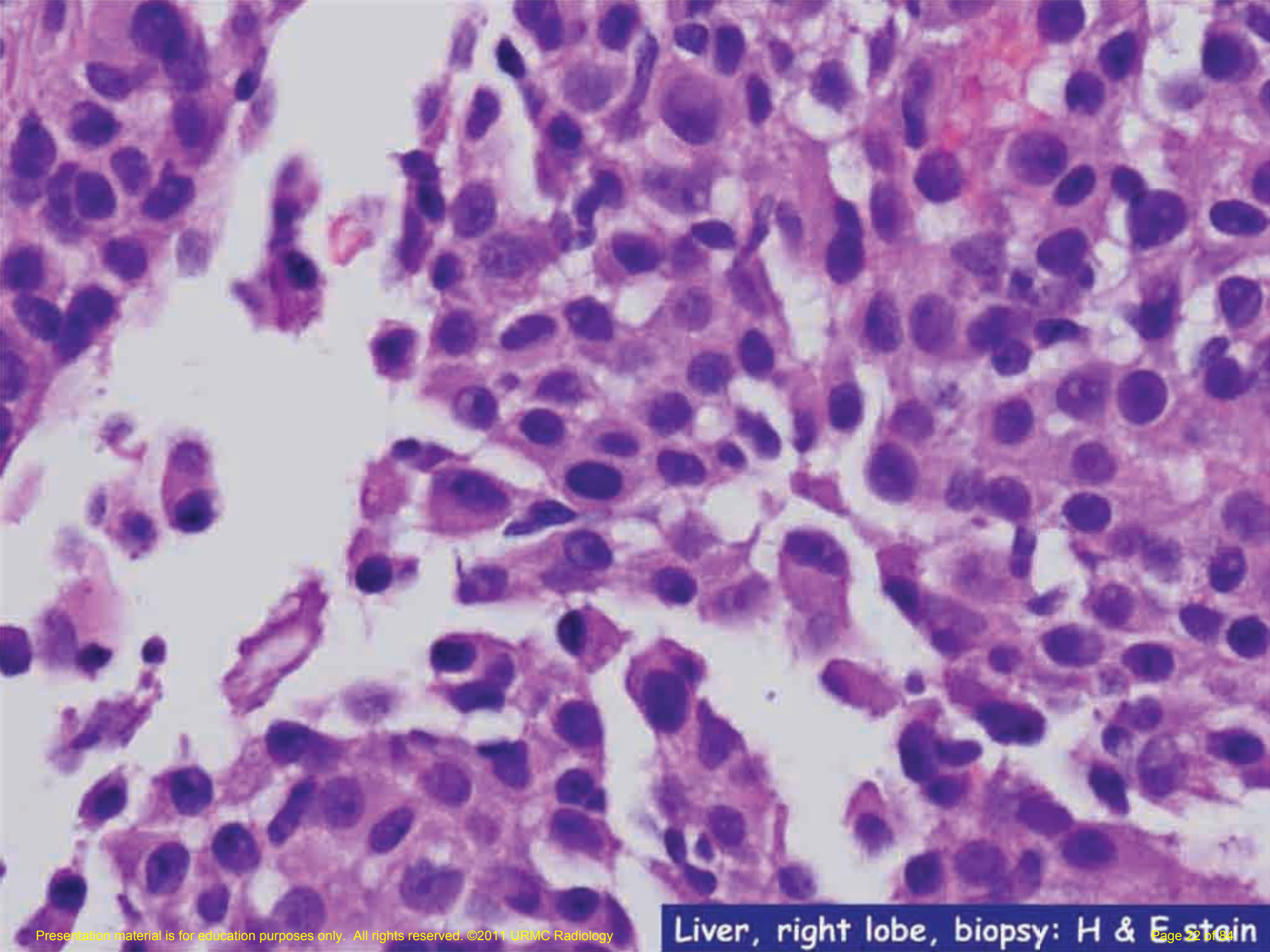
Malignant tumor cells present derived from epithelioid neoplasm most consistent with metastatic pancreatic solid pseudopapillary tumor.

Cell block and cytologic preparations examined.

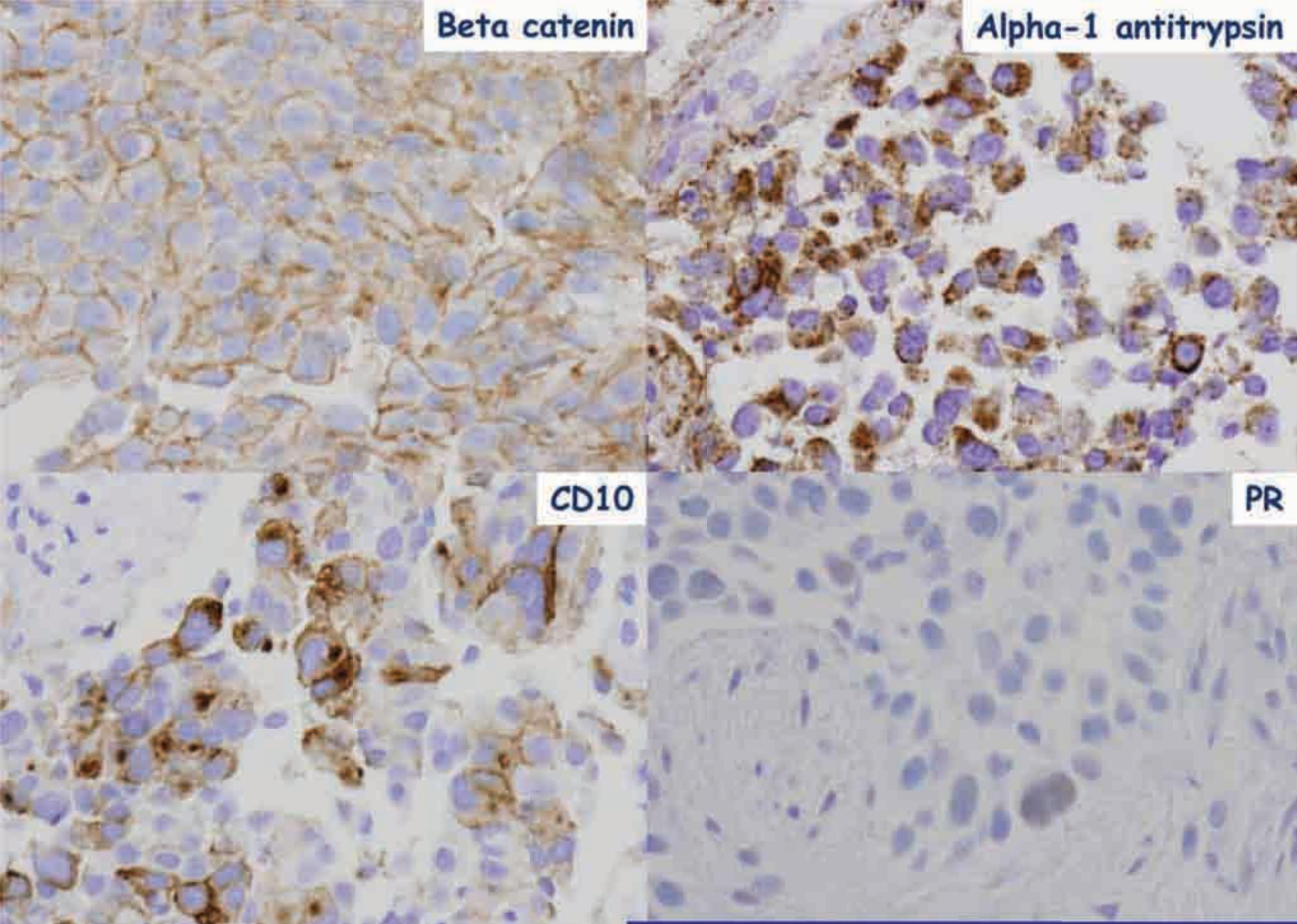
Immunostains show cells mark strongly with pan-cytokeratin and synaptophysin. They do not mark with CK7, CK20, S-100, Melan-A or TTF-1.







Liver, right lobe, biopsy: H & E stain



Liver, right lobe, biopsy: Immunostains

Liver, right lobe, biopsy:

Epithelioid neoplasm.

Immunohistochemical stains are positive for cytokeratin, cam5.2, vimentin, beta-catenin and CD10. NSE is focally positive. Scattered cells are + for alpha 1 antitrypsin and weakly positive for HSA. The cells are negative for TTF-1, glypican-3, CD56, chromogranin, CK7, CK20 and PR.

The combined morphologic and immunohistochemical findings are most consistent with metastatic pancreatic solid pseudopapillary tumor.

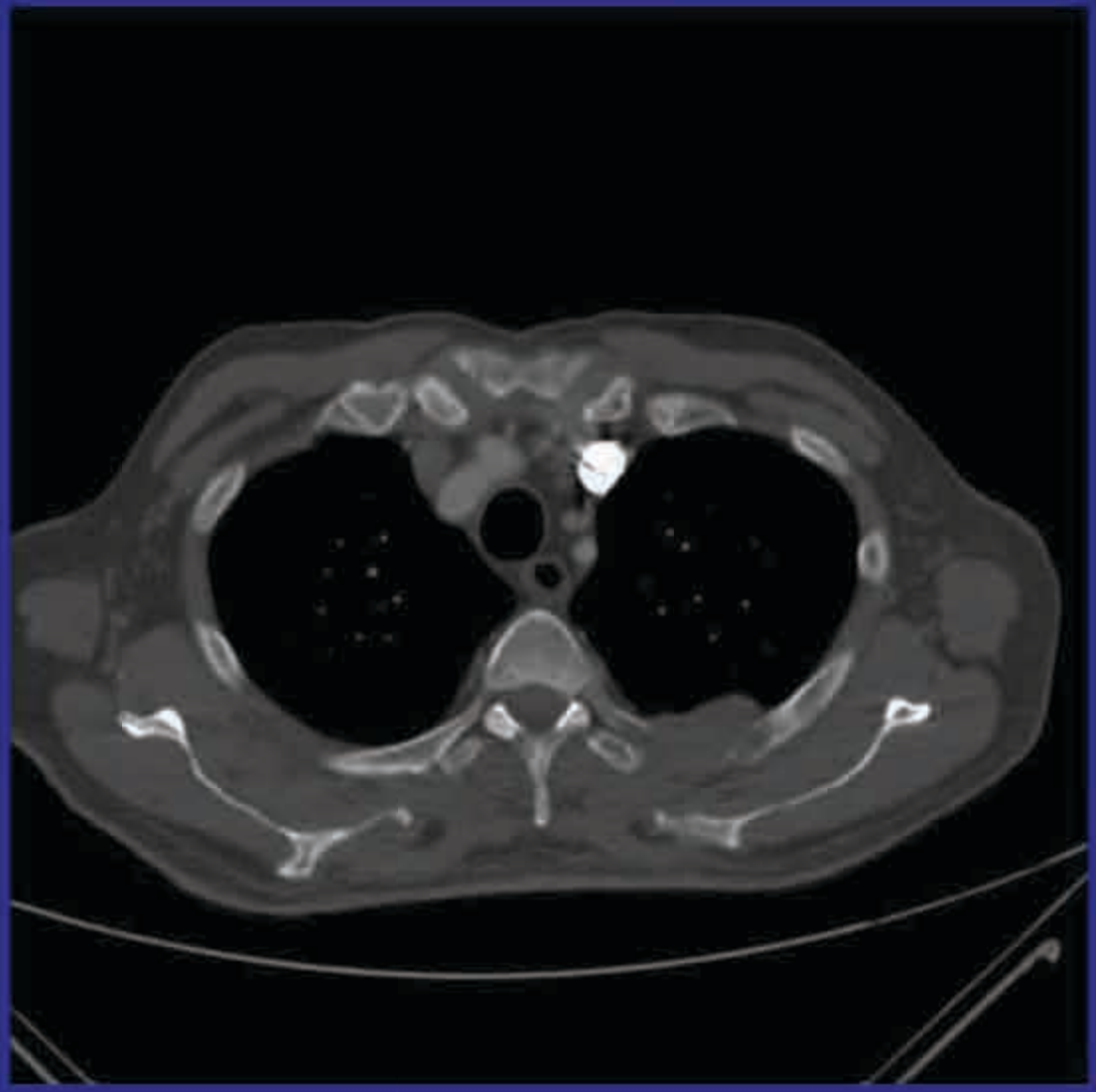
Pancreatic Solid Pseudopapillary Neoplasm

- Rare tumor, predominantly in young (30-35) women (90%) in the body/tail of pancreas
- Considered to be of low malignant potential: usually long survival even with mets to liver/peritoneum
- Pseudopapillary appearance is created by friability/discohesion of cells
- IHC: beta-catenin+ (nuclear most specific), ER/PR+, CD56+, synaptophysin+, chromogranin- to focal, AAT+, trypsin+, vimentin+ (PEN -), nuclear E-cadherin staining

Case 2

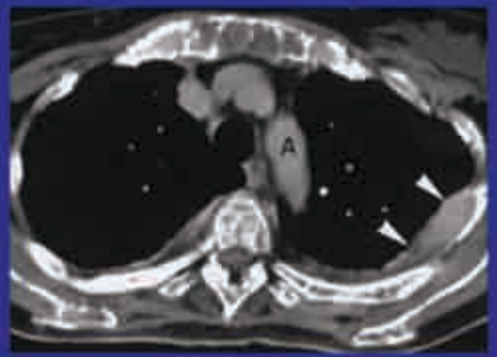
72 year old man with worsening lethargy.

Case 2: What Do You See?



Case 2: DDx for an Expansile Lytic Bone lesion?

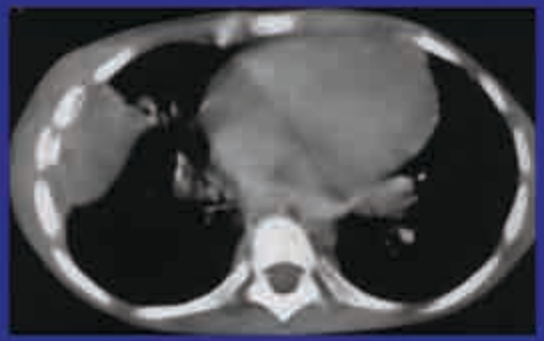
- Metastasis
  - Expansile, think RCC
  - Also lung and thyroid ca.



- Multiple myeloma (plasmacytoma)
  - Multiple osteolytic lesions with soft tissue mass originating from rib

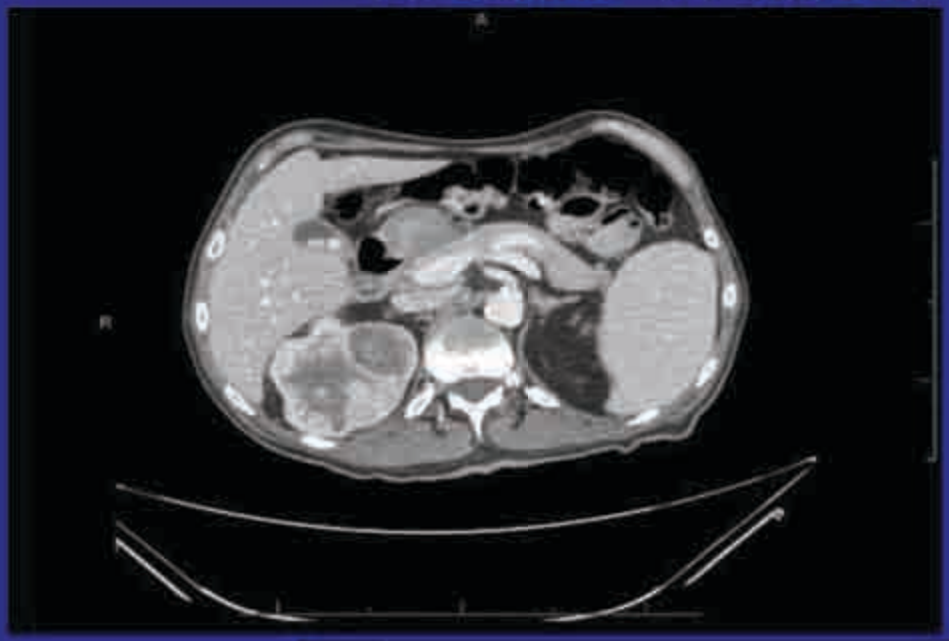
- Osteomyelitis

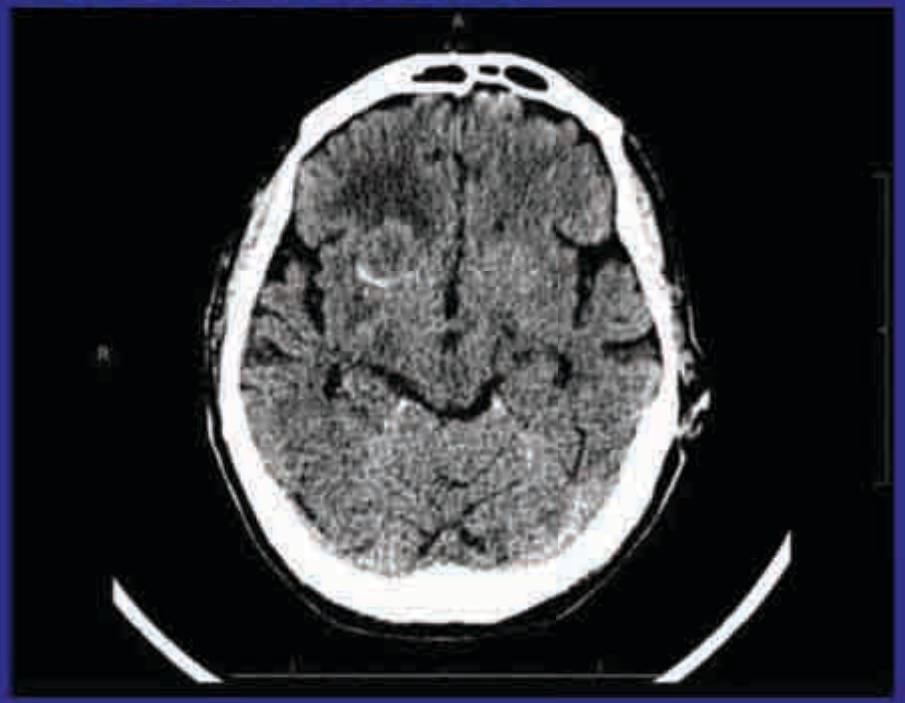
-multiple ribs
-periosteal elevation

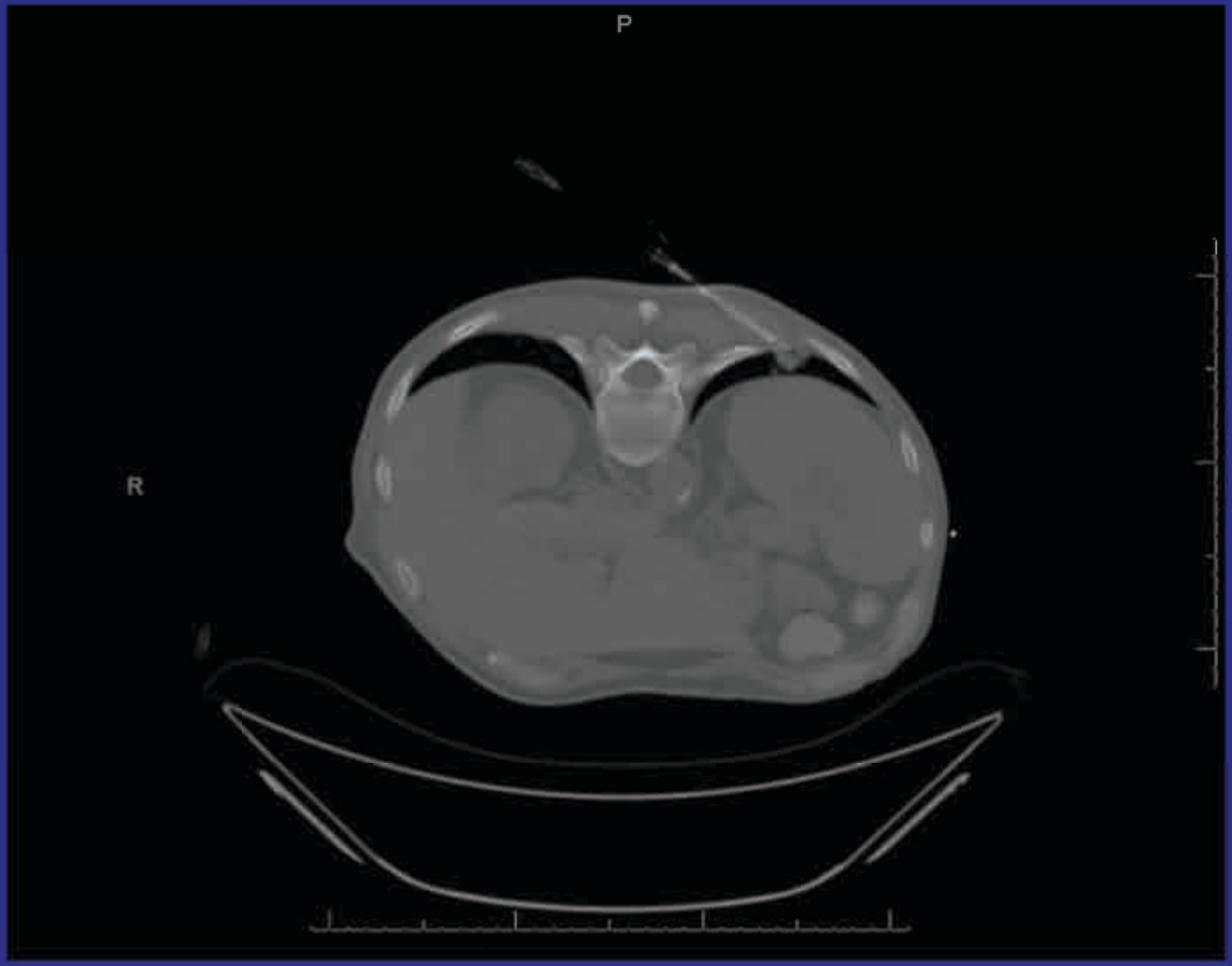


- Benign entities include: fibrous dysplasia, ABC, hemangioma, NOF, etc.
  - FEGNOMASHIC for a solitary lytic bone lesion
  - Fibrous dysplasia, EG/Enchondroma, Giant cell, NOF, Osteoblastoma, Mets/MM, ABC, Solitary Bone Cyst, HyperPTH/Hemangioma, Chondroblastoma

Does Your DDx Narrow?
What Would You Do Next?

