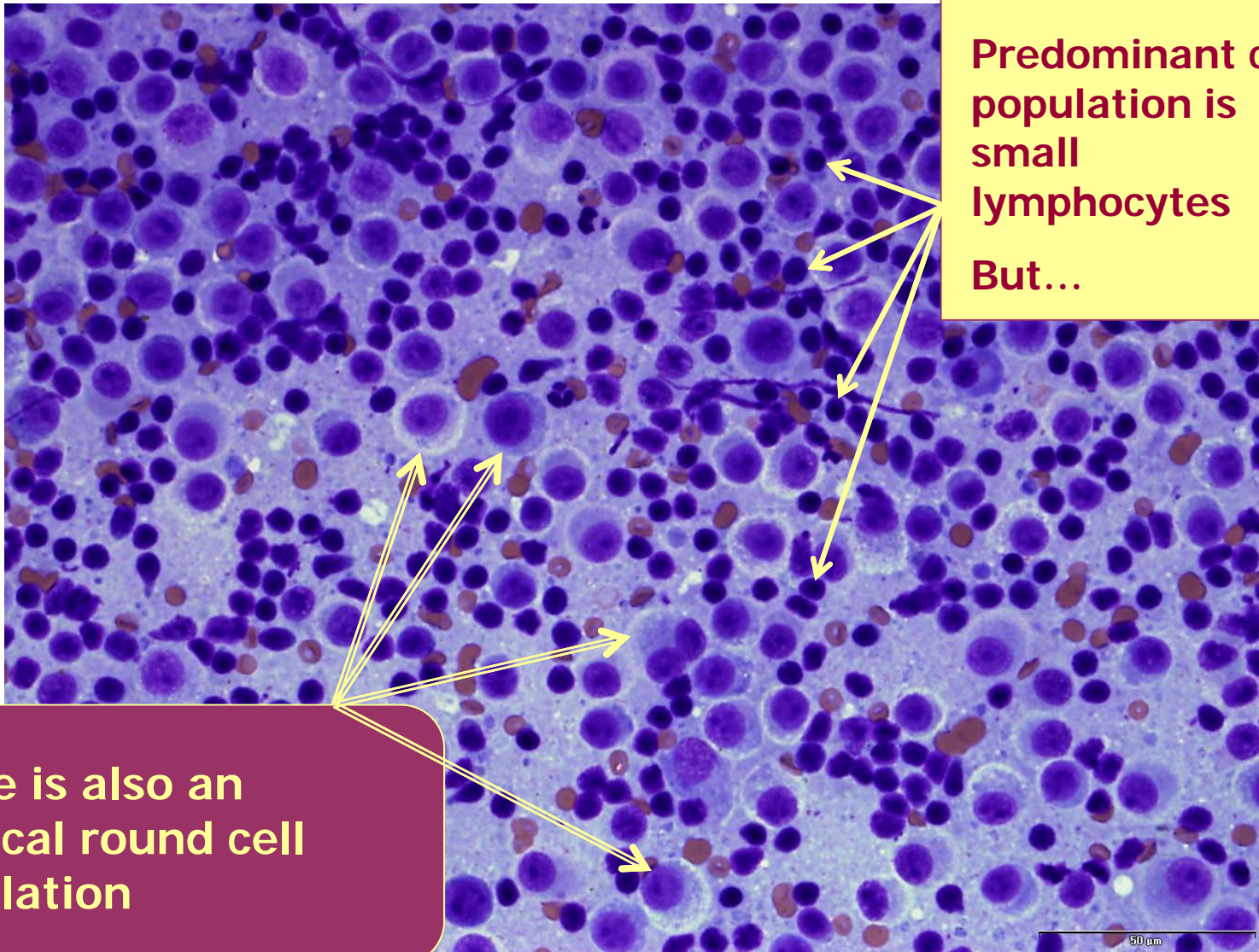




Aspirate from an enlarged right
popliteal lymph node in a 7 year old
MC mixed breed dog

