

Interesting case conference

2/04/13

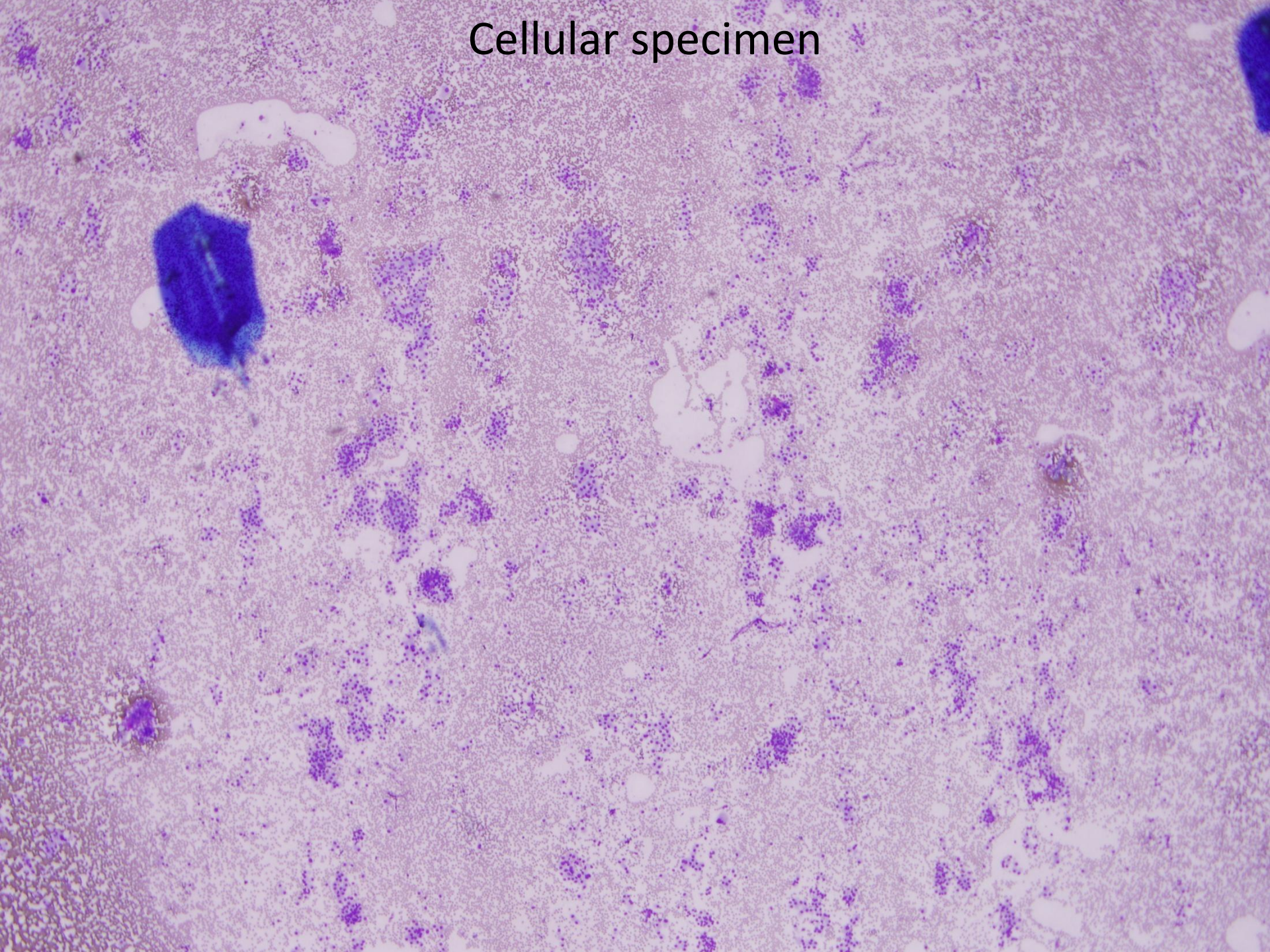
Clinical Data:

- Previously healthy 31-year-old man referred to Endocrinology clinic for consultation regarding multinodular goiter
- Two sisters diagnosed with unspecified thyroid cancer.
- **Thyroid US findings:** Multinodular thyroid with dominant nodule in the right (0.8 cm) with focal coarse calcification. All of the observed nodules are subcentimeter in size.