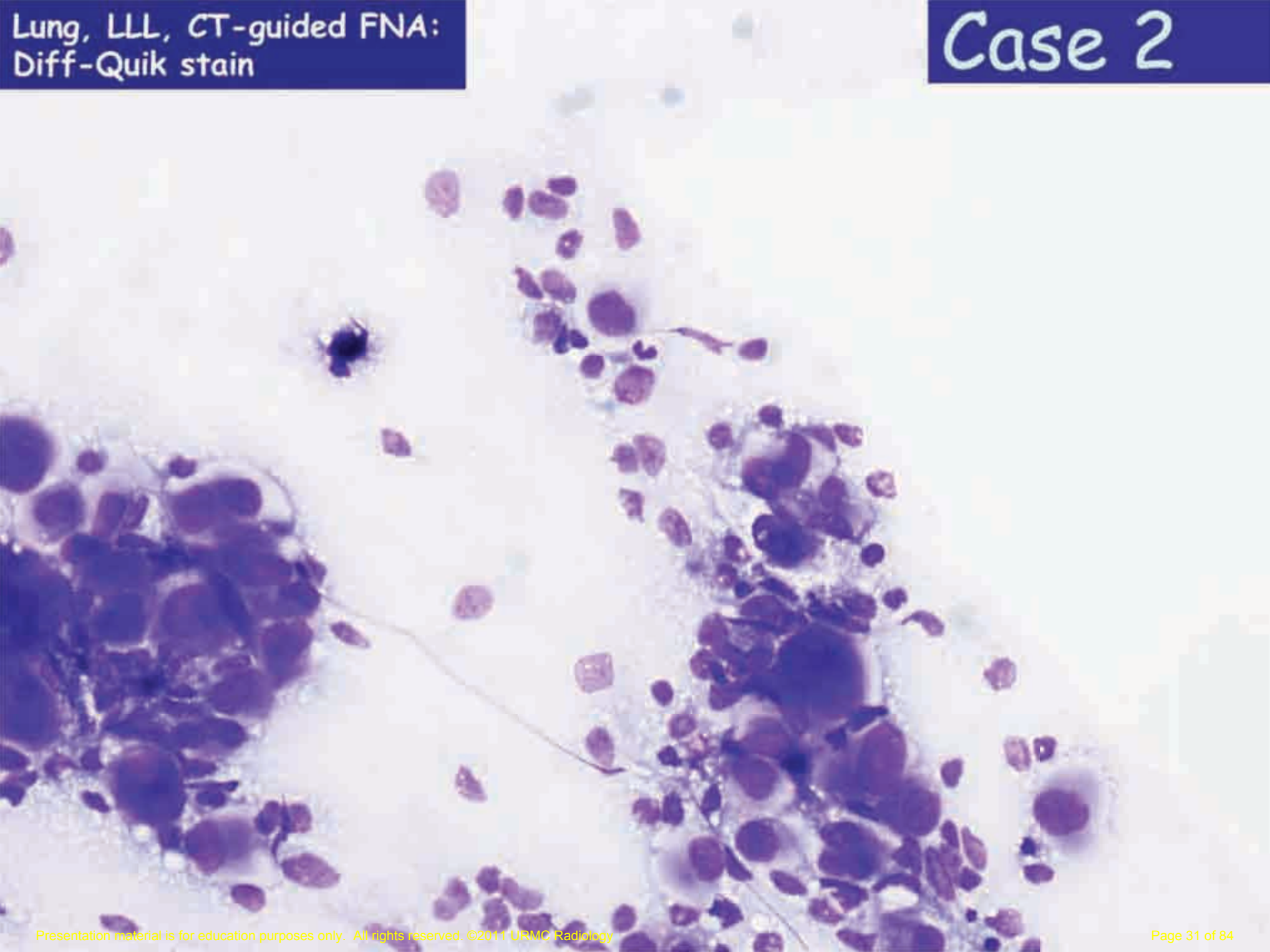




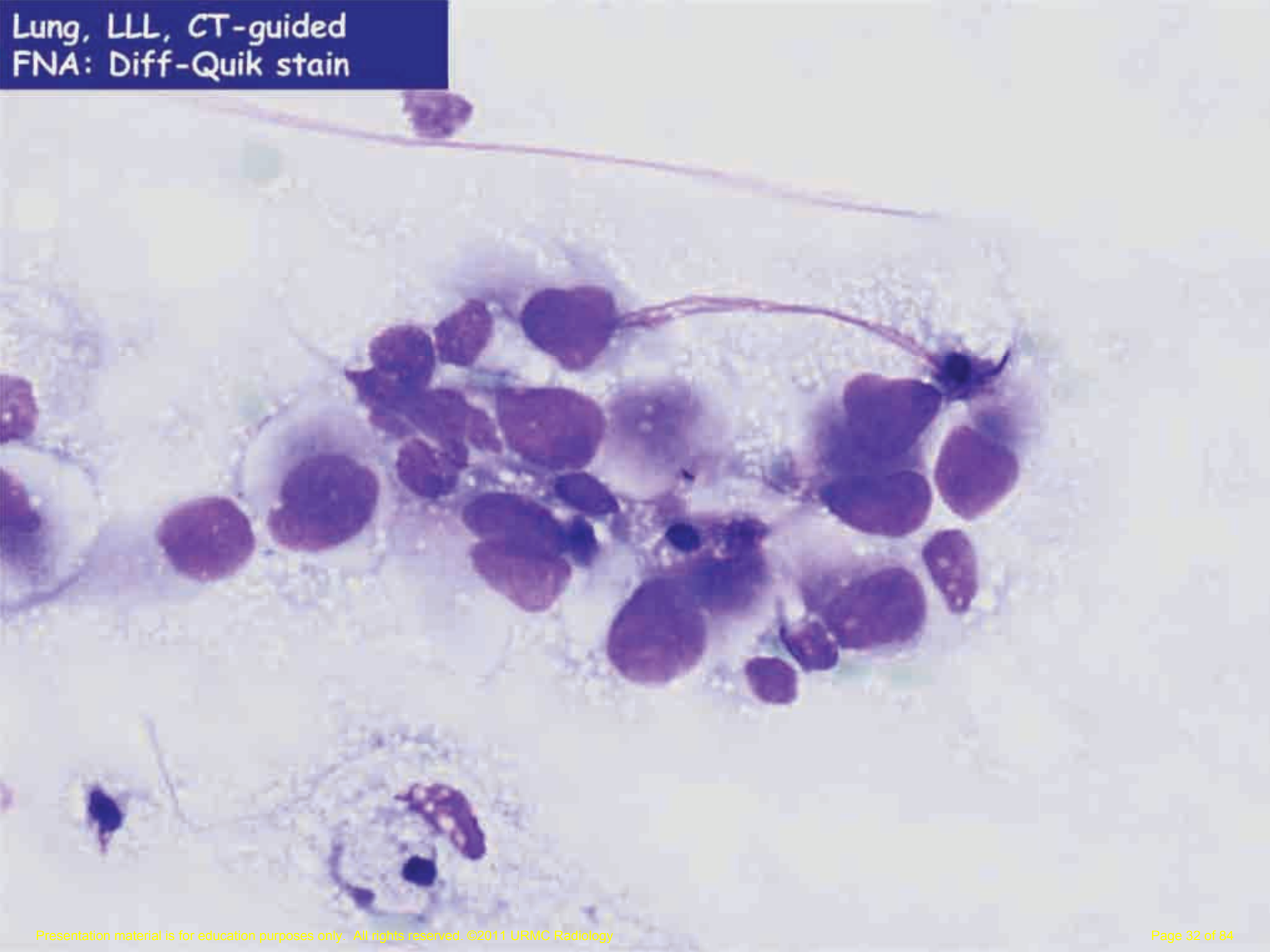


Lung, LLL, CT-guided FNA:
Diff-Quik stain

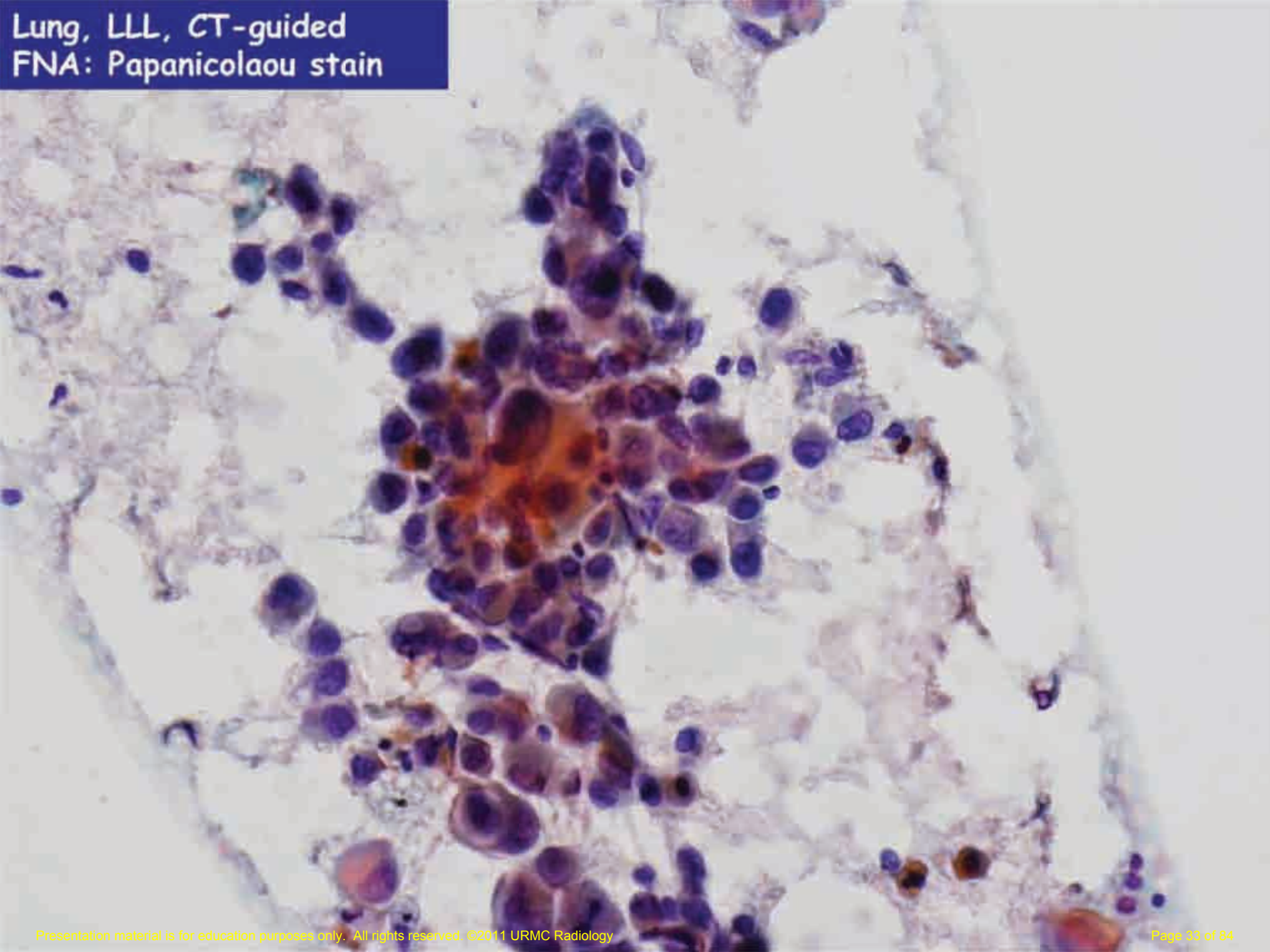
Case 2



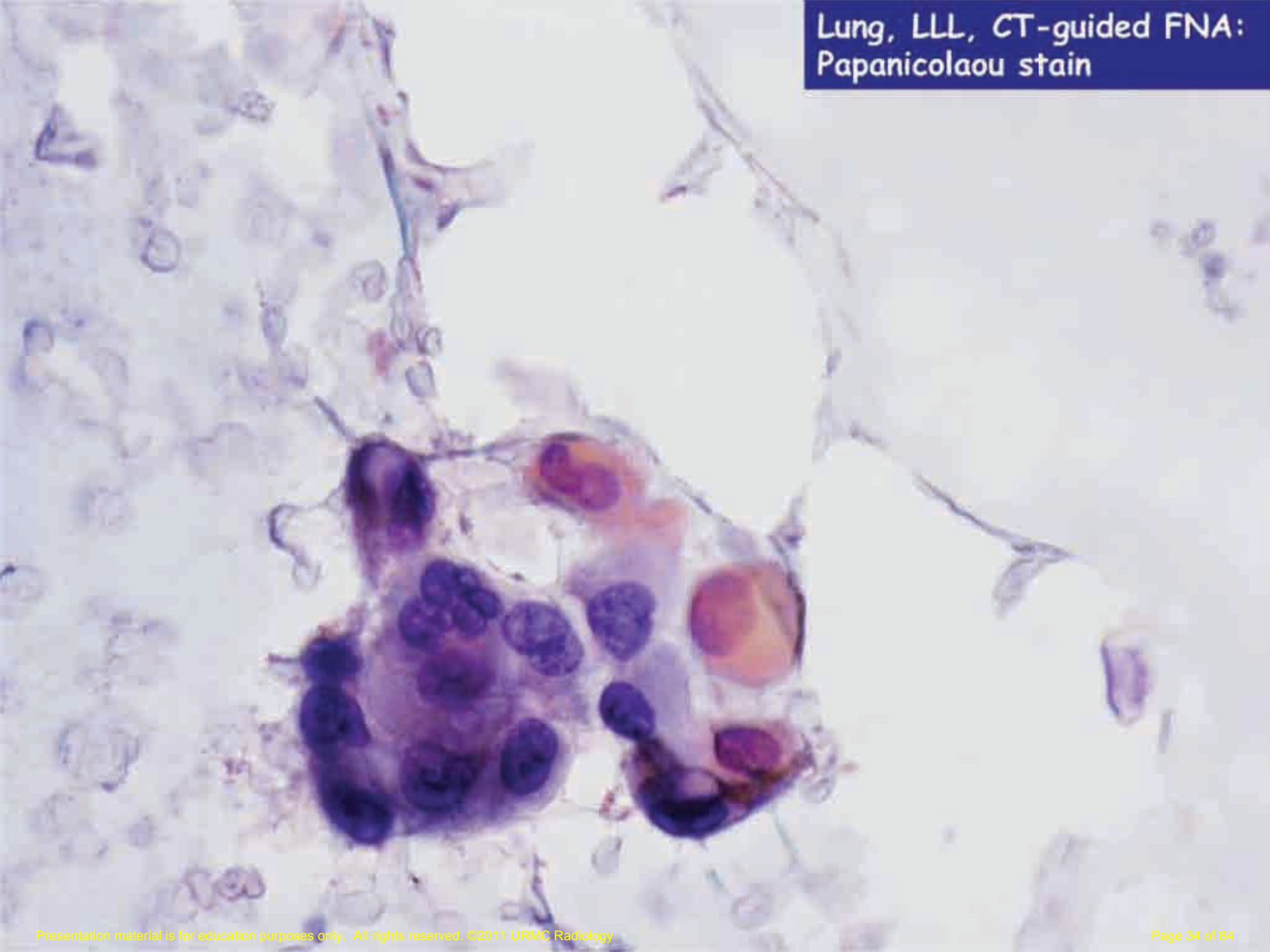
Lung, LLL, CT-guided
FNA: Diff-Quik stain



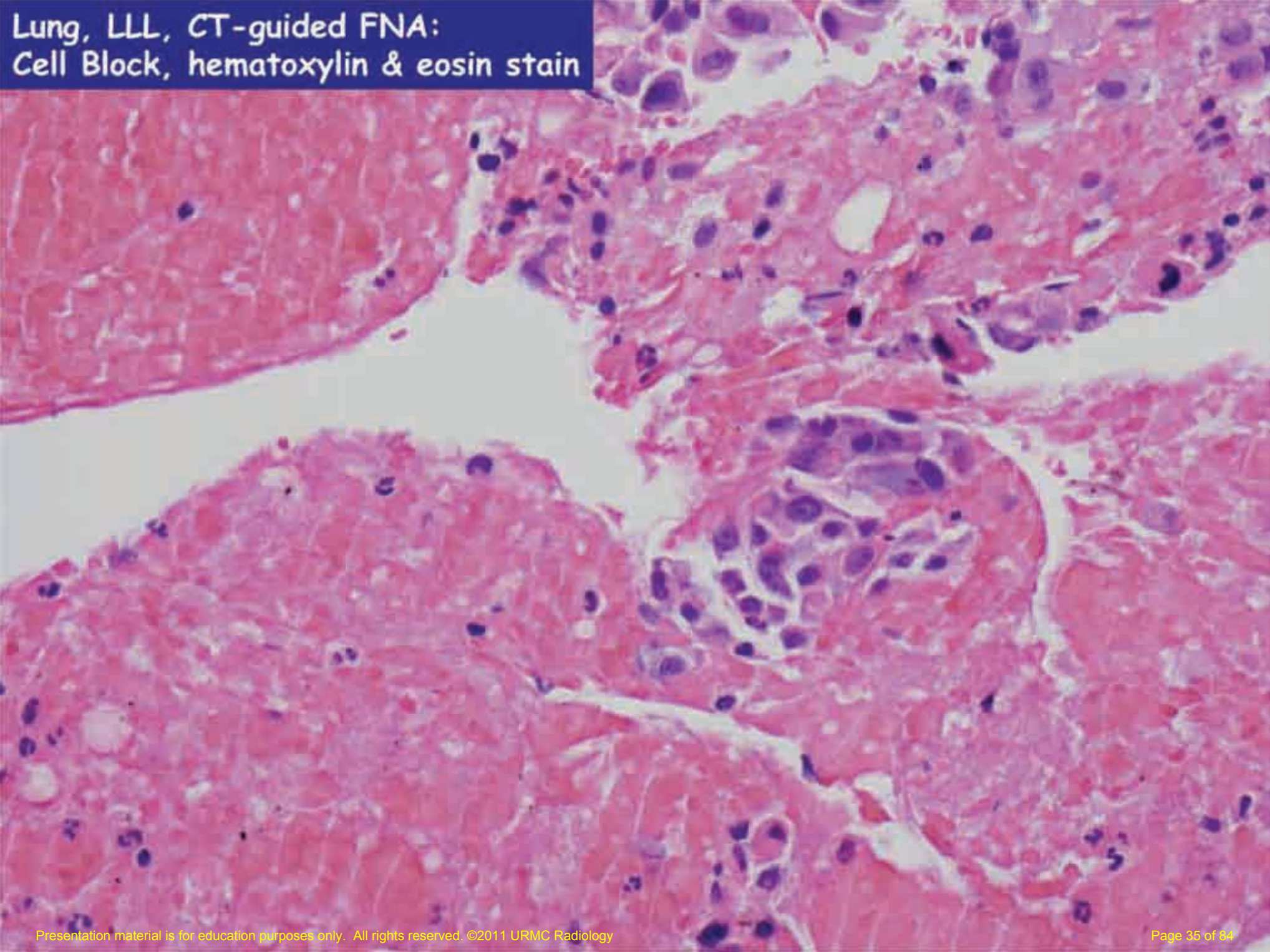
Lung, LLL, CT-guided
FNA: Papanicolaou stain