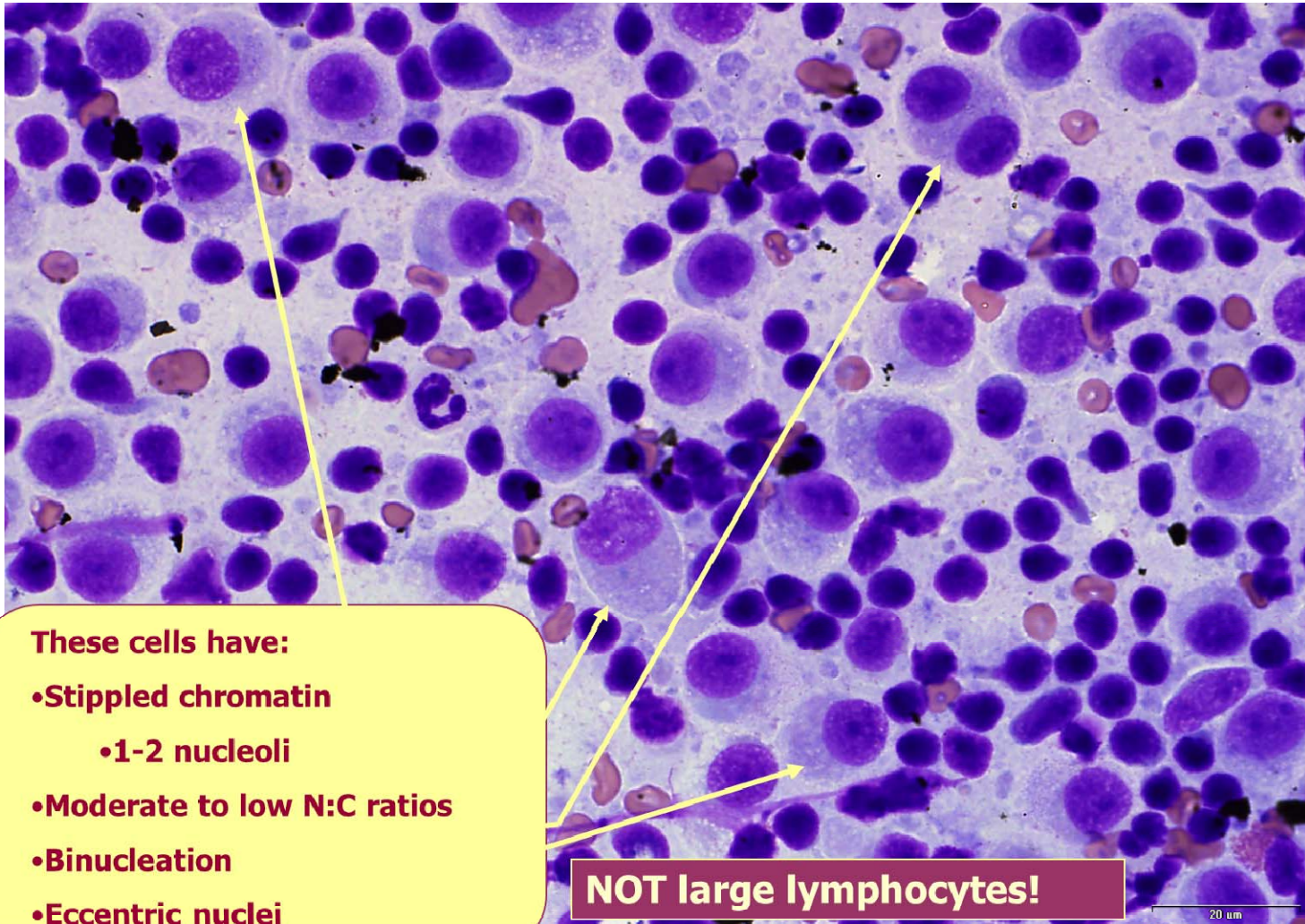
November 2013

Slide 1: Diff-Quik stain



Predominant cell population is small lymphocytes
But...

There is also an atypical round cell population



These cells have:

- **Stippled chromatin**
 - **1-2 nucleoli**
- **Moderate to low N:C ratios**
- **Binucleation**
- **Eccentric nuclei**

NOT large lymphocytes!