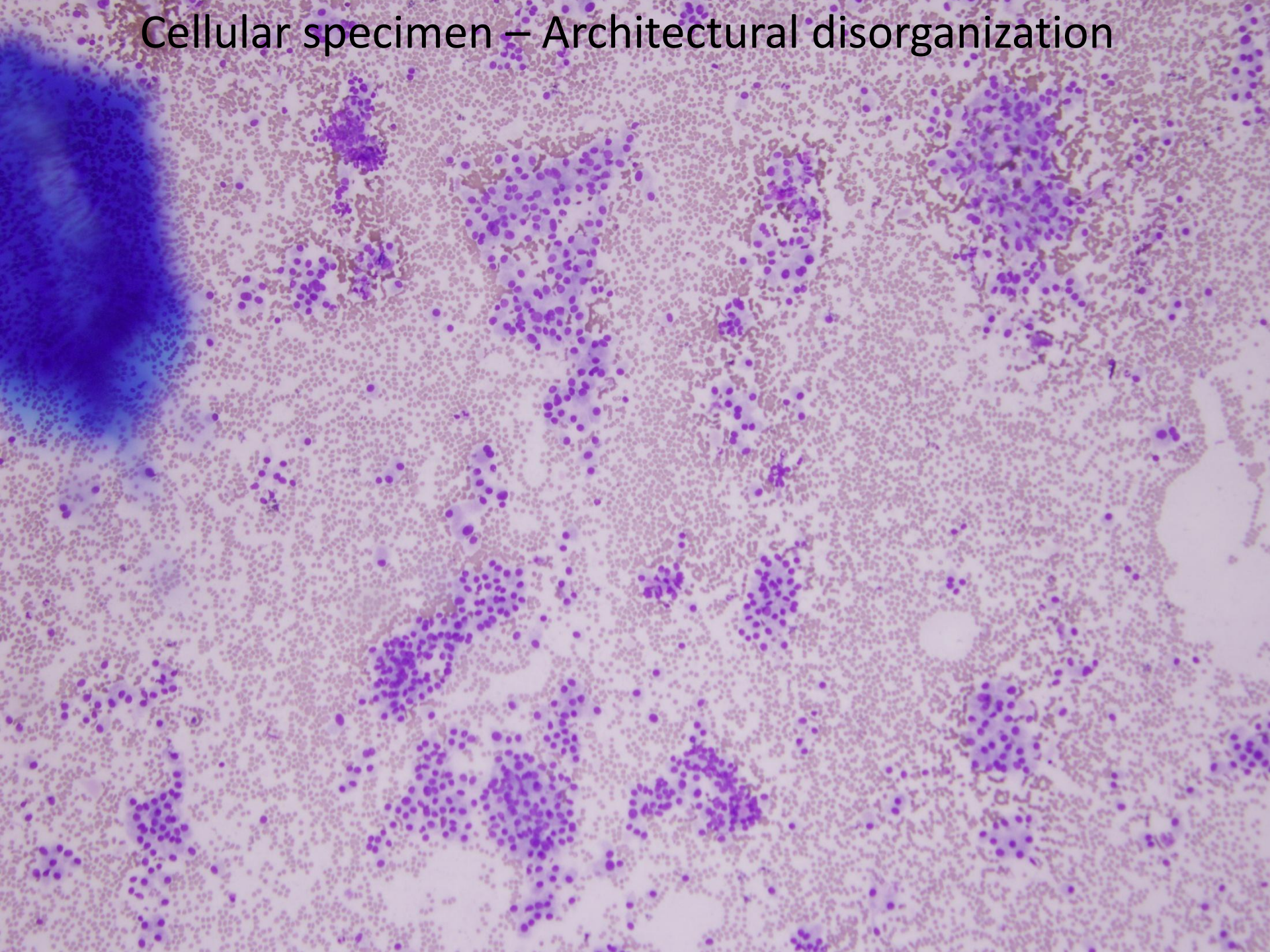
On-site assessment for adequacy:

Diff-Quik smears examined.