Lung, LLL, CT-guided FNA: Papanicolaou stain

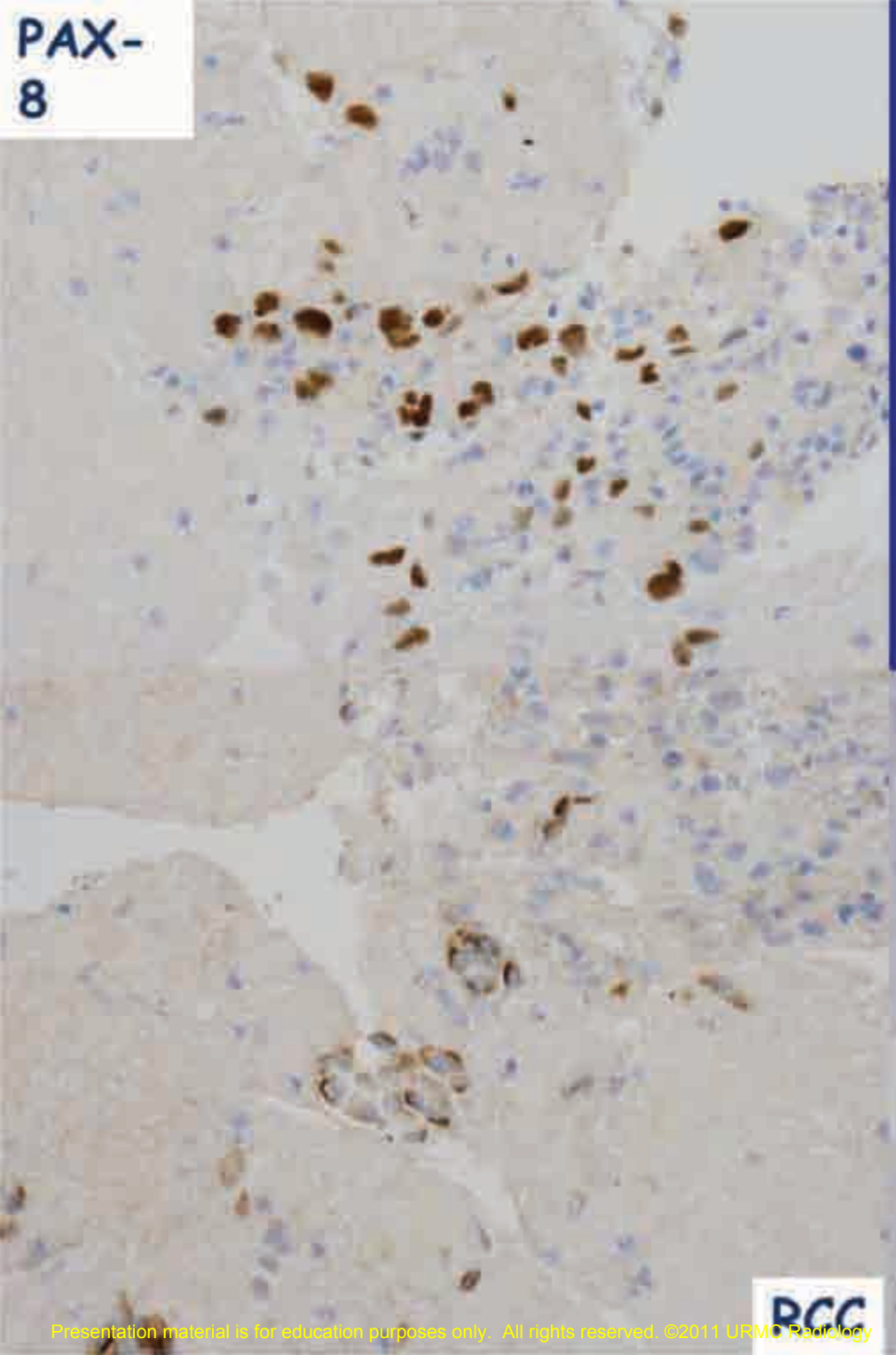


Lung, LLL, CT-guided FNA:
Cell Block, hematoxylin & eosin stain

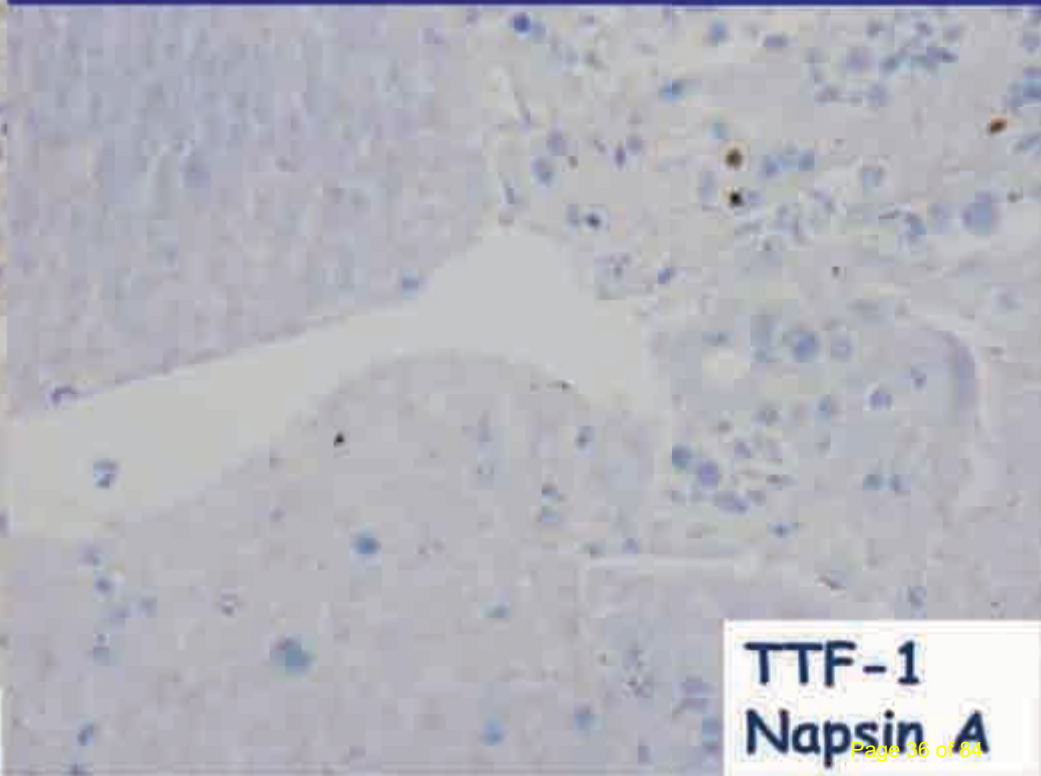


PAX-8

Lung, LLL, Cell block:
Immunohistochemical stains



PCC



TTF-1
Napsin A

Lung, left lower lobe, CT-guided fine needle aspiration:

Malignant tumor cells present derived from adenocarcinoma consistent with renal cell carcinoma.

Cell block and cytologic preparations examined.

Immunohistochemical stains show that the tumor cells are PAX-8 positive, RCC equivocal and TTF-1/Napsin A combination stain negative. The staining pattern is consistent with renal cell origin.

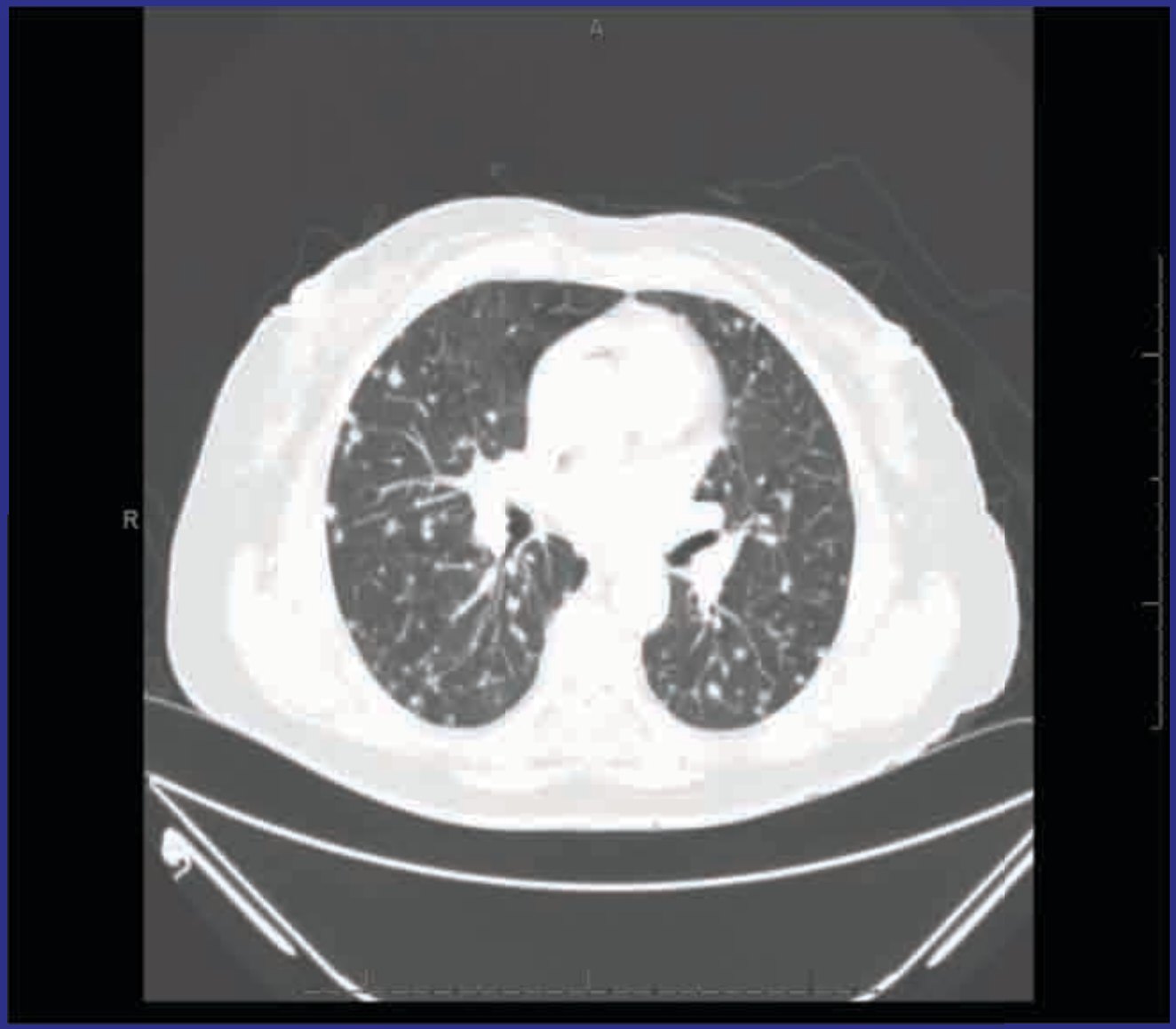
Metastatic Renal Cell Carcinoma

- Majority of cases adults > 40 years
- 25% of RCC present as mets (lung, bone, LNs, adrenal, liver, brain), can met to unusual locations
- Occurs in inherited conditions: best known is von Hippel-Lindau (VHD) disease – RCC develops in up to 50% of affected individuals
- Metastatic RCC – limited treatment options
- Metastasis in lung may present as multiple nodules, solitary nodule, or diffuse infiltrate (nodular presentation more common)

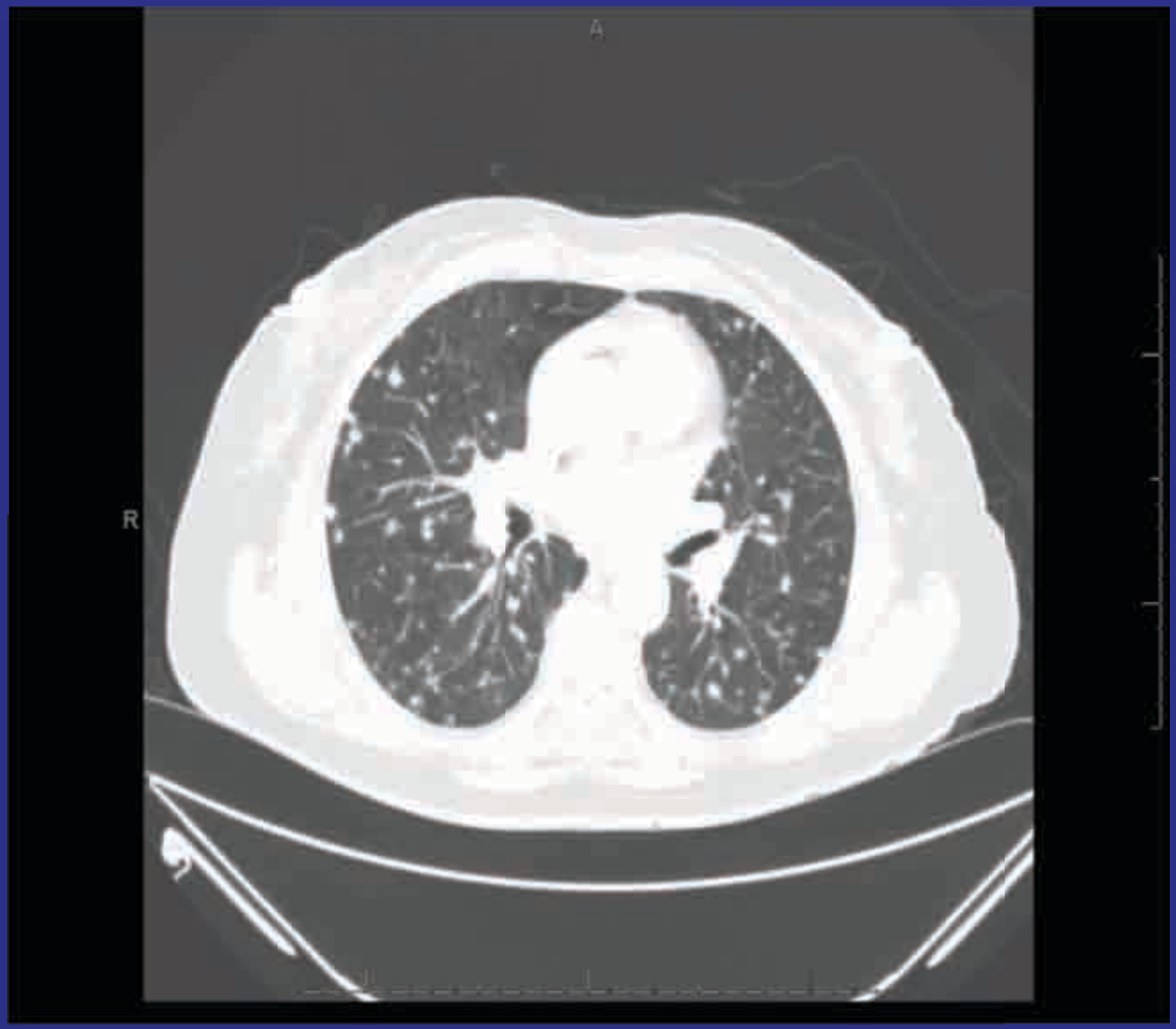
Case 3

63 year old female visiting from Palestine with weight loss, sweats, and a cough for 3-4 months.

Case 3: What Do You See?



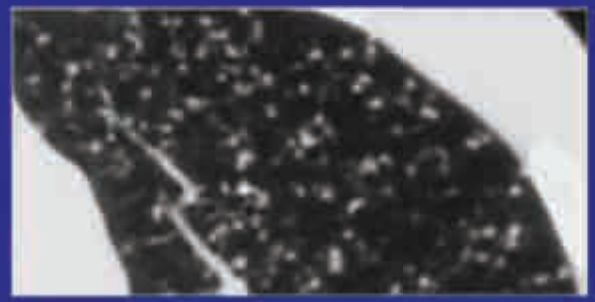
Case 3: What Do You See?



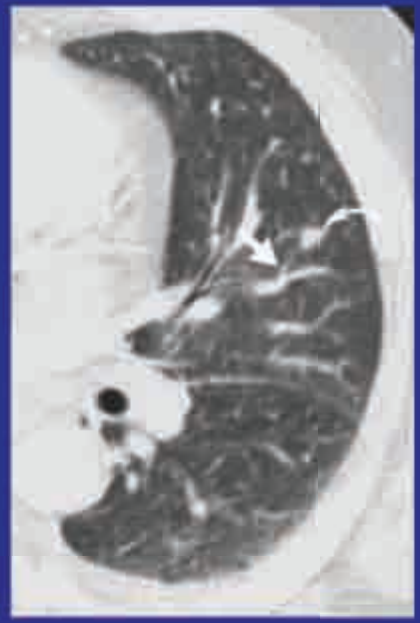
centrilobular,
random, or
perilymphatic?

Case 3: DDx Random Lung Nodules?

- Granulomatous disease (TB or fungal-histo/crypto/aspergillis/cocci)
  - 1-2 mm nodules
  - Lymphadenopathy



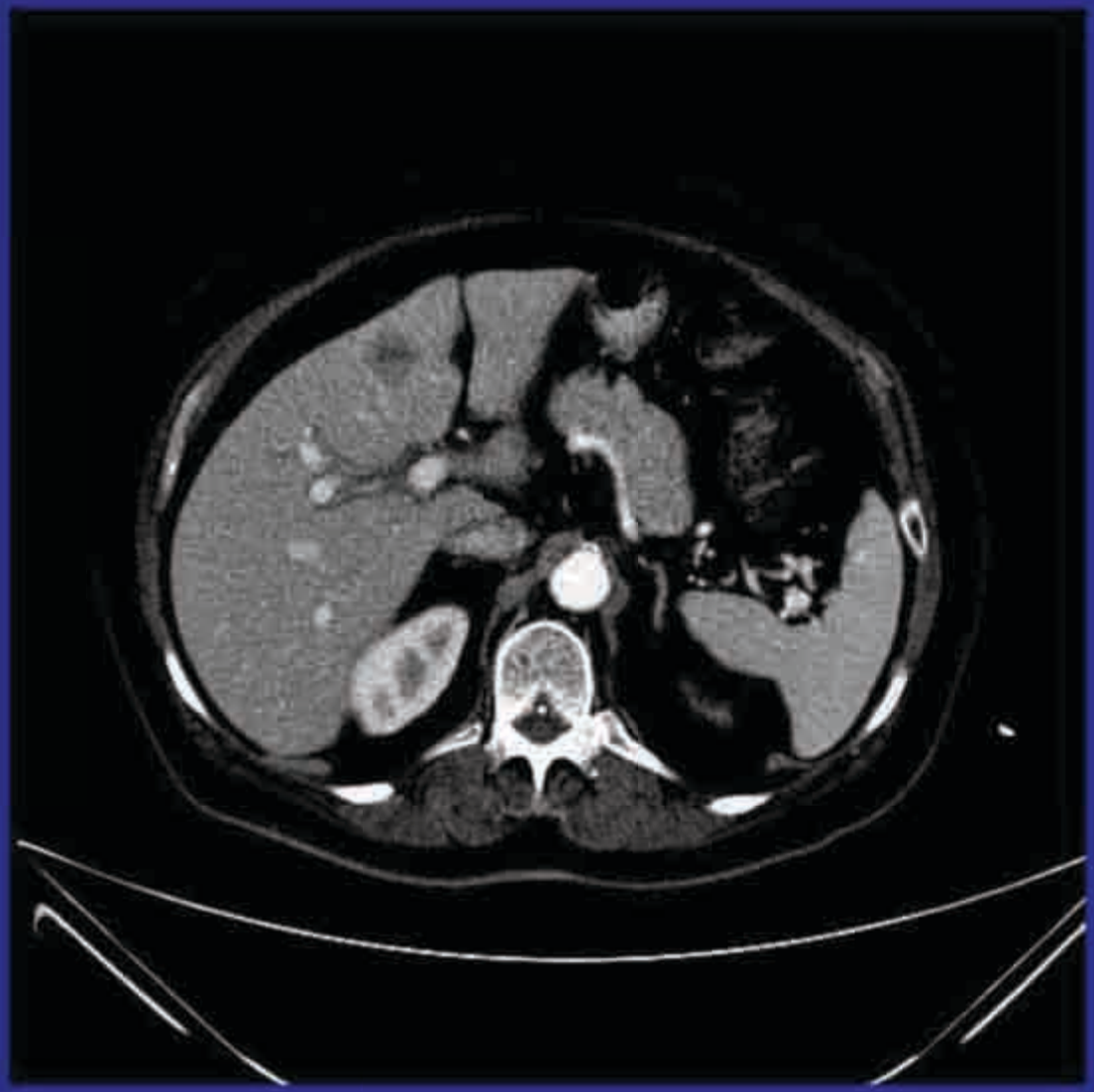
- Metastatic disease (hematogeneous)



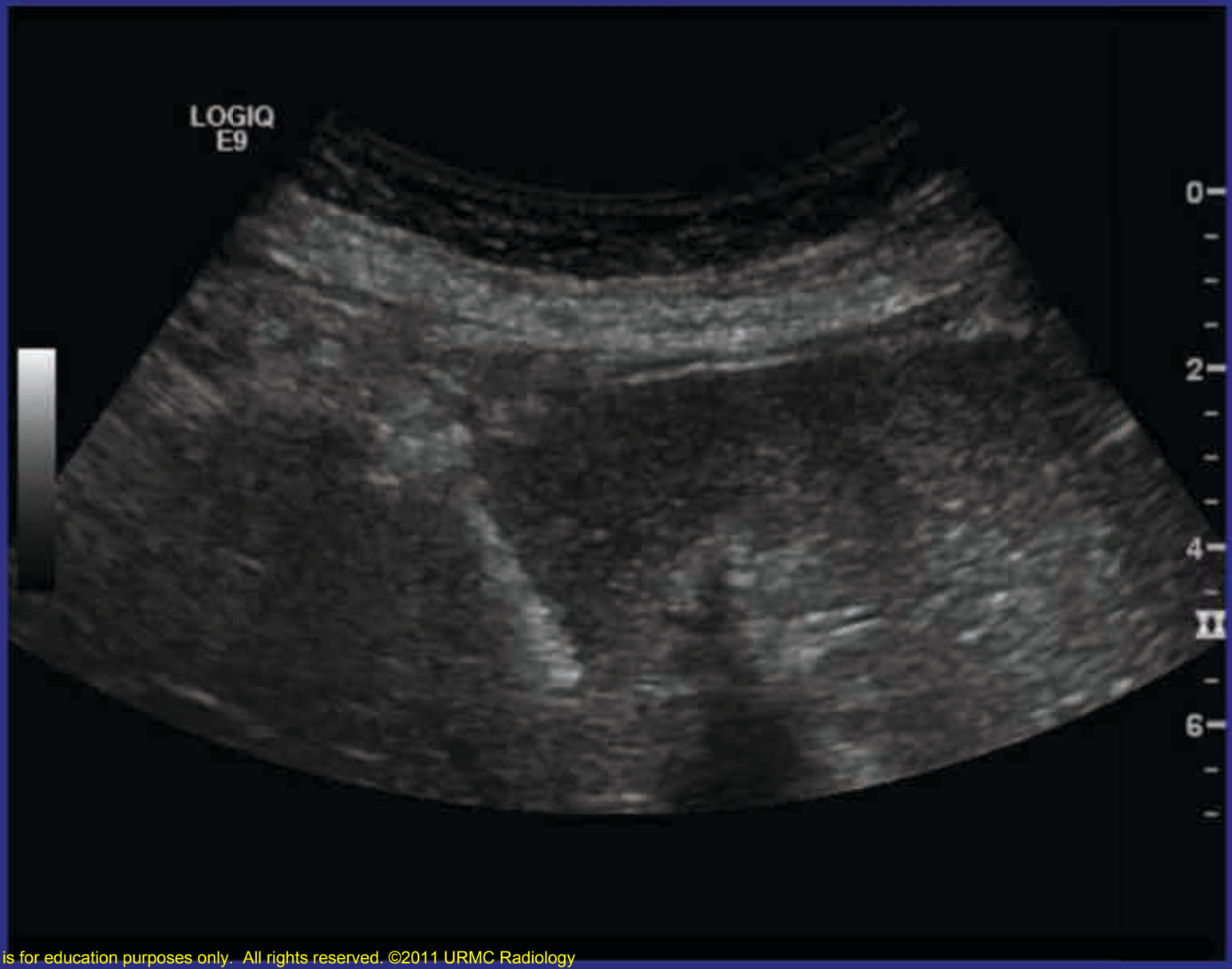
- Septic emboli
  - Hx of IVDU, endocarditis, systemic infxn
  - "feeding vessel sign" in center of nodule
    - Hematogenous source of the nodule