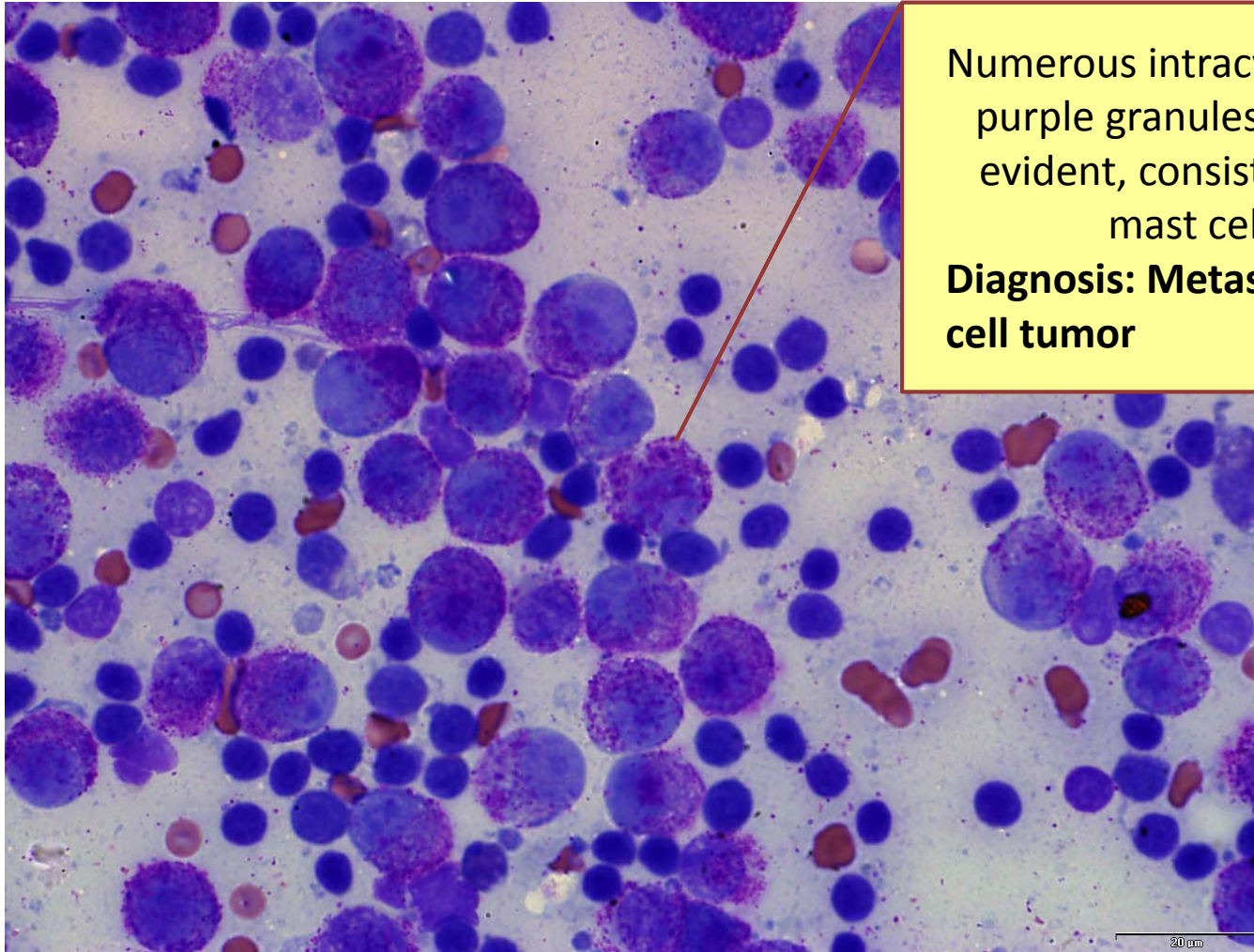
20 um



Interpretation: Metastatic discrete cell
tumor

Differentials???

Slide 2: Wright-Giemsa stain



Numerous intracytoplasmic purple granules are now evident, consistent with mast cells

Diagnosis: Metastatic mast cell tumor

Discussion

Romanowsky stains


- Most utilized cytological stain in vet med
- Combination of acidic dyes (eosin family) & basic dyes (thiazin family) to bind cell structures

Aqueous Romanowsky stains

- Water-based dyes
- Examples: Dip stains (Diff-Quik, Hema 3)

Methanolic Romanowsky stains

- Methanol-based dyes
- Examples: Wright's or Wright-Giemsa

- 
- Mast cells are often easily ID'd on cytology by their characteristic deep purple granules
 - However, there has been increasing anecdotal and published accounts of mast cell granules failing to stain well with dip stains such as Diff-Quik^{1,2,3}
 - Reason remains unclear
 - Increased fixation time was thought to improve staining, but a recently published study failed to corroborate this.

References

1. Allison RW, Velguth KE. Appearance of granulated cells in blood films stained by automated aqueous versus methanolic Romanowsky methods. *Vet Clin Pathol.* 2010; 39: 99-104.
2. Cannas Simoes JP, Schoning P. Canine mast cell tumors: a comparison of staining techniques. *J Vet Diagn Invest.* 1994; 6: 458-465.
3. Jackson DE, Selting KA, Spoor MS, Henry CJ, Wiedmeyer CE. Evaluation of fixation time using Diff-Quik for staining of canine mast cell tumor aspirates. *Vet Clin Pathol.* 2013; 42: 99-101.