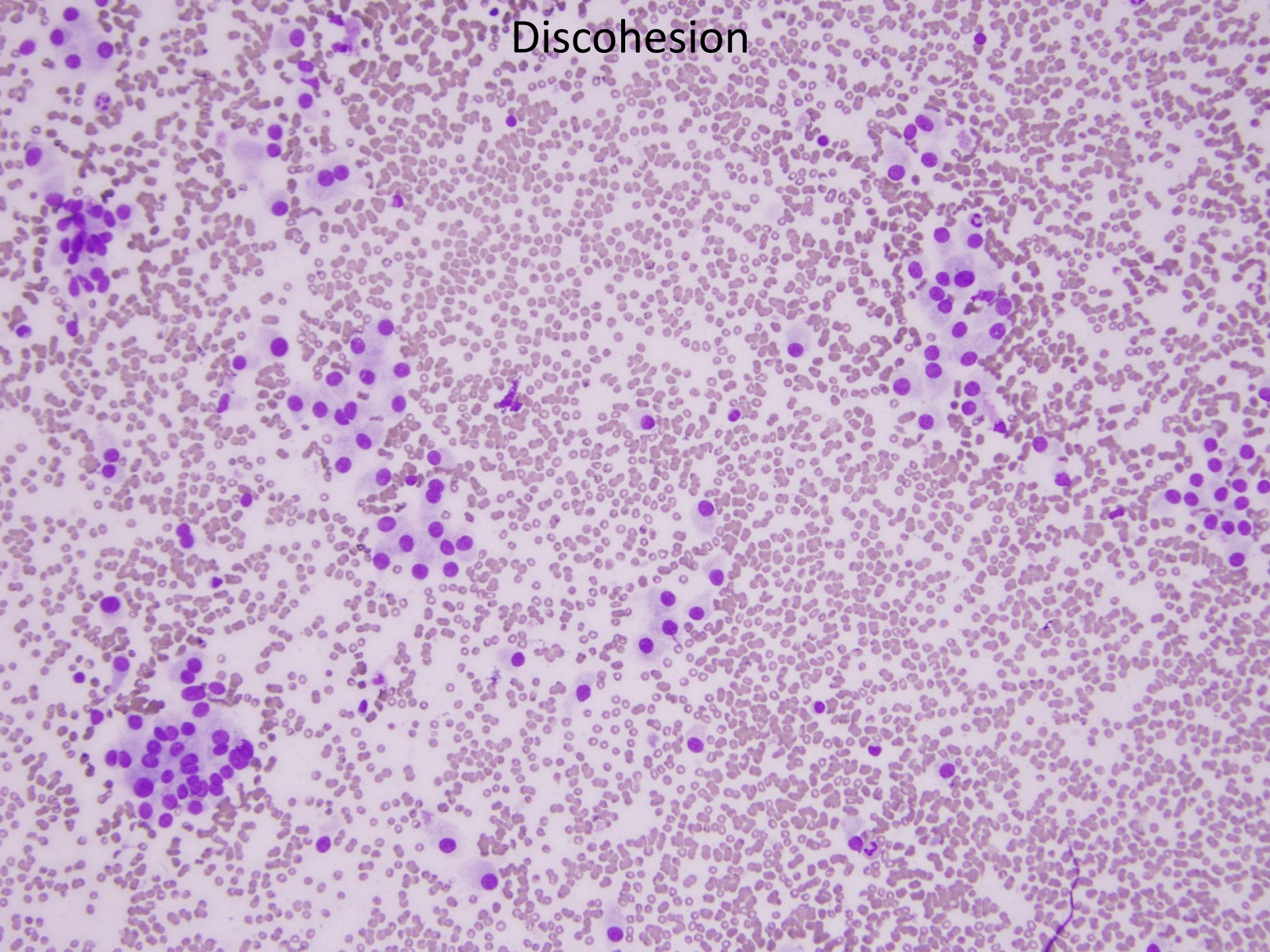
Cellular specimen



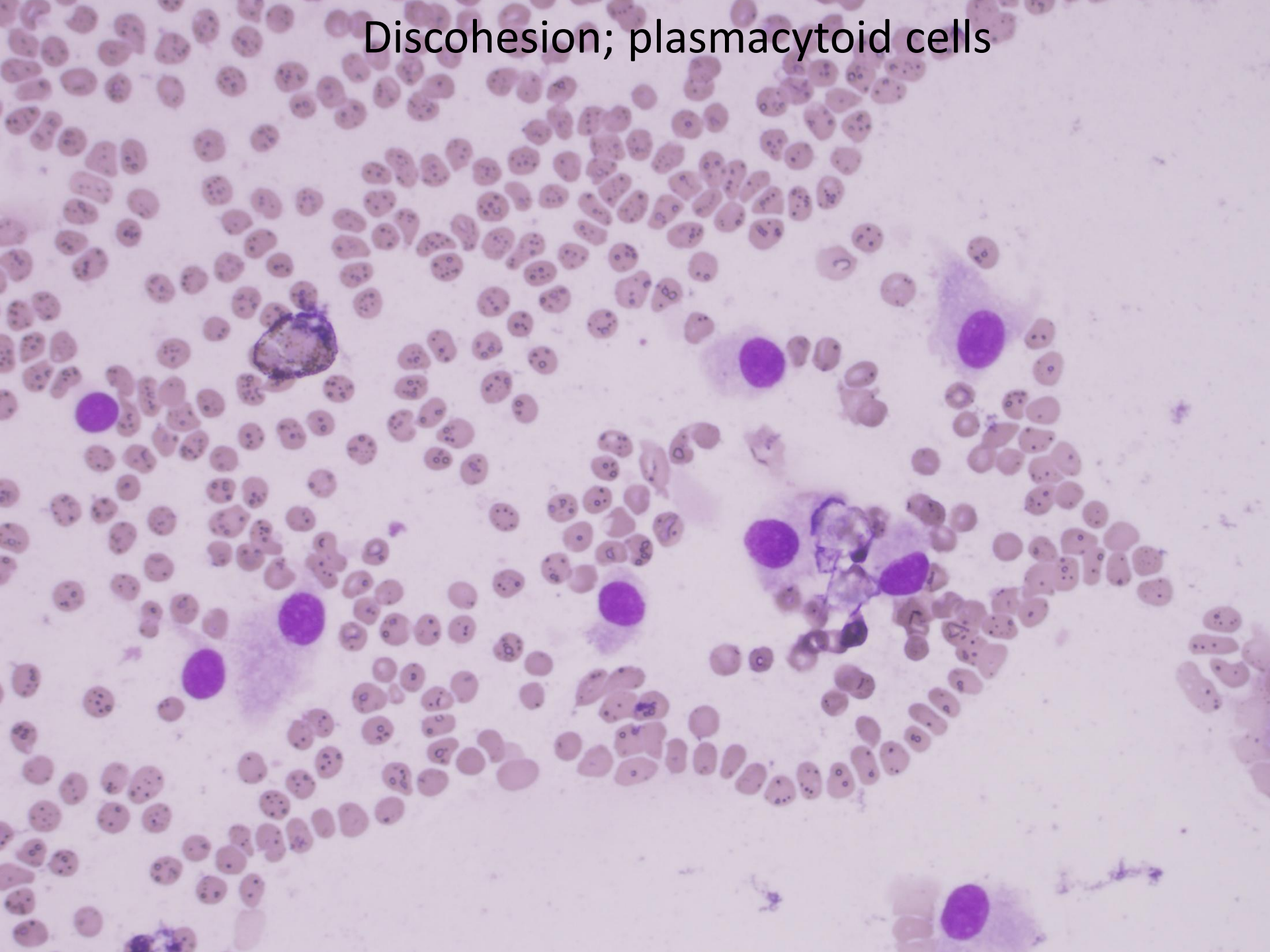
Cellular specimen – Architectural disorganization



Discohesion



Discohesion; plasmacytoid cells



Differential Diagnosis:

Hurthle cell neoplasm

Hurthle cell adenoma vs. carcinoma

Medullary carcinoma

Metastasis

Dialogue between pathologist and endocrinologist:

Path: “What exactly is the family history of thyroid cancer?”

Endo: “I think it’s papillary thyroid carcinoma...let me ask the patient...the patient states medullary carcinoma.”

Path: “That’s what I was contemplating...could you draw a serum calcitonin?”

Endo: “Oh, I see that a serum calcitonin was measured one month ago.”