- Also: Wegener's dz (2-10 cm nodules w cavitation, thickwalled with air-fluid levels), Rheumatoid arthritis (0.2 to 5 cm nodules, pleural effusion)

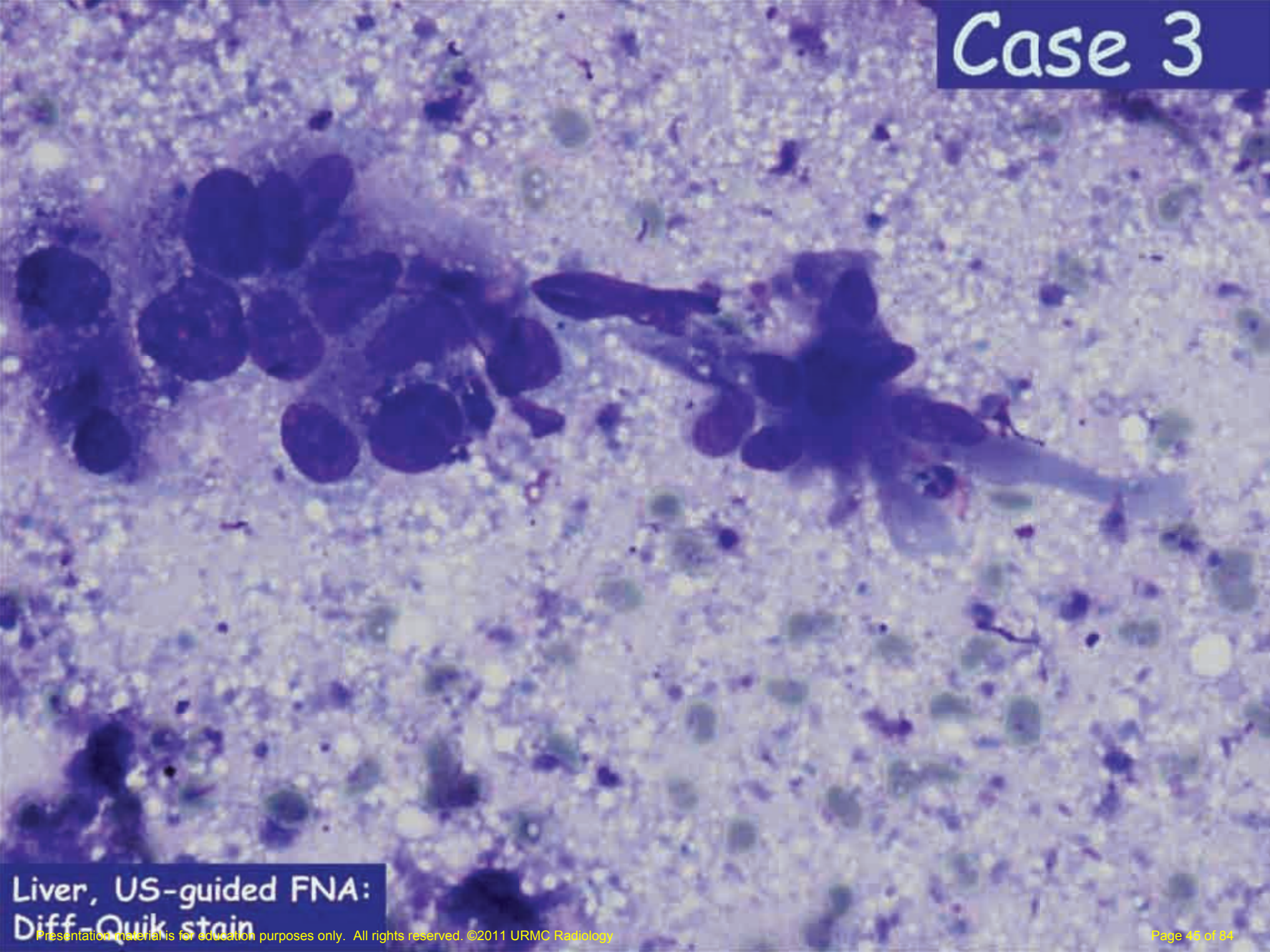
Case 3: Does This Narrow the DDx?



Case 3

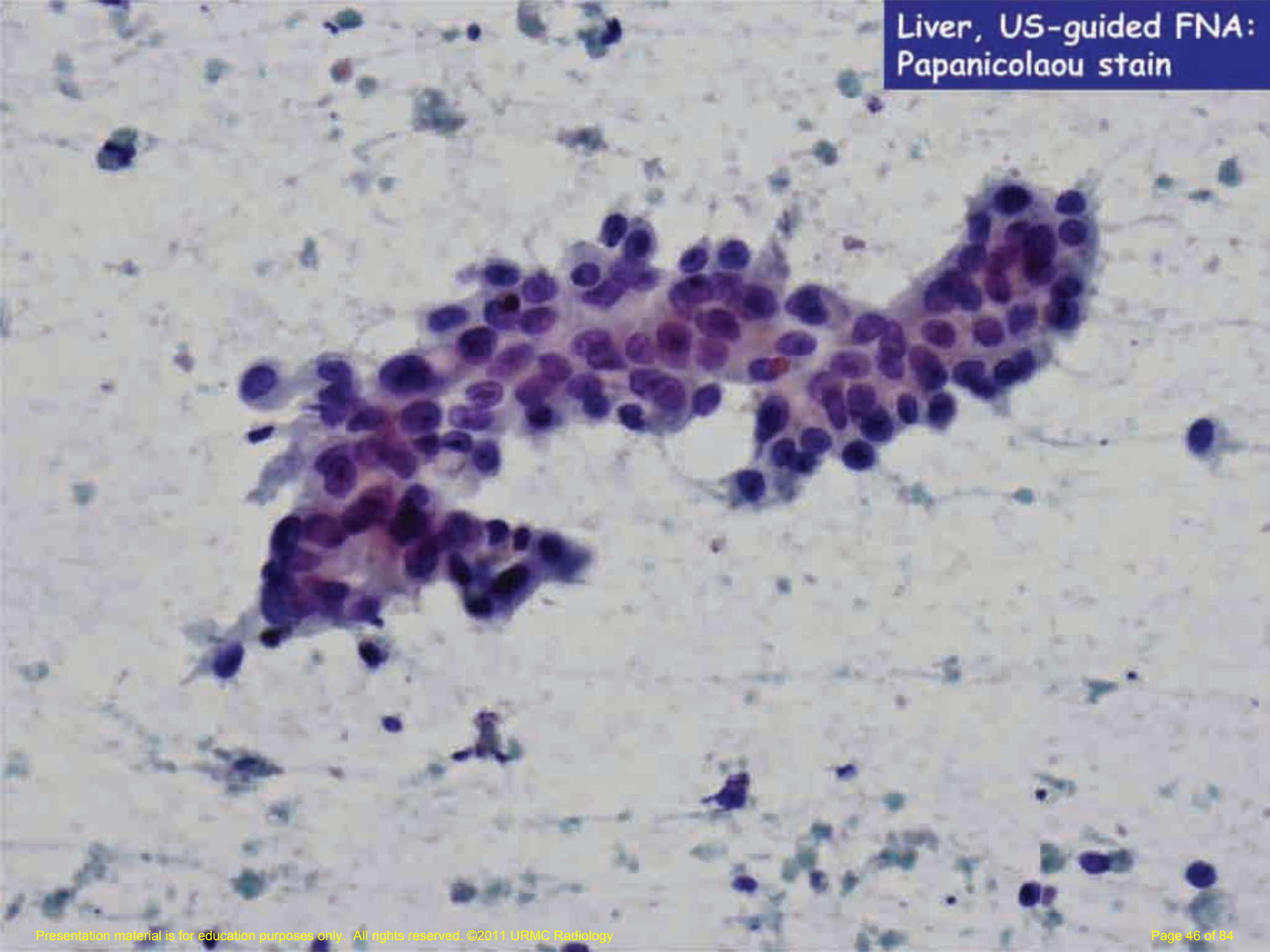


Case 3

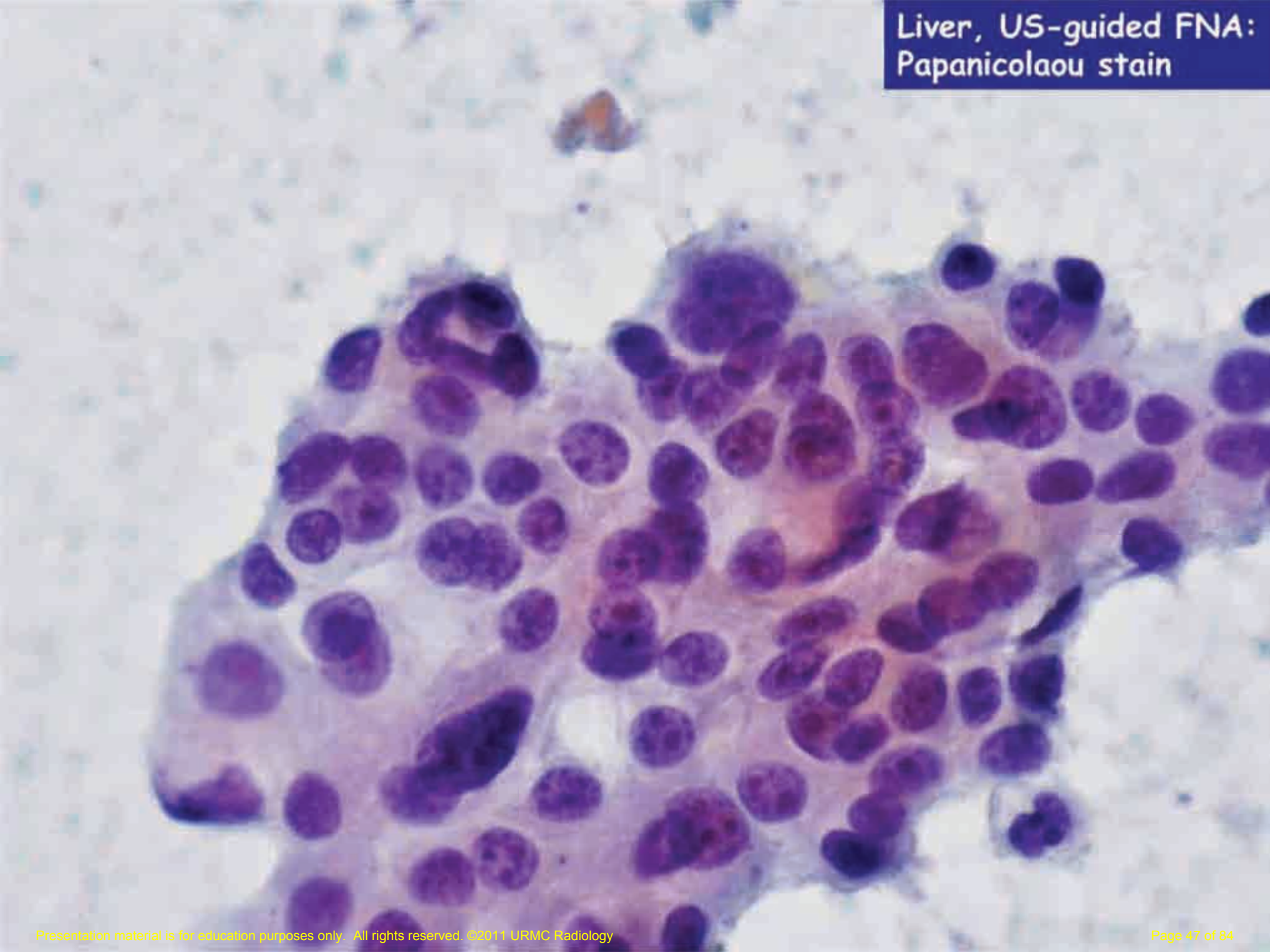


Liver, US-guided FNA:
Diff-Quik stain

Liver, US-guided FNA:
Papanicolaou stain



Liver, US-guided FNA: Papanicolaou stain

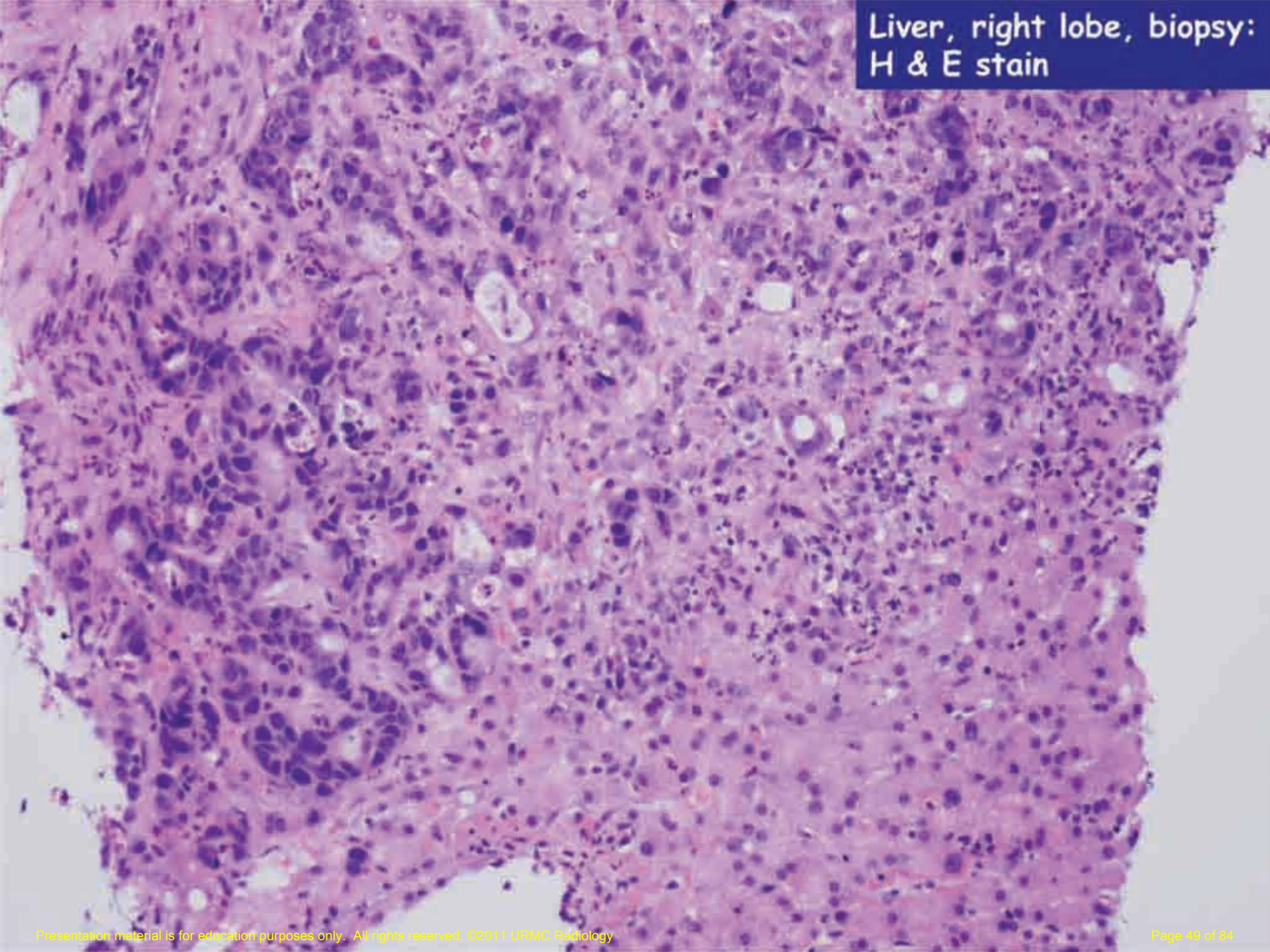


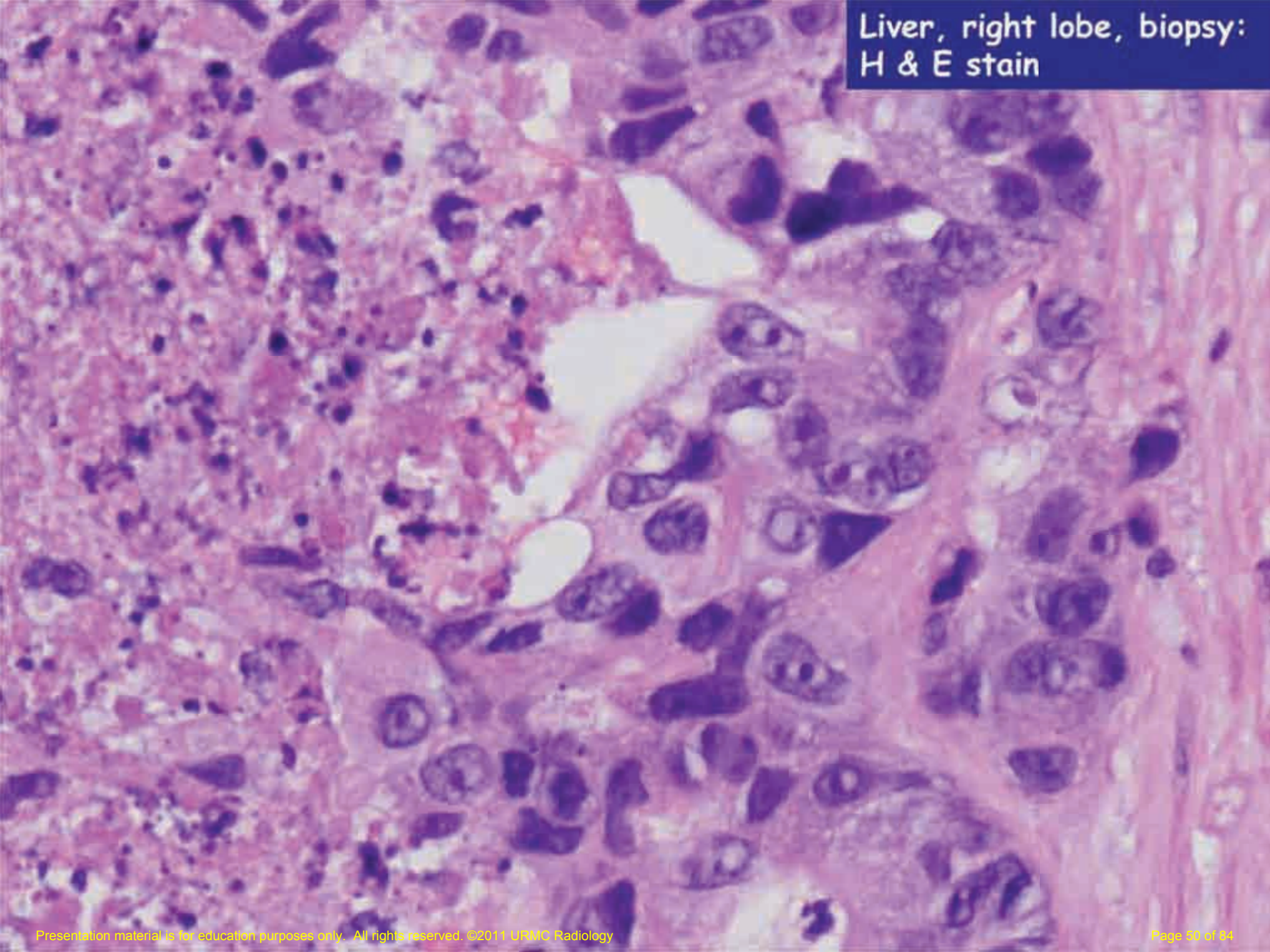
Liver, ultrasound-guided fine needle aspiration:

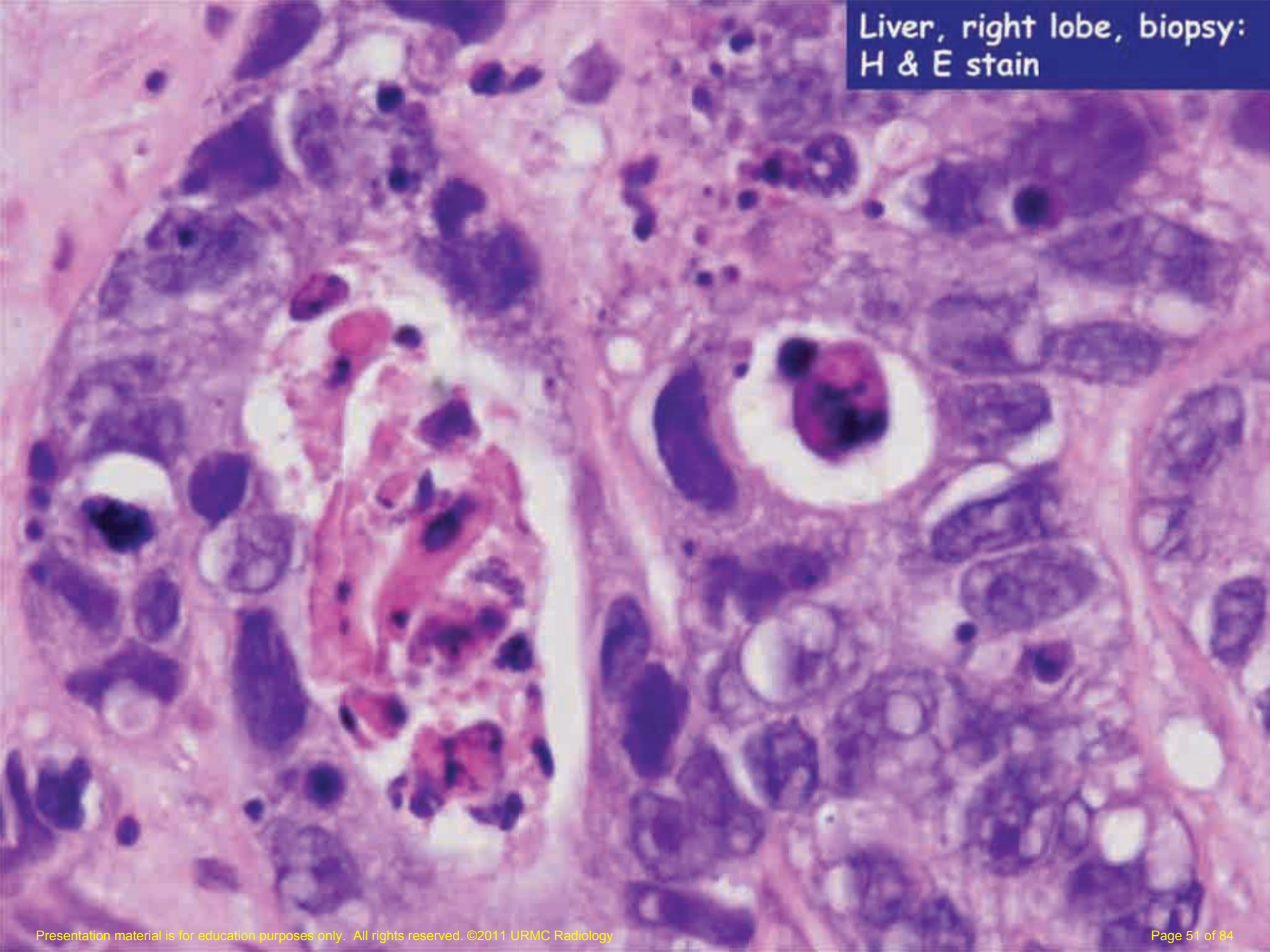
Malignant tumor cells present derived from adenocarcinoma.