SERUM CALCITONIN – first previous measurement

RESULT

108 pg/mL

REFERENCE RANGE

< 18 pg/mL

Results from Warde Medical Laboratory Ann Arbor, MI

Dialogue between pathologist and endocrinologist:

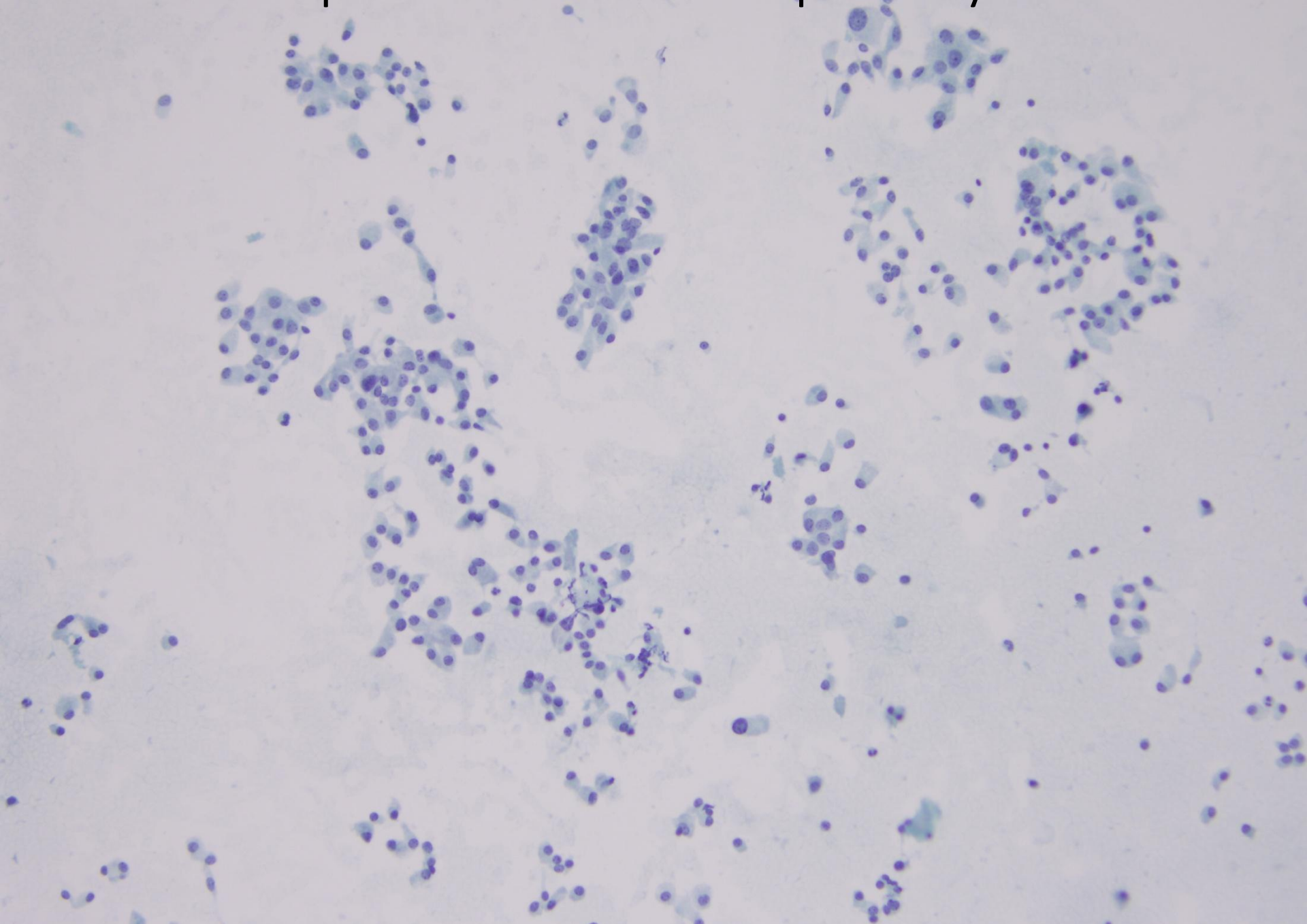
Path: “I think medullary carcinoma is a very real possibility here. Can we get two dedicated passes for the cell block?”

Endo: “Sure.”

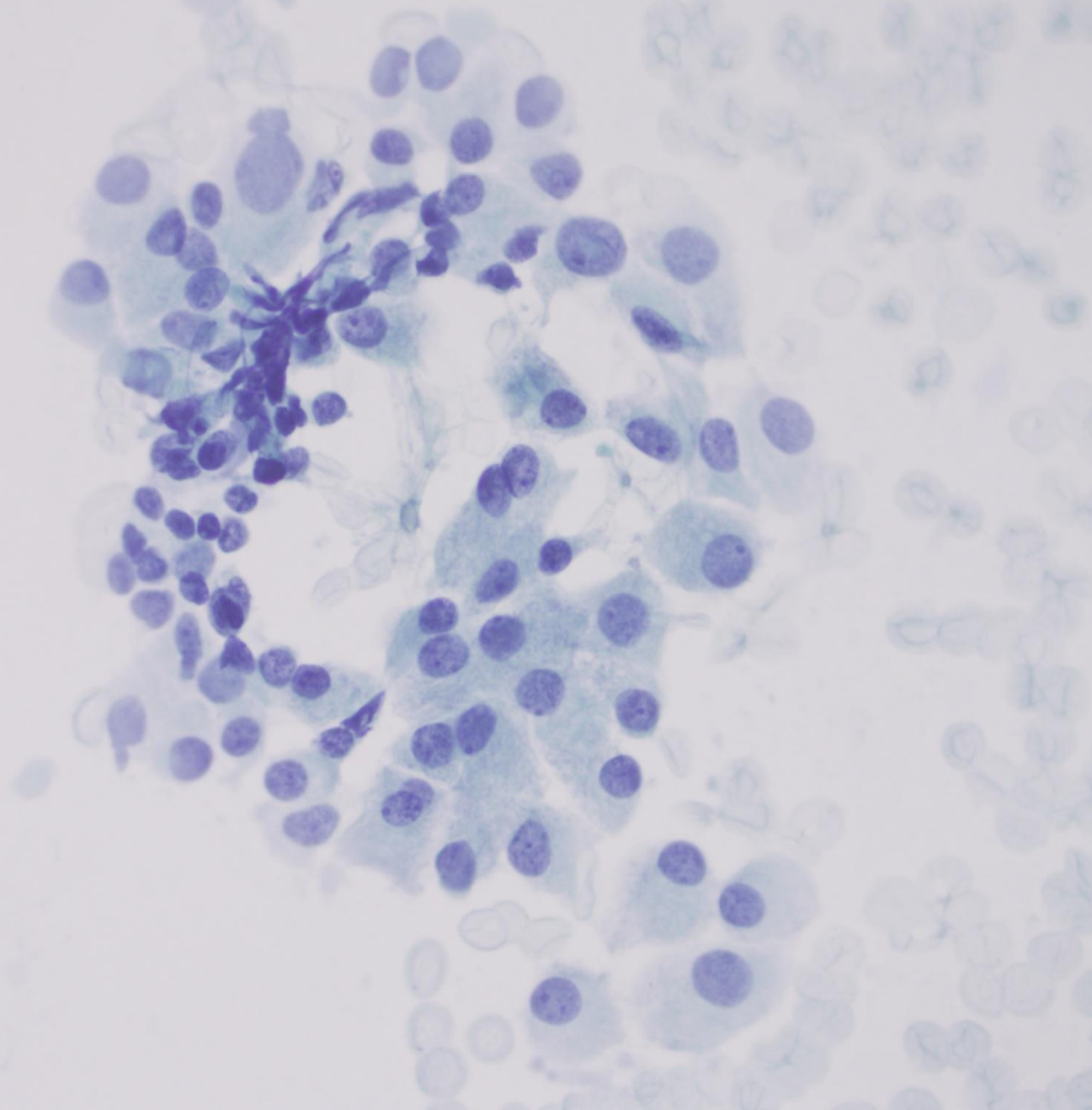
Path: “Just in case the cell block is acellular, could you also draw blood for serum calcitonin today?”

Endo: “Sure.”