Cell block and cytologic preparations examined.

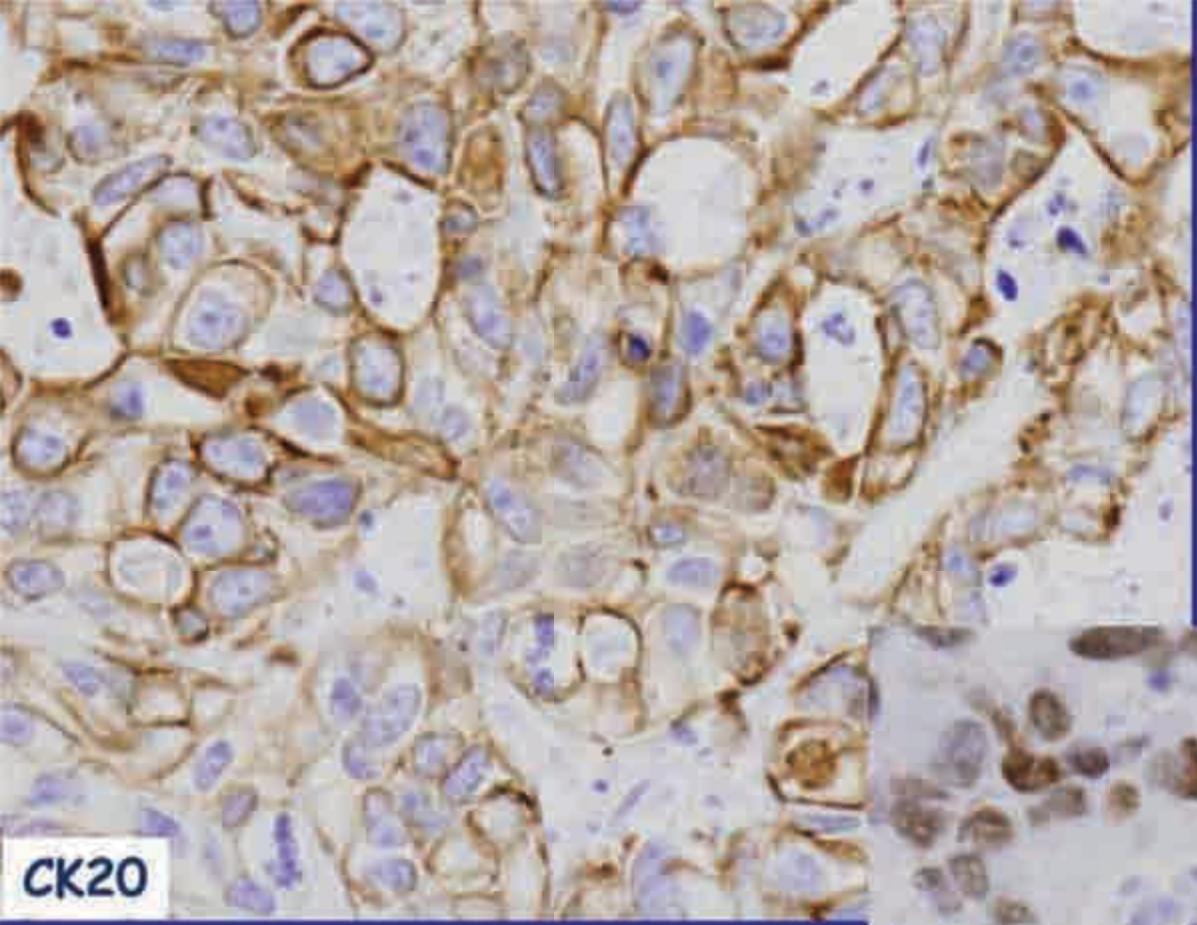
Focal positivity is seen with mucicarmine and kreyberg special stains performed on the cell block with appropriate controls.

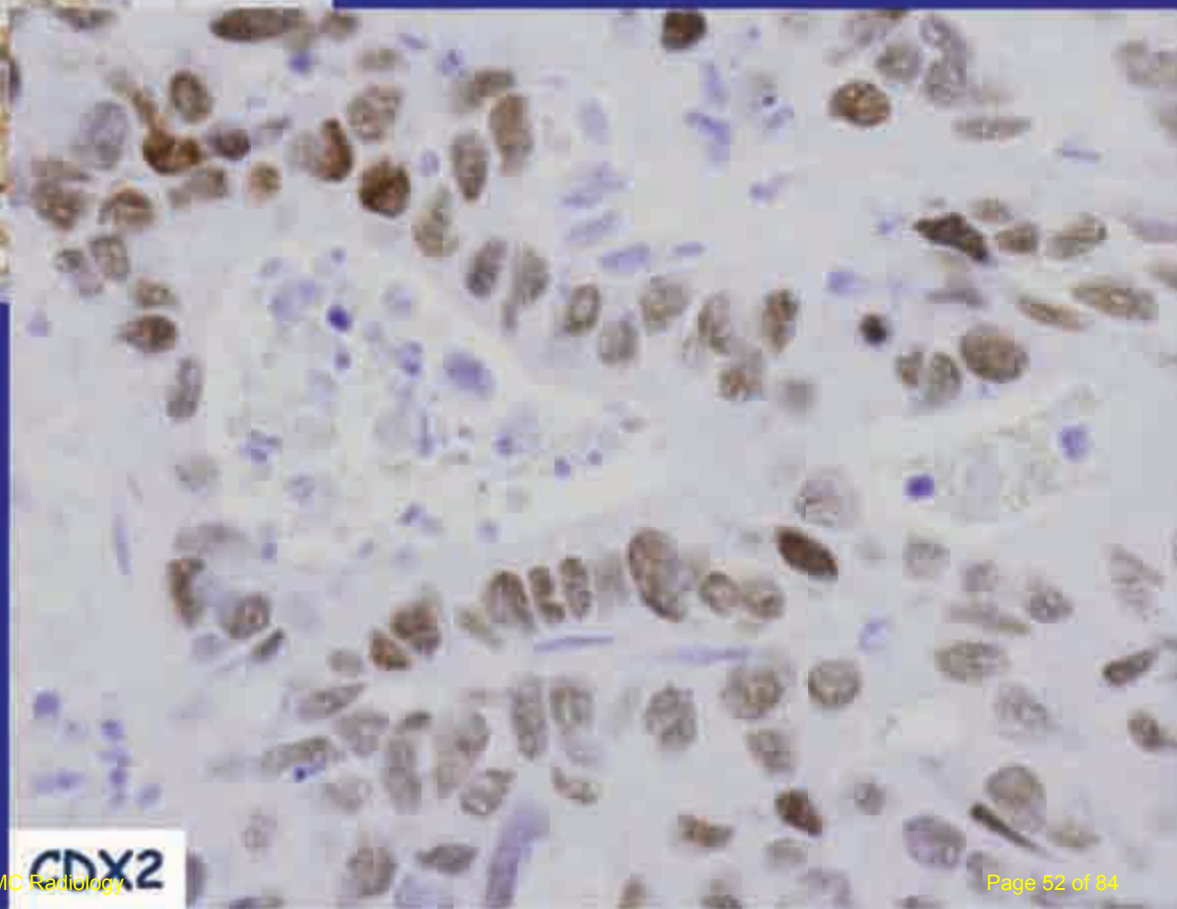






Liver, right lobe, biopsy: immunostains





Liver, right lobe biopsy:

Adenocarcinoma.

Immunohistochemical stains show the cells are positive for CK20 and CDX2. They are negative for CK7, TTF-1, Napsin A and mammoglobin. The combined findings are suggestive of metastasis from colorectal primary, although other sites cannot be entirely excluded.

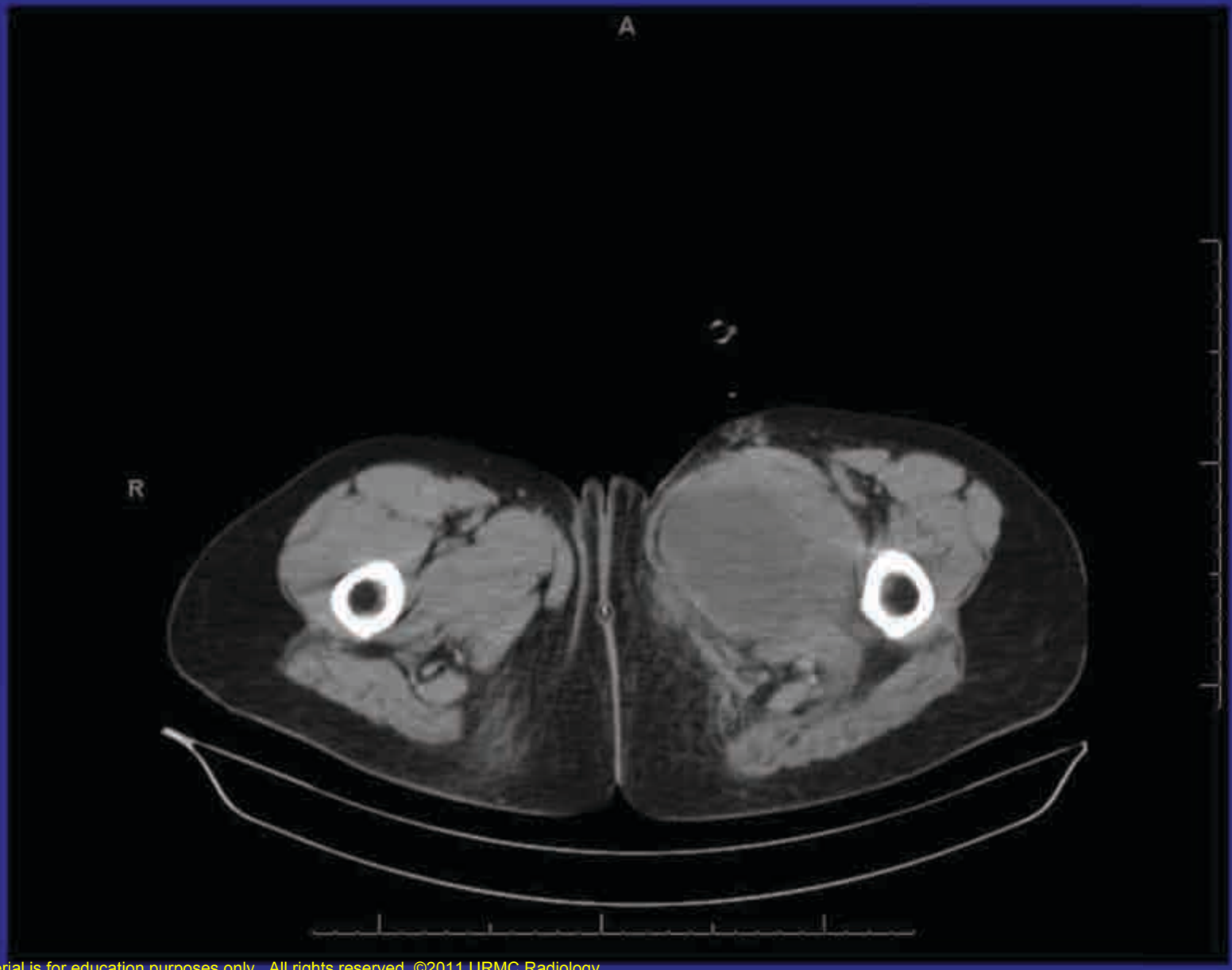
Metastatic Adenocarcinoma to the Liver (Colorectal)

- 98% of hepatic malignancies due to mets in non-cirrhotic liver
- Most common adult primaries: breast, lung, colon, pancreas
- 90% are multiple, often with central necrosis
- Colon cancer is #2 cause of overall cancer death in US
- Most common sites of colon CA mets: regional nodes and liver
- Risk factors: age, obesity/diet, UC, polyposis syndromes, family history
- Isolated/regional liver mets can be resected surgically

Case 4

- 55 year old female who is status post hysterectomy 8 months ago. She has severe left thigh, hip, and buttock pain.

Case 4: What Do You See?



DDx for Soft Tissue Mass?

- Soft tissue sarcoma

DDx for Soft Tissue Mass?

- Soft tissue sarcoma
  - Leiomyosarcoma
    - nonspecific
  - Malignant fibrous histiocytoma
    - nonspecific
  - Liposarcoma
    - Variable amnt of fat

DDx for Soft Tissue Mass?

- Soft tissue sarcoma
  - Leiomyosarcoma
    - nonspecific
  - Malignant fibrous histiocytoma
    - nonspecific
  - Liposarcoma
    - Variable amnt of fat
- Melanoma

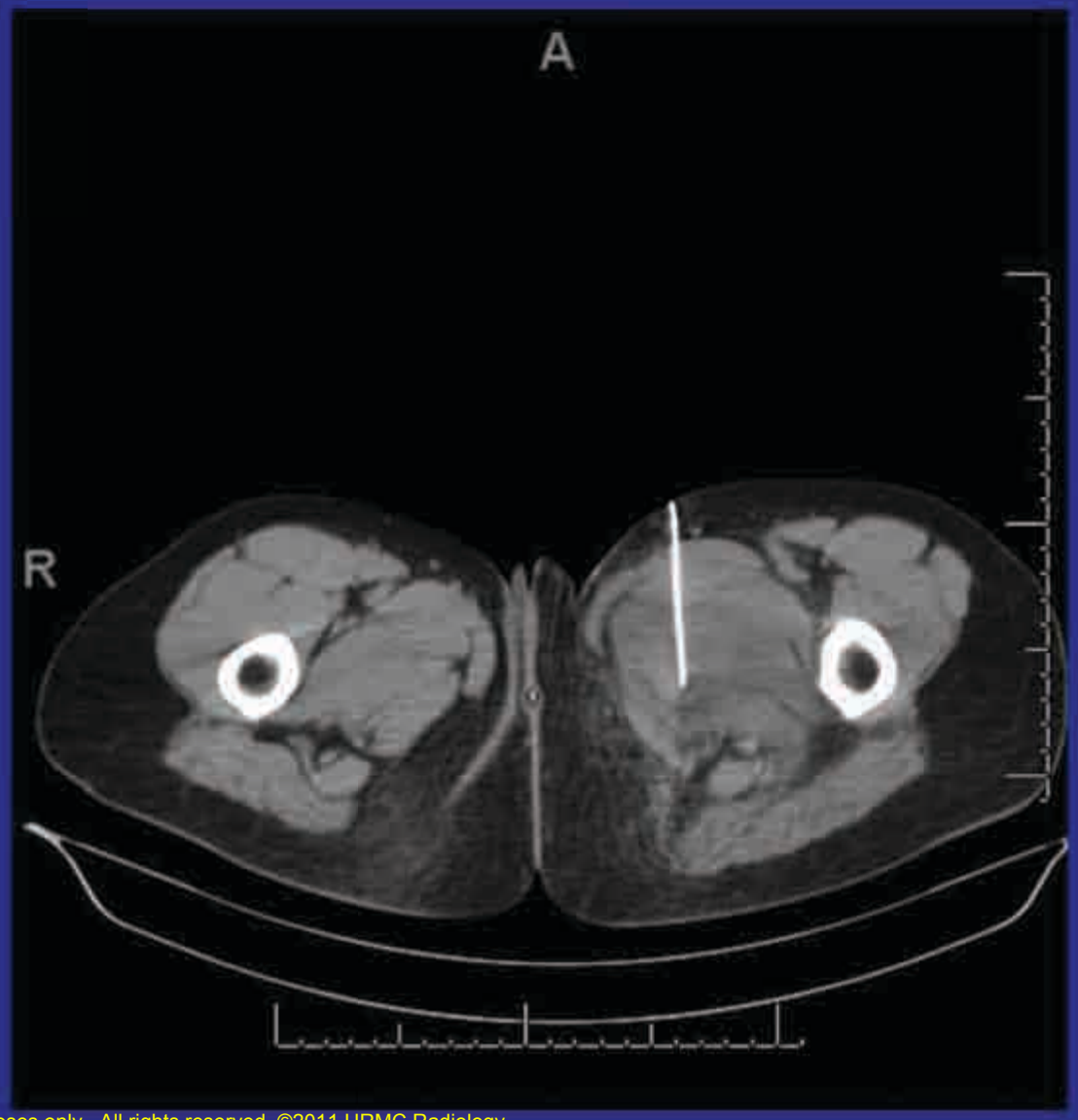
DDx for Soft Tissue Mass?

- Soft tissue sarcoma
  - Leiomyosarcoma
    - nonspecific
  - Malignant fibrous histiocytoma
    - nonspecific
  - Liposarcoma
    - Variable amnt of fat
- Melanoma
- Metastases

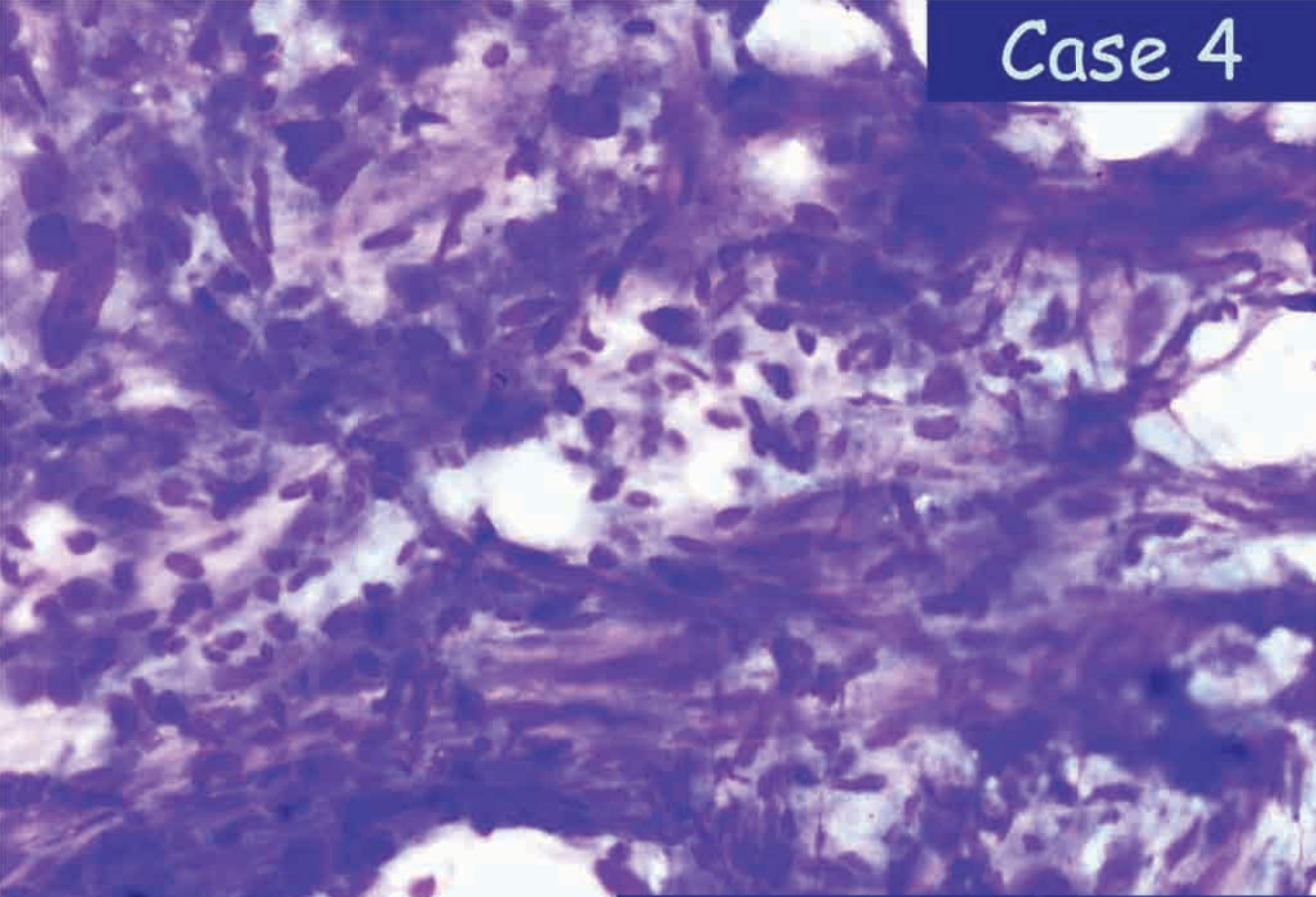
DDx for Soft Tissue Mass?