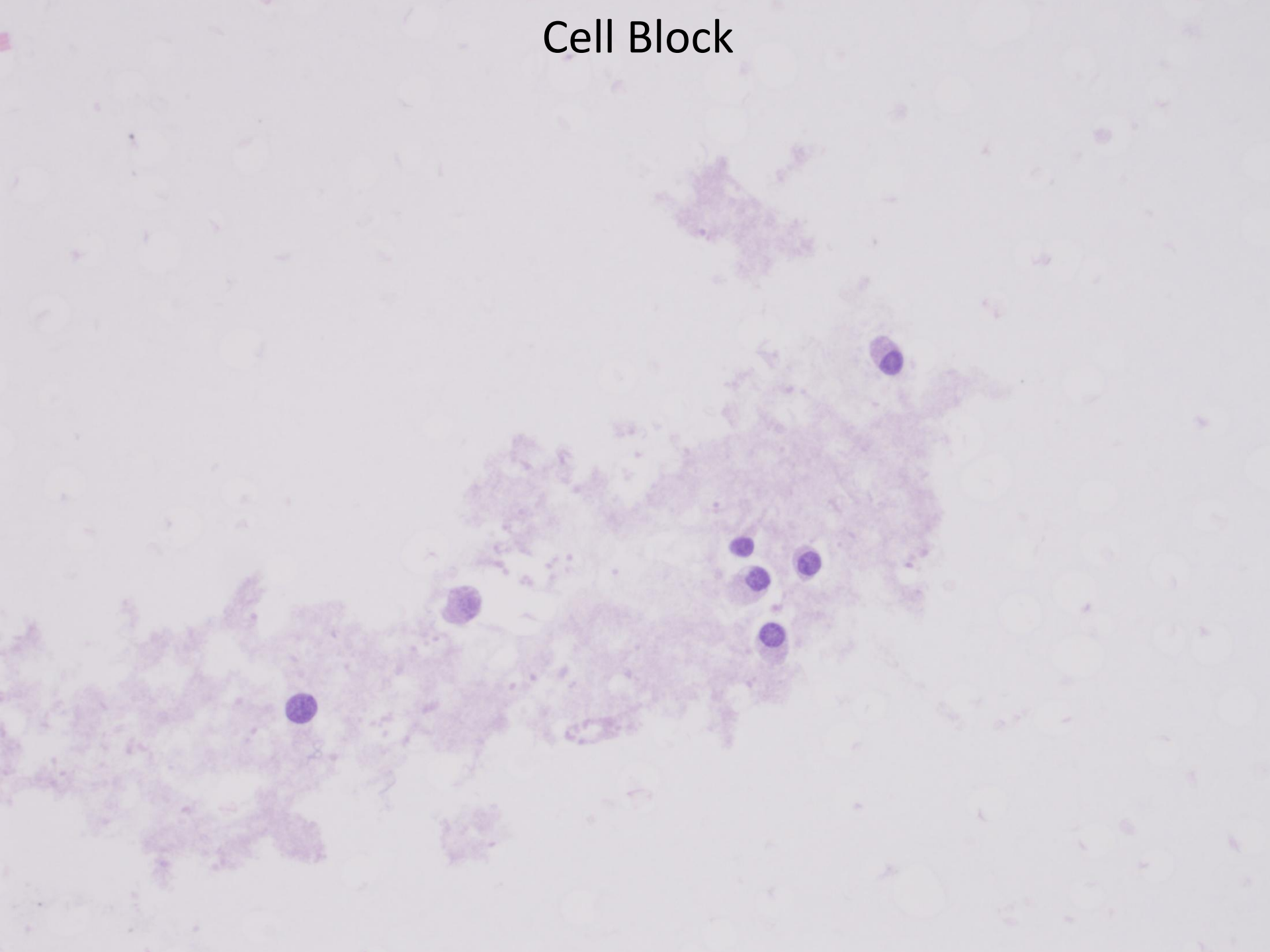
Cellular specimen – discohesive plasmacytoid cells



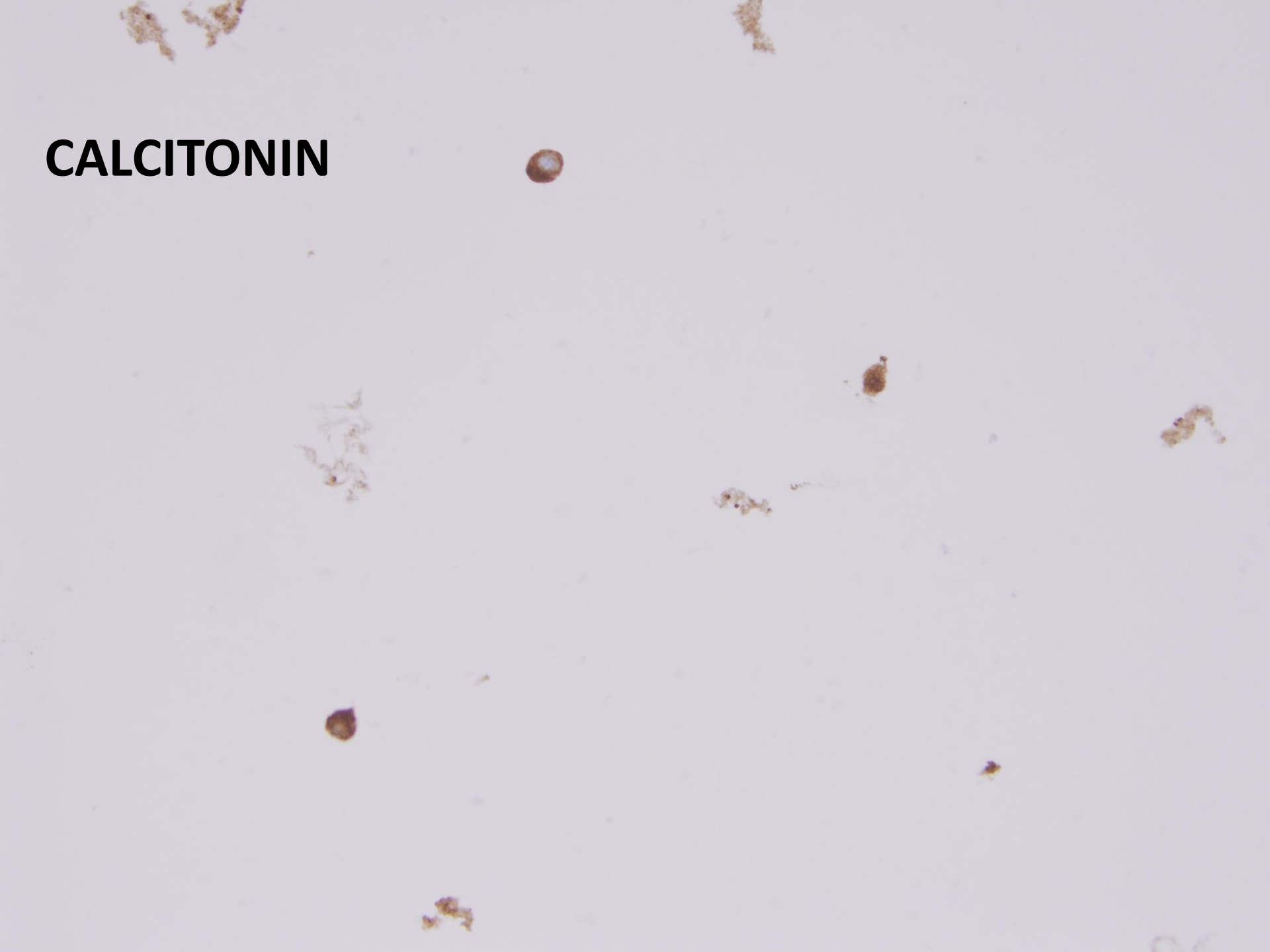
Abundant cytoplasm; granular chromatin; plasmacytoid cells



Cell Block



CALCITONIN



FINAL CYTOLOGY

MICROSCOPIC DIAGNOSIS:

Positive for medullary thyroid carcinoma (SEE COMMENT).

COMMENT:

The calcitonin immunostain strongly highlights the cells of interest in the cell block section.

SERUM CALCITONIN

RESULT

241 pg/mL

REFERENCE RANGE

< 18 pg/mL

CLINICAL FOLLOW-UP

The patient and his family underwent genetic testing and was found to have MEN2A.

Summary of Medullary Thyroid Carcinoma

- 5-10% of all thyroid carcinomas, arises from parafollicular cells
- 80-90% sporadic, occur in adults (mean age 50 yrs). Rest occur in children in association with syndromes like MEN
- 90% secrete calcitonin
- Treatment=> total thyroidectomy with excision of regional lymph nodes

Summary of Medullary Thyroid Carcinoma

- Predominantly isolated tumor cells, uniform in size and shape
- Cytoplasm moderate or abundant and finely granular
- Nuclei eccentrically placed (plasmacytoid appearance), some cases the cells are spindled and the cells look like a comet with a long cytoplasmic tail
- Coarsely granular salt-and-pepper chromatin with inconspicuous nucleoli
- Intranuclear inclusions can be observed
- Amyloid present in some but not all cases