- Soft tissue sarcoma
  - Leiomyosarcoma
    - nonspecific
  - Malignant fibrous histiocytoma
    - nonspecific
  - Liposarcoma
    - Variable amnt of fat
- Melanoma
- Metastases
- Also, hematoma and abscess

Case 4

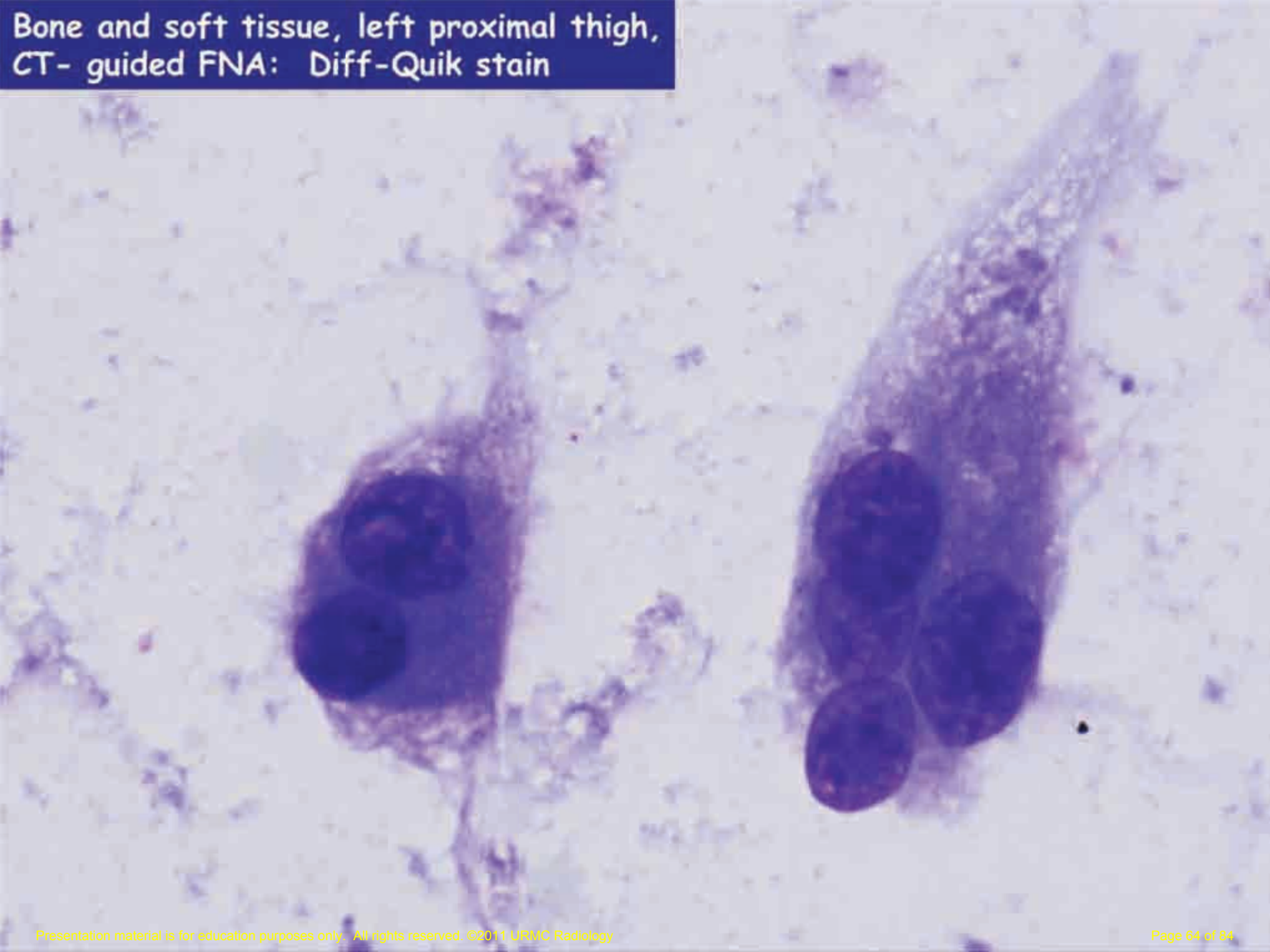


Case 4

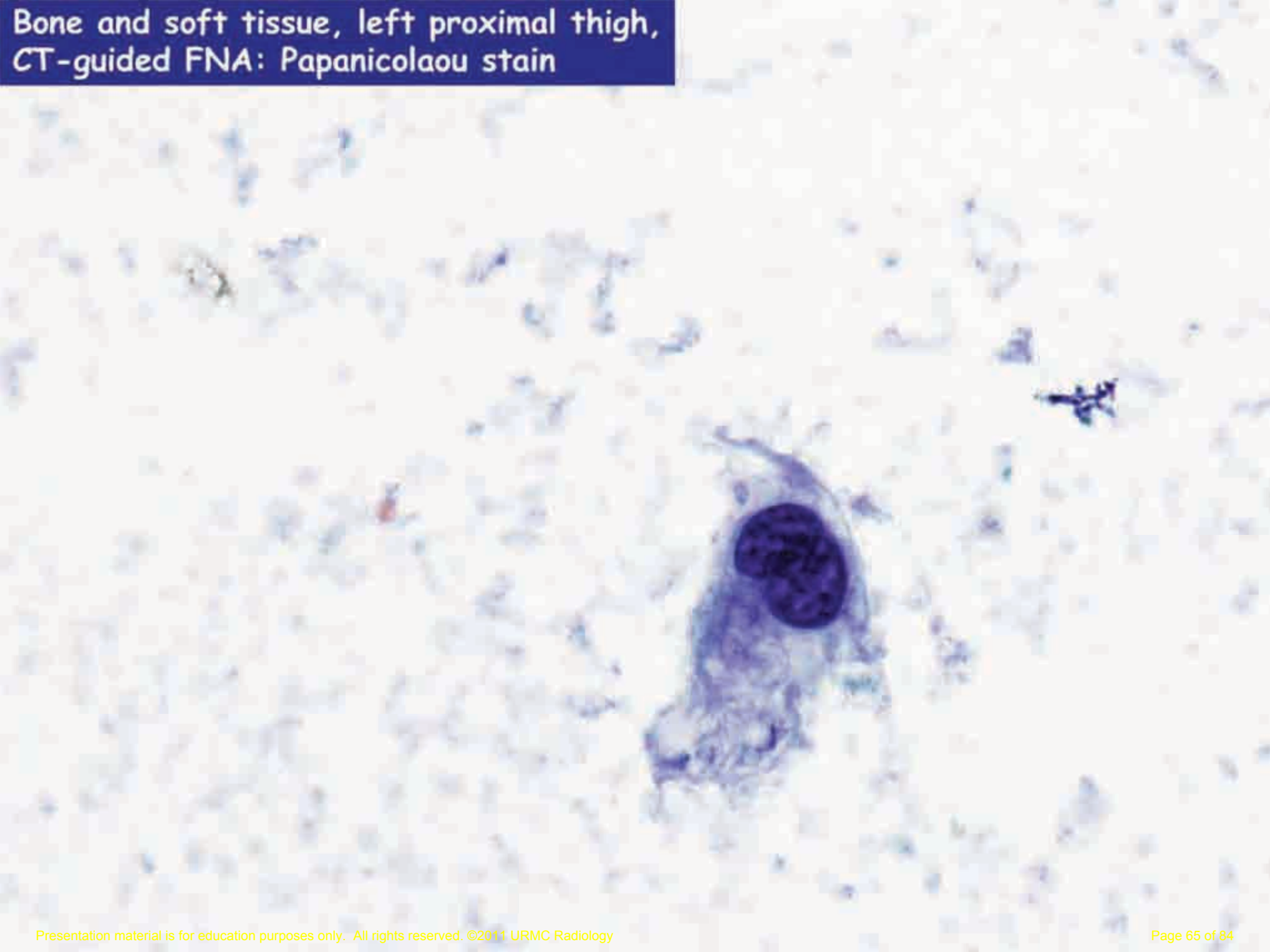


Bone and soft tissue, left proximal thigh, CT-guided FNA: Diff-Quik stain

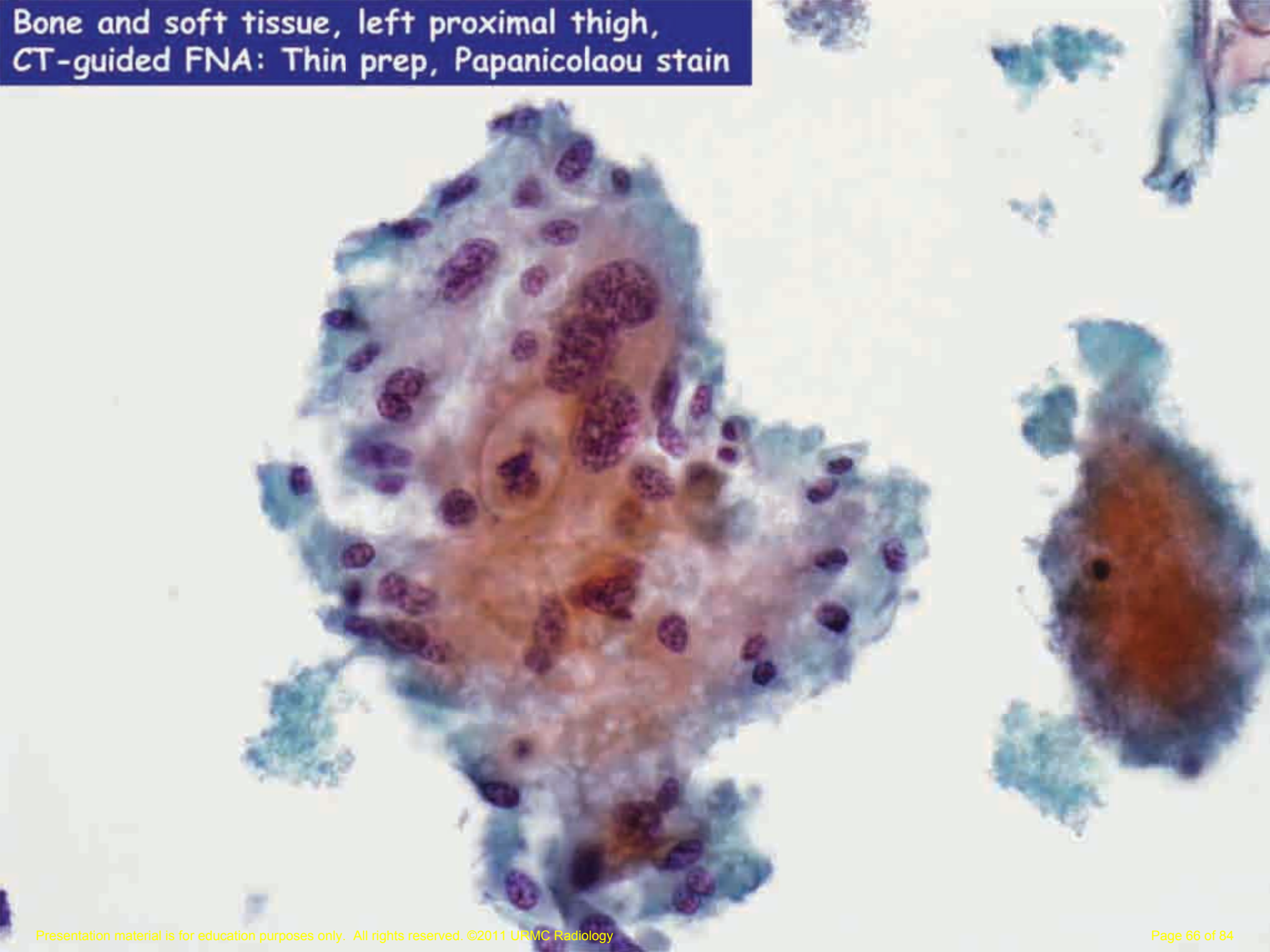
Bone and soft tissue, left proximal thigh, CT- guided FNA: Diff-Quik stain



Bone and soft tissue, left proximal thigh, CT-guided FNA: Papanicolaou stain



Bone and soft tissue, left proximal thigh,
CT-guided FNA: Thin prep, Papanicolaou stain

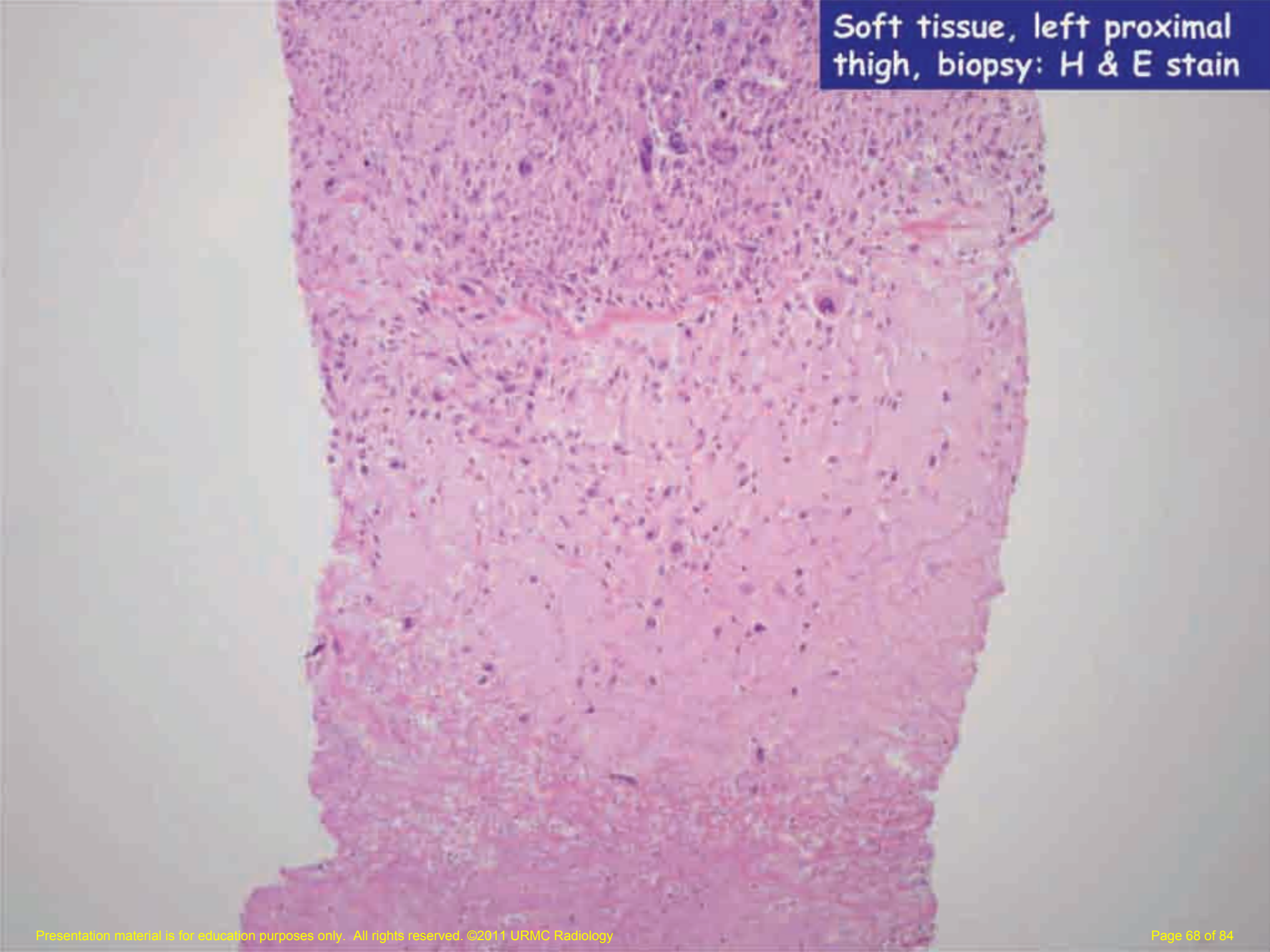


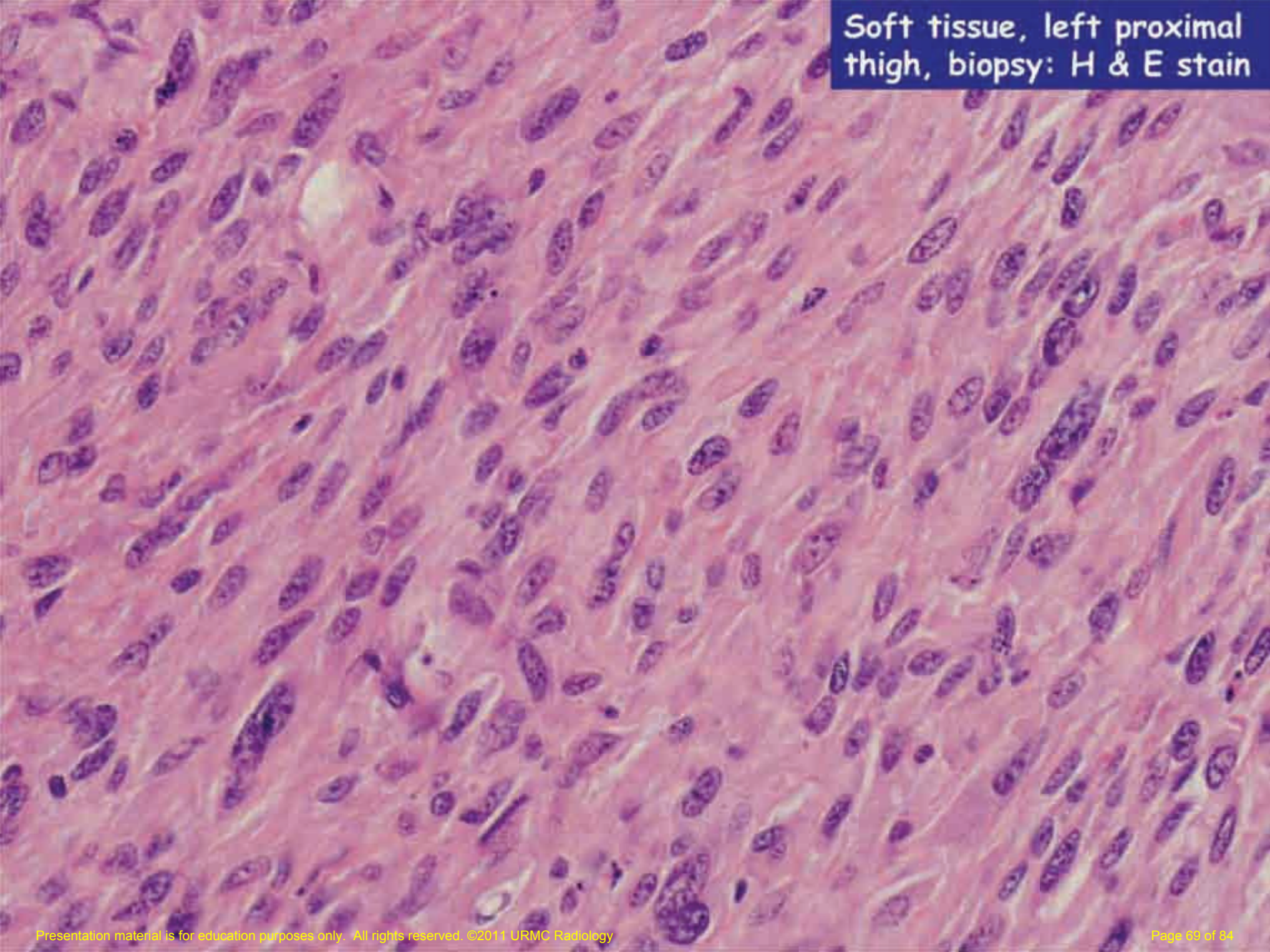
Bone and soft tissue, left proximal thigh, CT-guided fine needle aspiration:

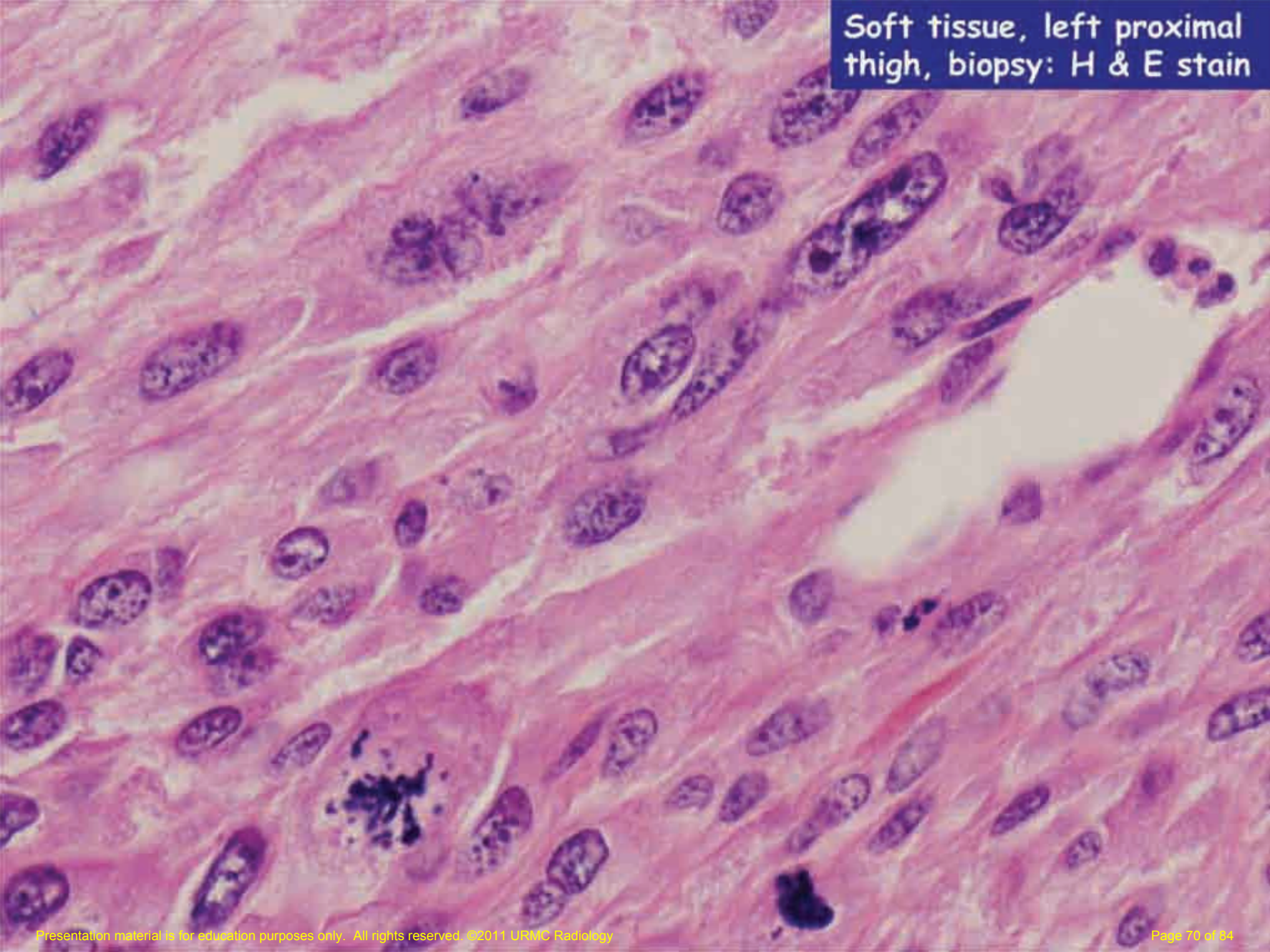
Malignant tumor cells present derived from high grade sarcoma. See comment.

Comment: Immunohistochemical stains will be performed on concurrent core biopsy.

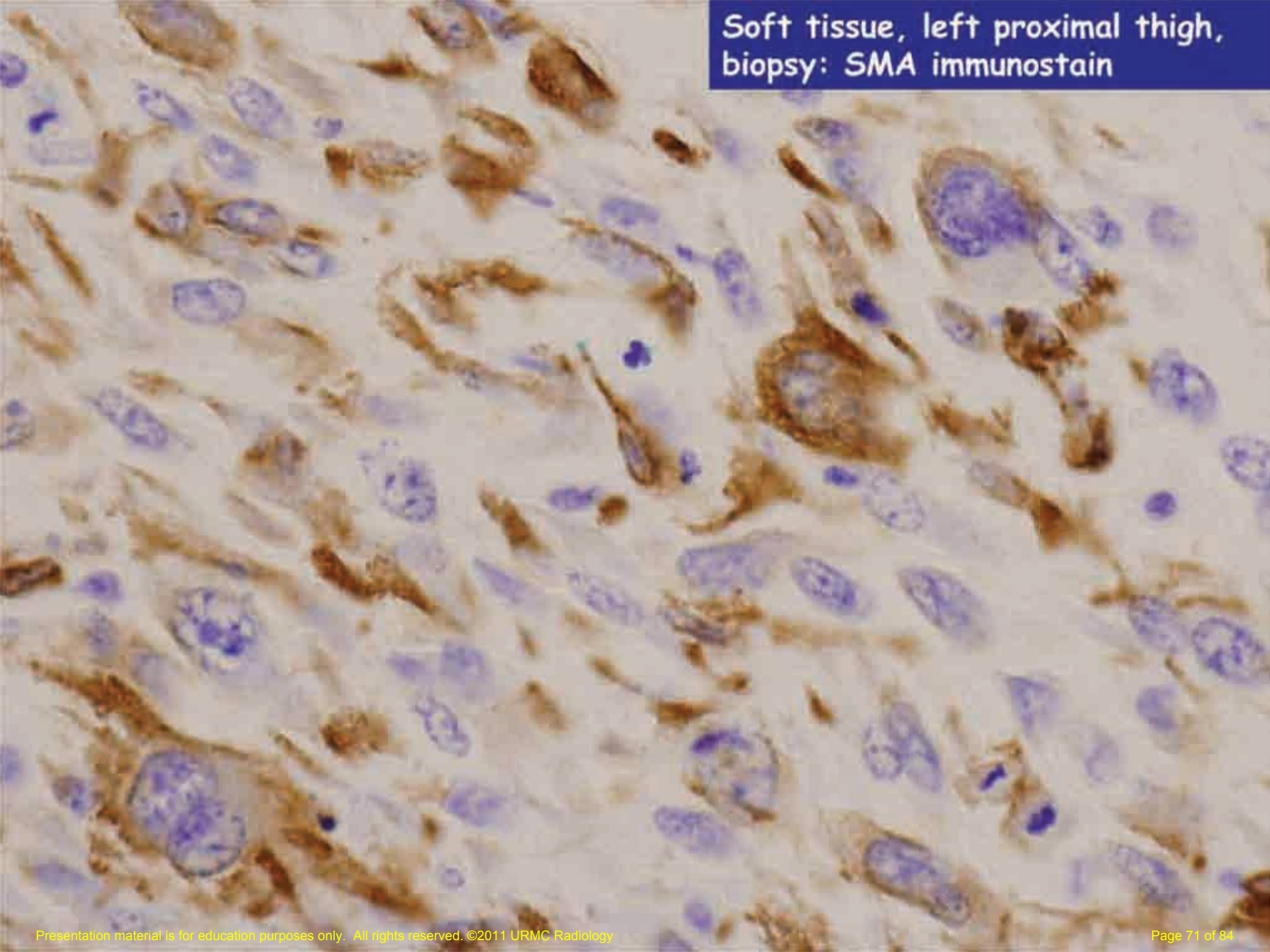
Soft tissue, left proximal thigh, biopsy: H & E stain







Soft tissue, left proximal thigh, biopsy: SMA immunostain



Soft tissue, left proximal thigh, core needle biopsy:

High grade sarcoma. See comment.

Comment: Immunohistochemical stains show that the tumor cells mark with smooth muscle actin. They do not mark with pan-cytokeratin or S-100. These staining results support smooth muscle origin and are consistent with high grade leiomyosarcoma.

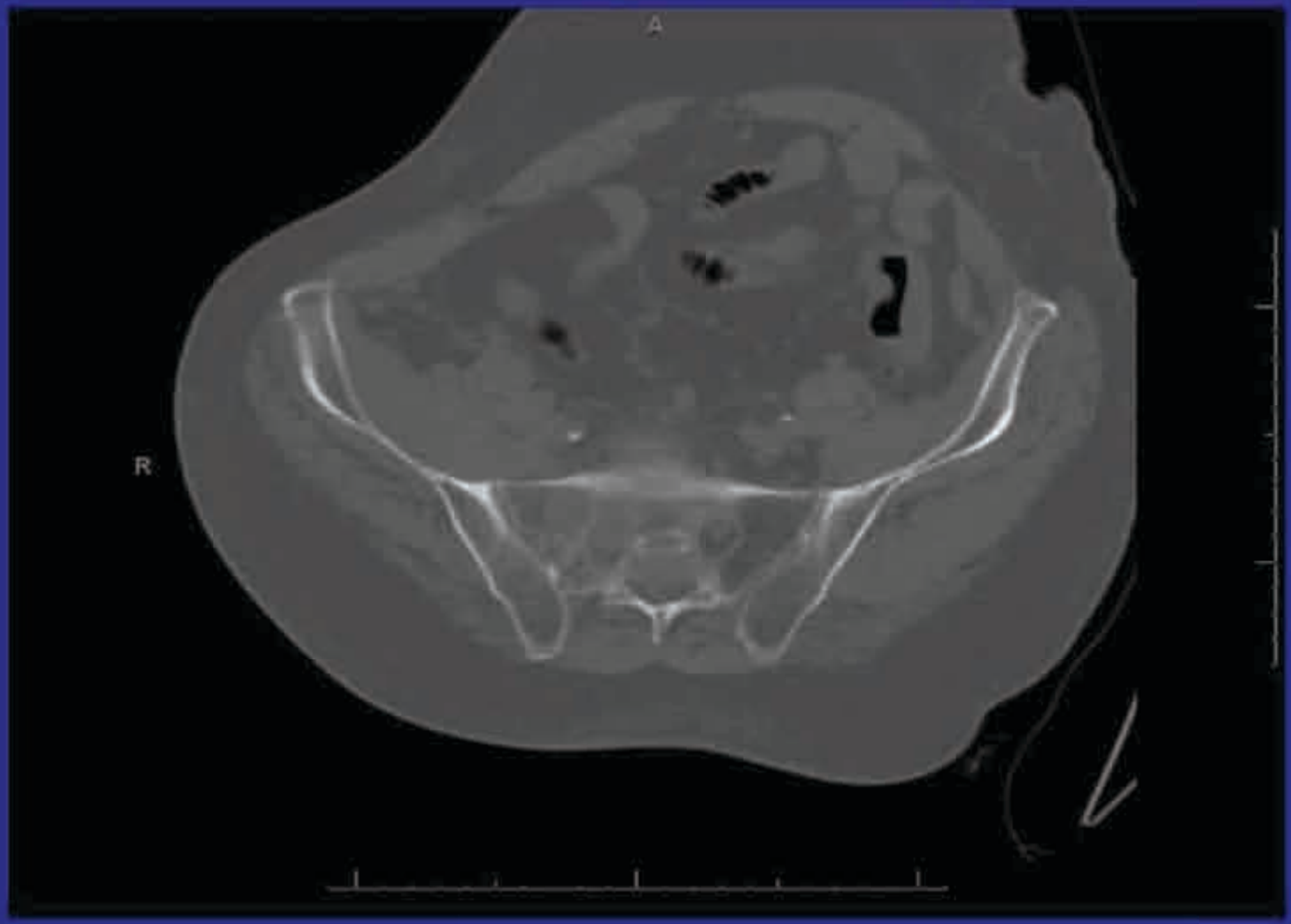
Leiomyosarcoma

- Uterine LMS rare, but most common pure uterine sarcoma
- Middle aged women (mean 54)
- 5 year survival 15-40%
  - Minimal survival if extends beyond uterus at staging/presentation, if confined to uterus size is important (more or less than 5 cm) and presence of vascular invasion
- High tendency for recurrence (most within 2 years), 50% metastasize (lung, bone, brain)
- Variants: epithelioid (often keratin positive), myxoid

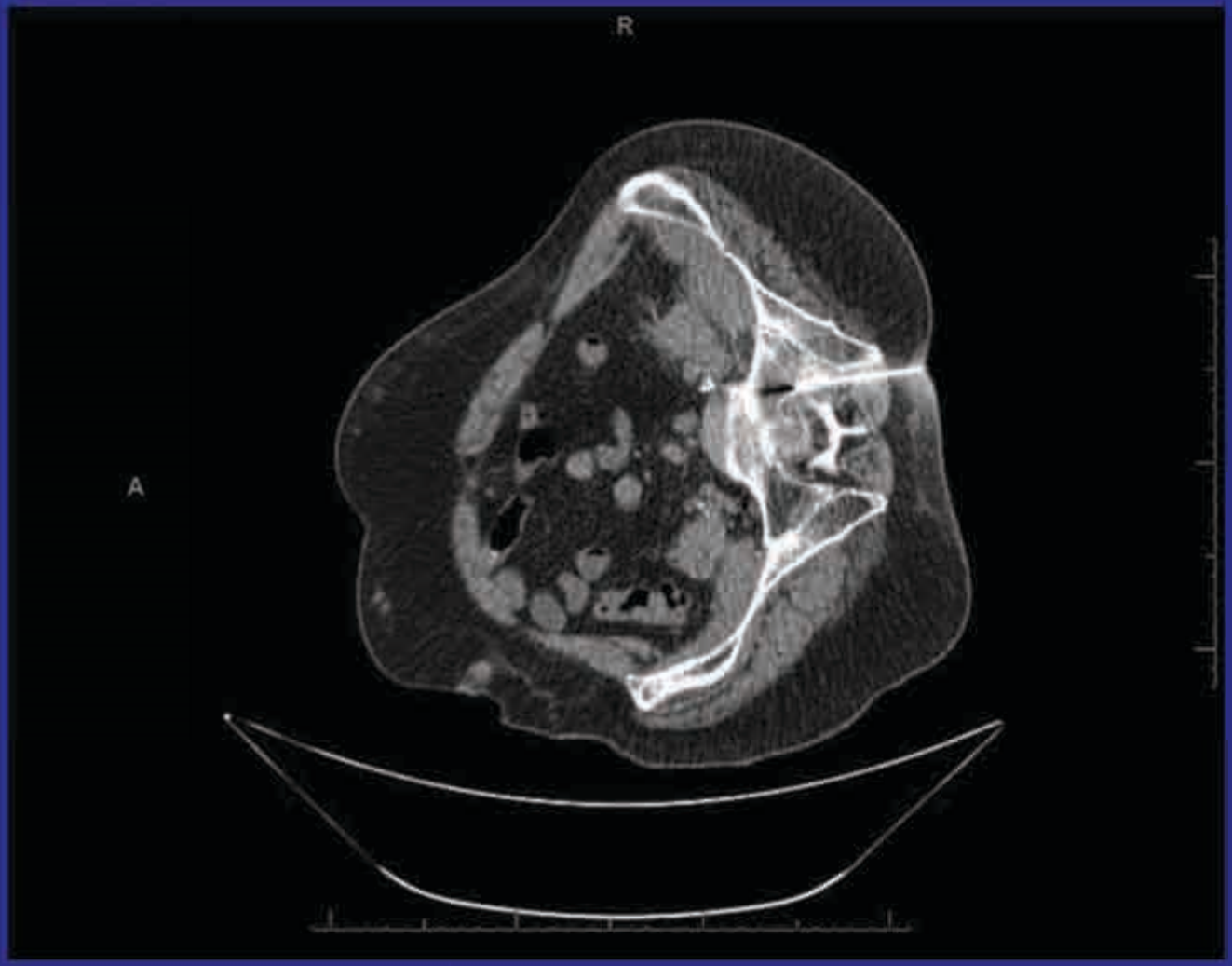
Case 5

- 70 year old male with severe lumbosacral pain. He has had a right nephrectomy and TURP in the past.

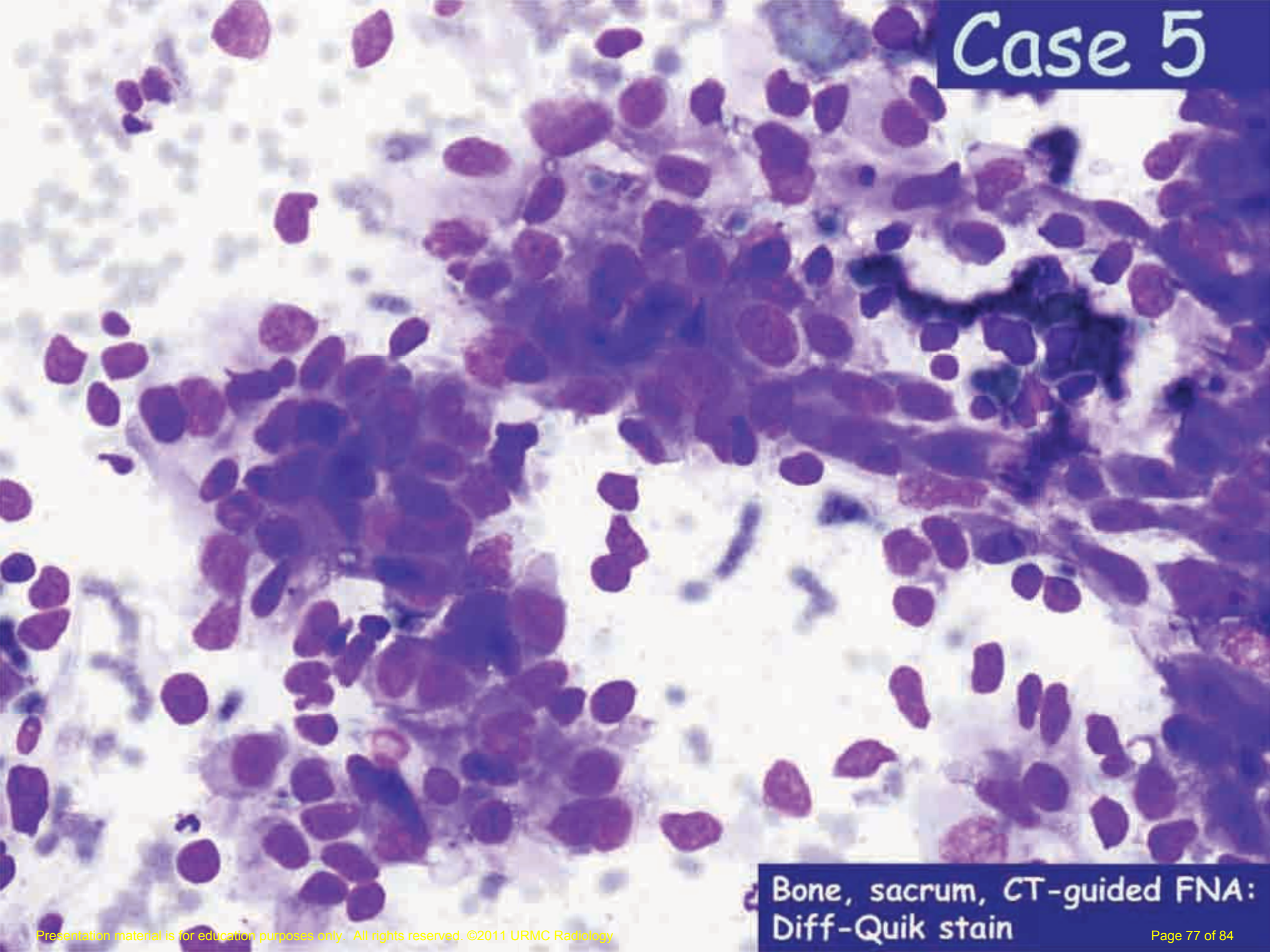
Case 5: Which Side is Abnormal? Given the Hx, What Would Be the Most Likely Etiology?



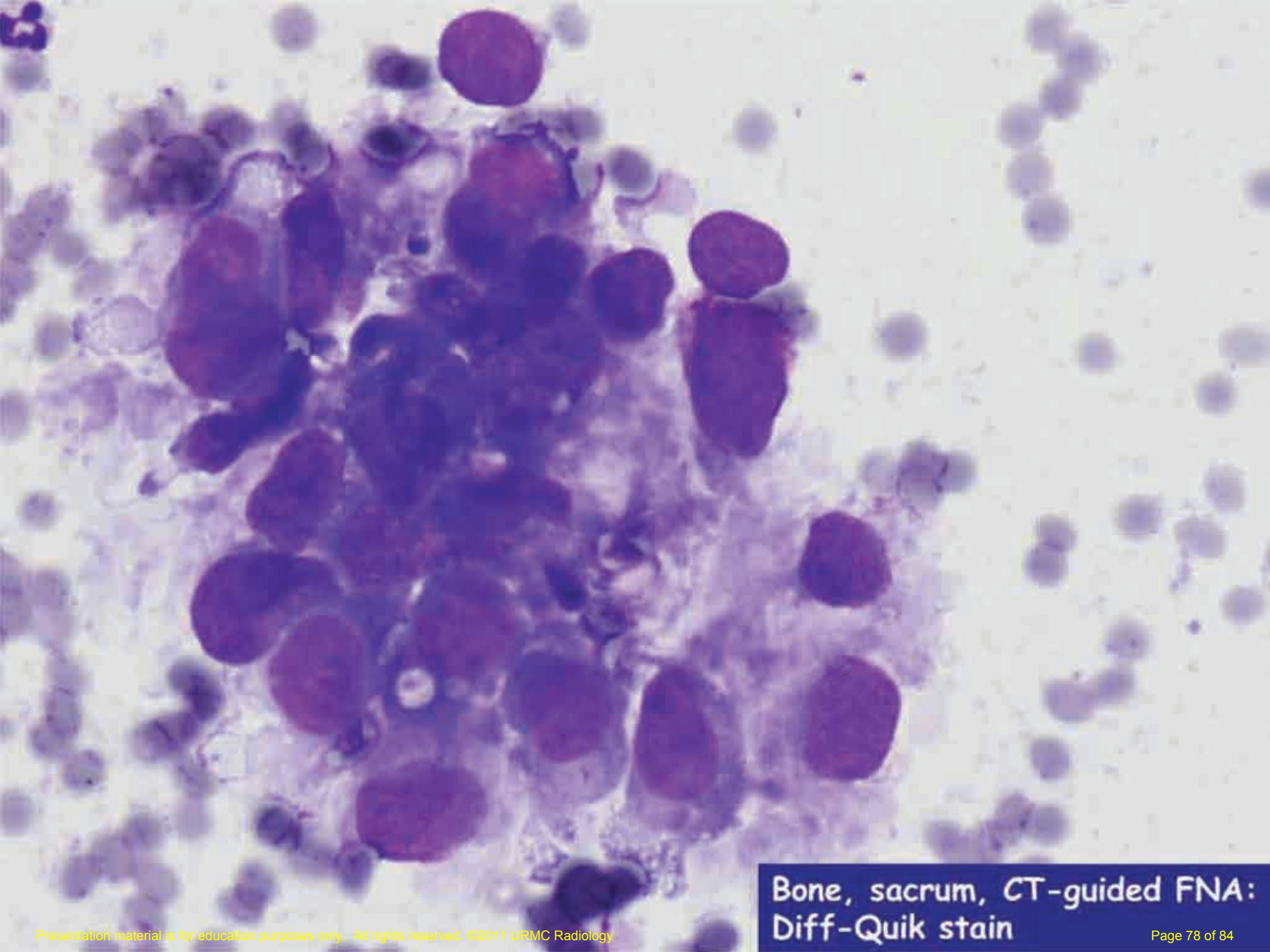
Case 5



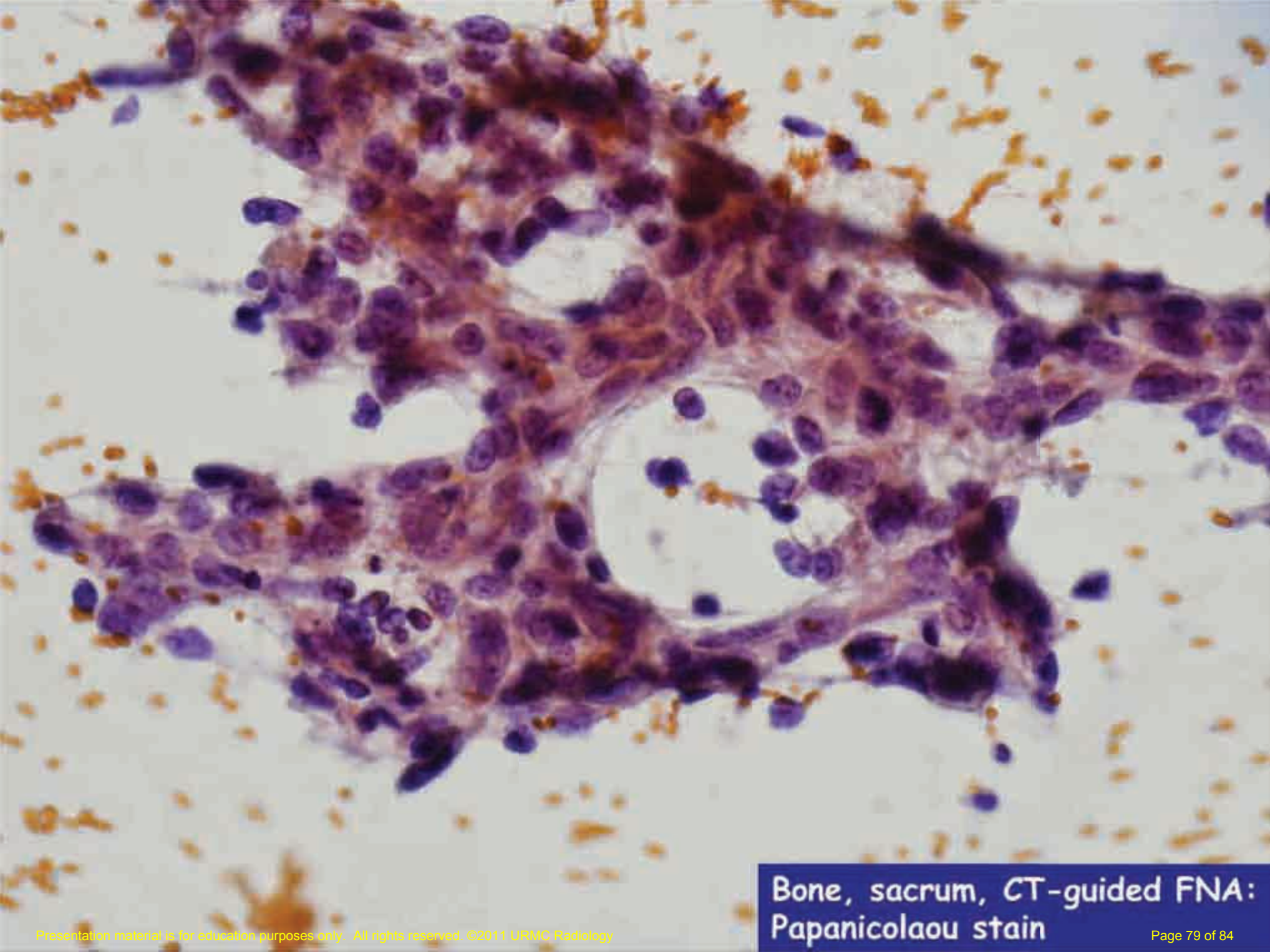
Case 5



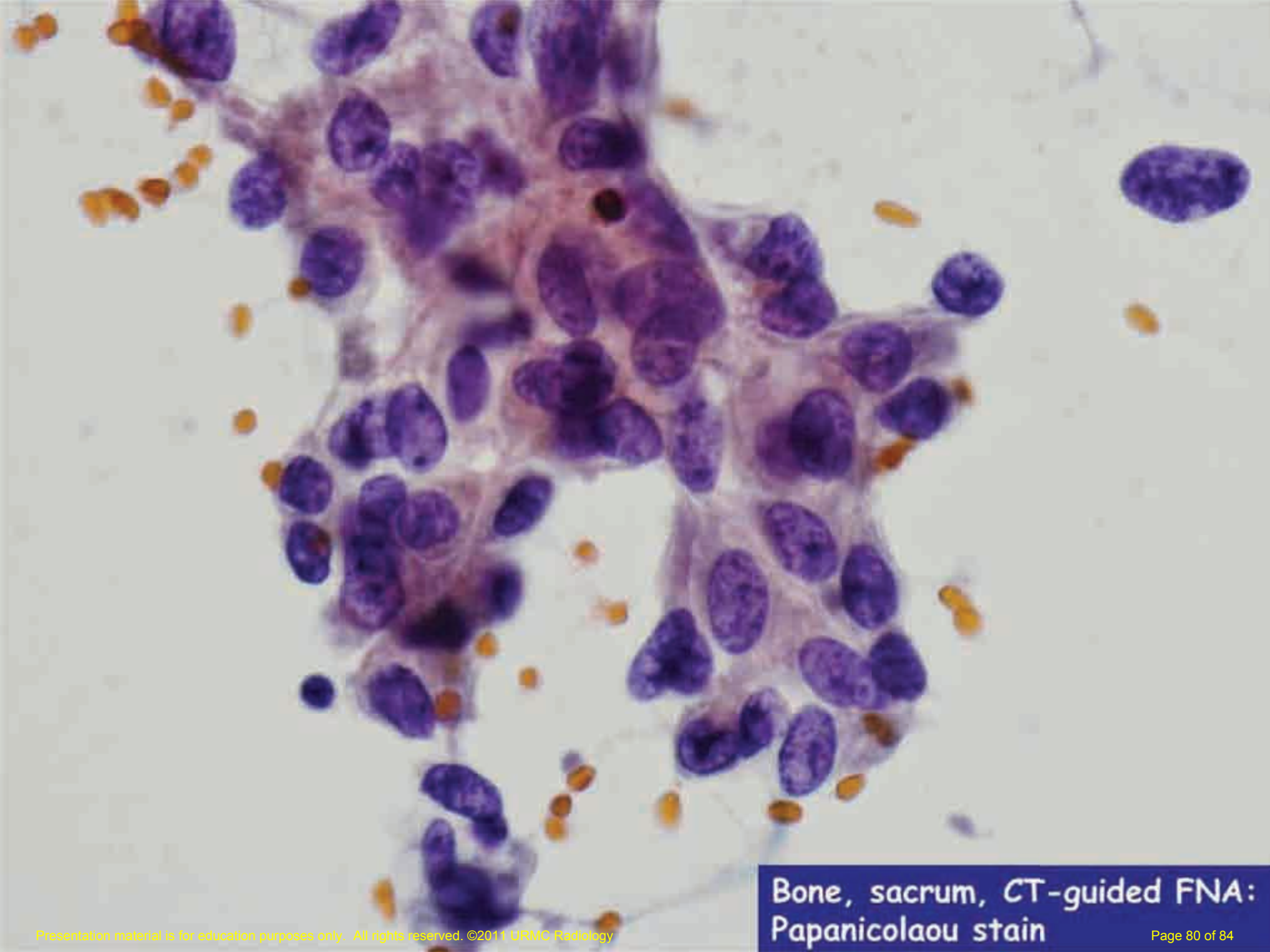
Bone, sacrum, CT-guided FNA:
Diff-Quik stain



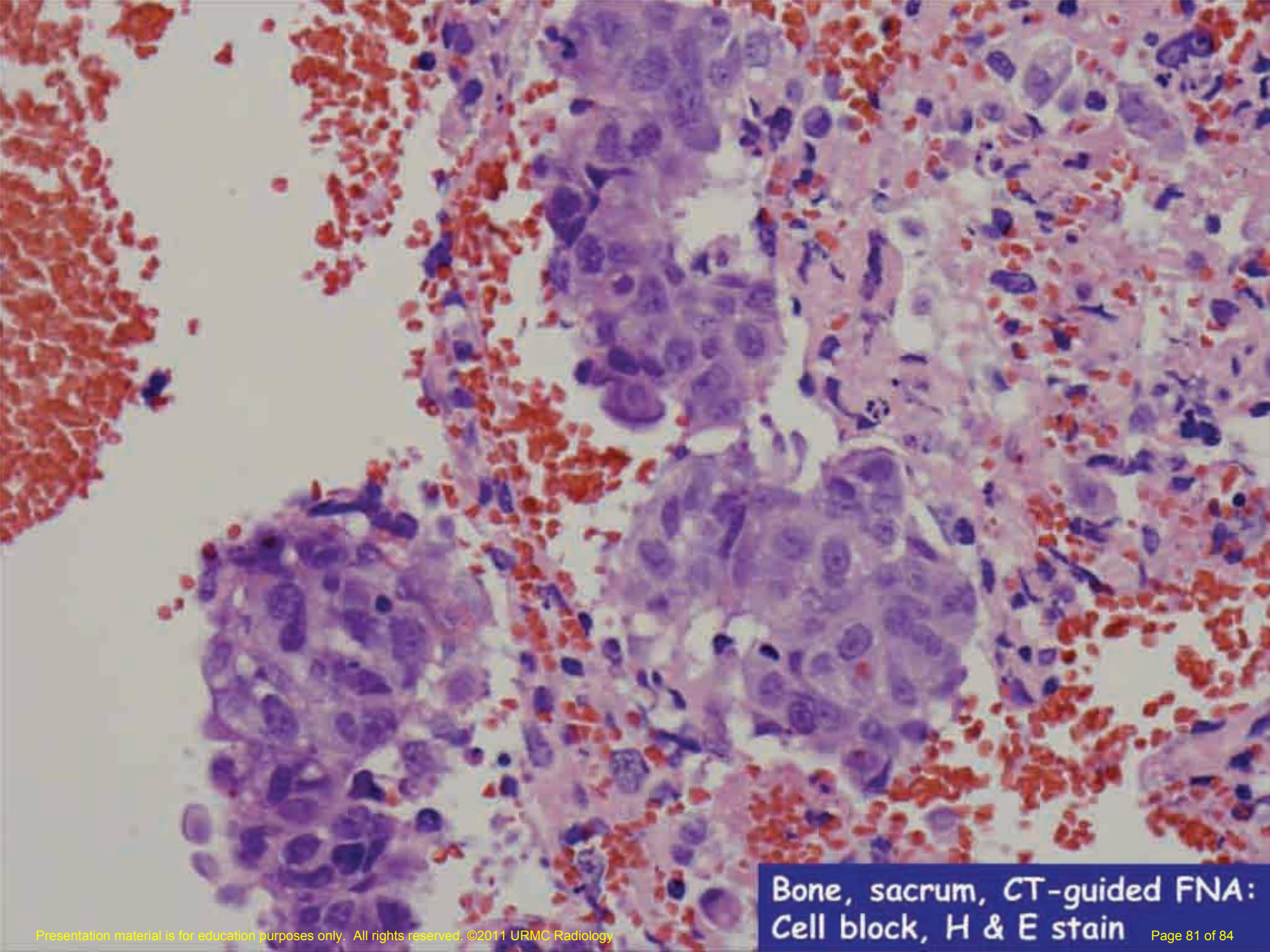
Bone, sacrum, CT-guided FNA:
Diff-Quik stain



Bone, sacrum, CT-guided FNA:
Papanicolaou stain



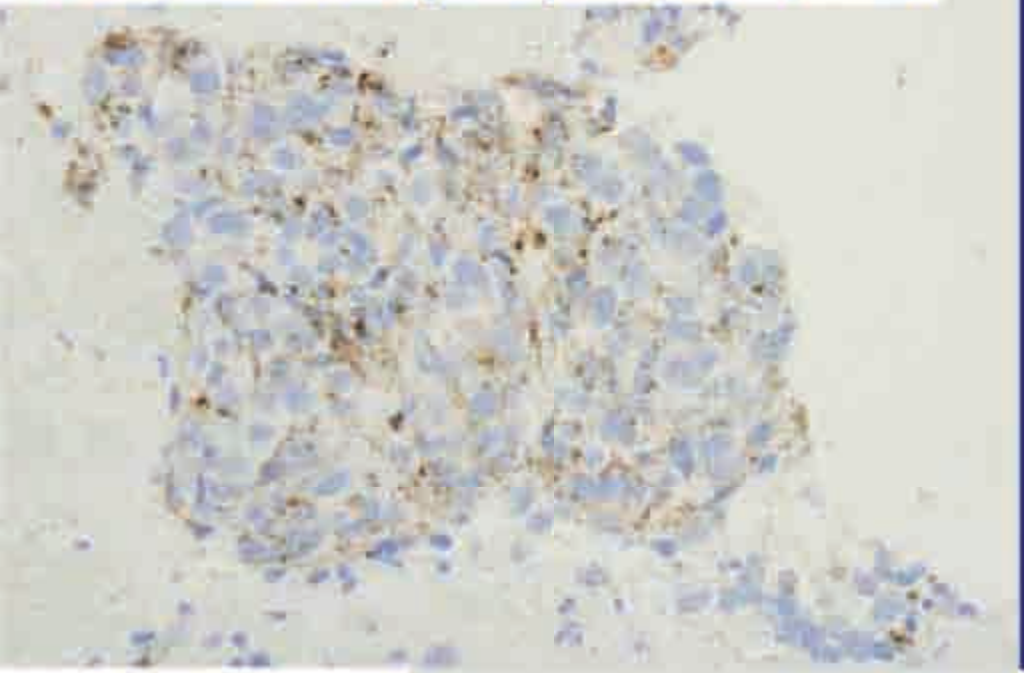
Bone, sacrum, CT-guided FNA:
Papanicolaou stain



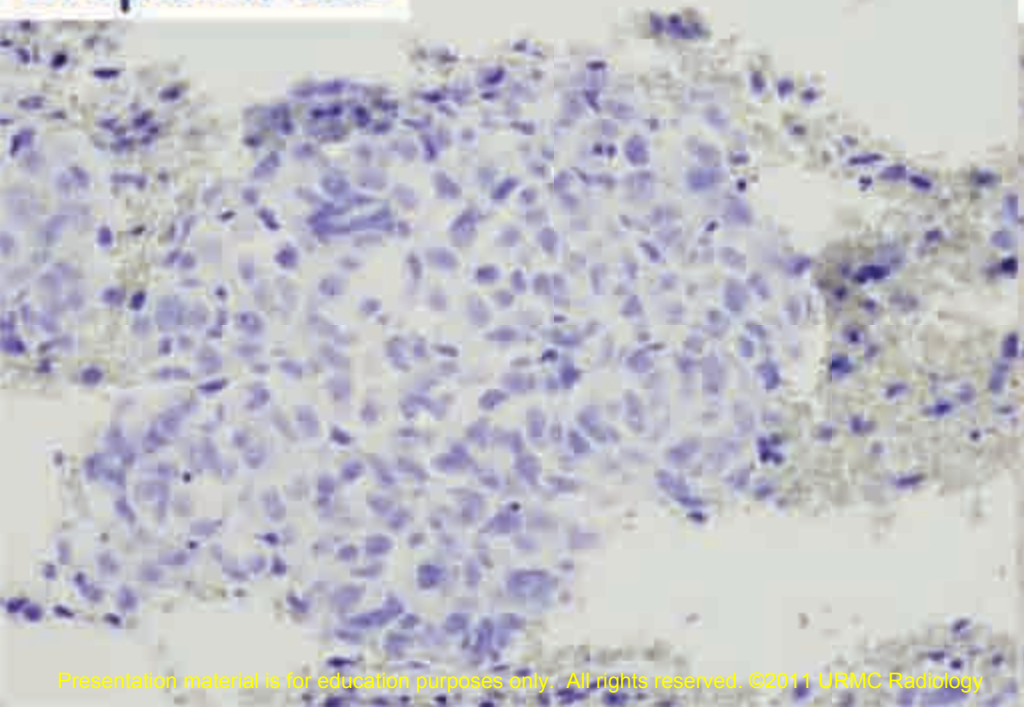
Bone, sacrum, CT-guided FNA:
Cell block, H & E stain

Bone, Sacrum, CT-guided FNA:
Immunohistochemical stains

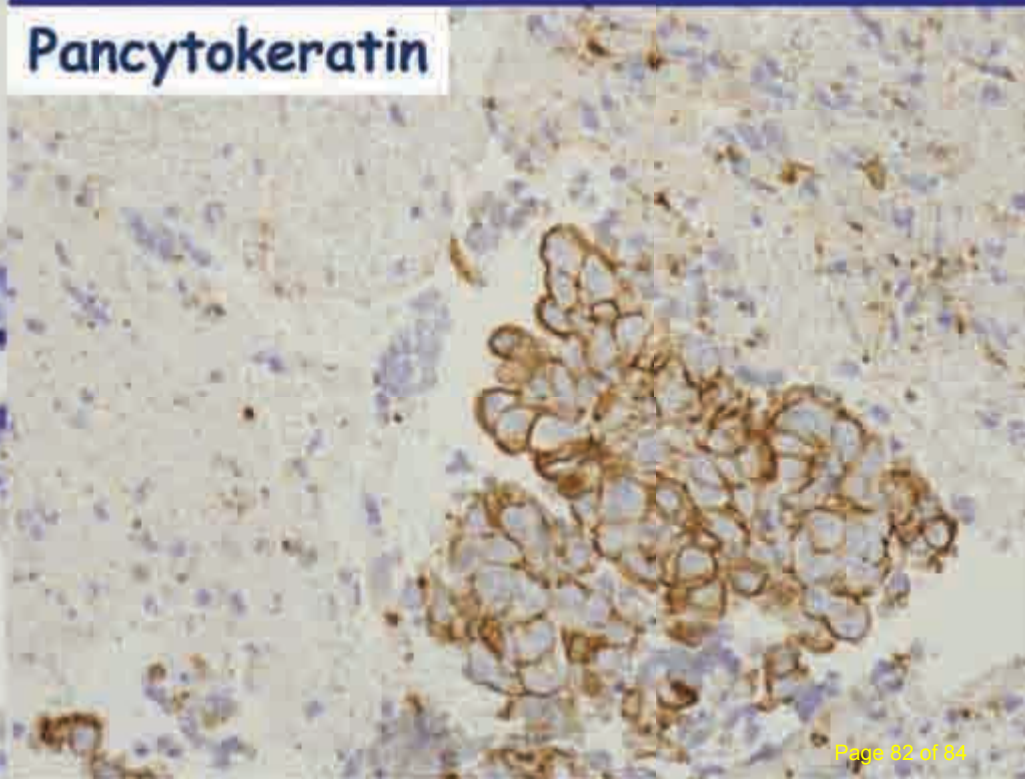
Prostatic acid phosphatase (PAP)



Uroplakin III



Pancytokeratin



Bone, sacrum, CT-guided fine needle aspiration:

Positive for poorly differentiated adenocarcinoma, most likely prostate primary.

Tumor cells in cell block are + for immunohistochemical stains pan-cytokeratin, PAP (prostatic acid phosphatase), p63 (focal) and negative for CK5/6, HMWCK, TTF-1, Napsin A, PSA, PAX-8, Uroplakin III, and mucicarmine histochemical stain.

The previous cases of papillary urothelial carcinoma, Grade II and prostate adenocarcinoma, Gleason score 5 + 3 were reviewed. Tumor morphology in association with immunohistochemical staining pattern suggests that the current tumor is most likely of prostate origin.

Prostate Carcinoma

- 2nd leading cause of cancer-related death among American men (after lung)
- Most commonly diagnosed cancer in American men
- 1:10 men will develop prostate carcinoma in United States (only 3% DOD)
- More common in African-American men
- Often have elevated PSA (prostate cancer cells secrete 10x PSA than normal cells)
- Bony mets are usually osteoblastic
  - More often lumbar spine, sacrum, or pelvis