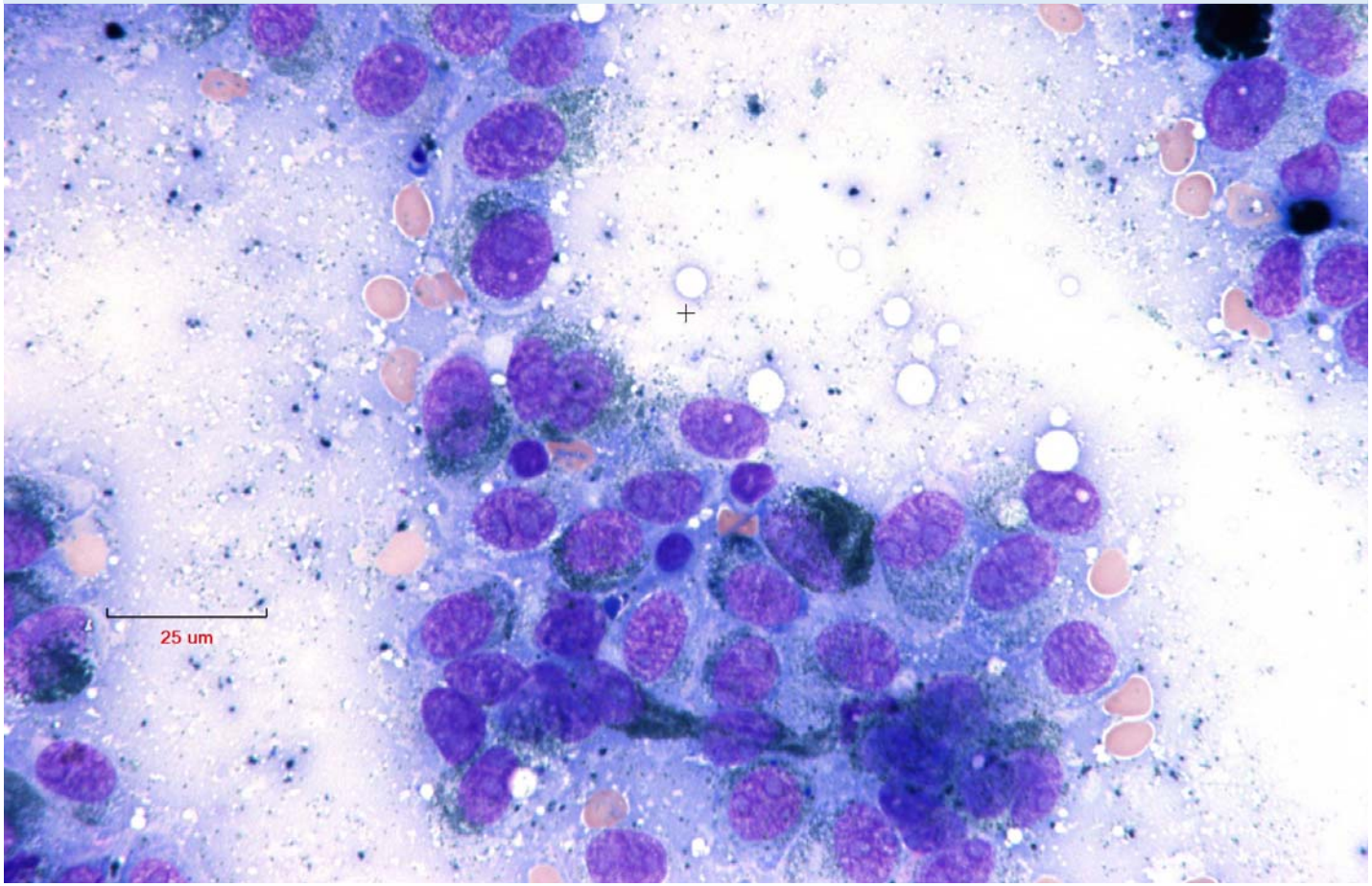
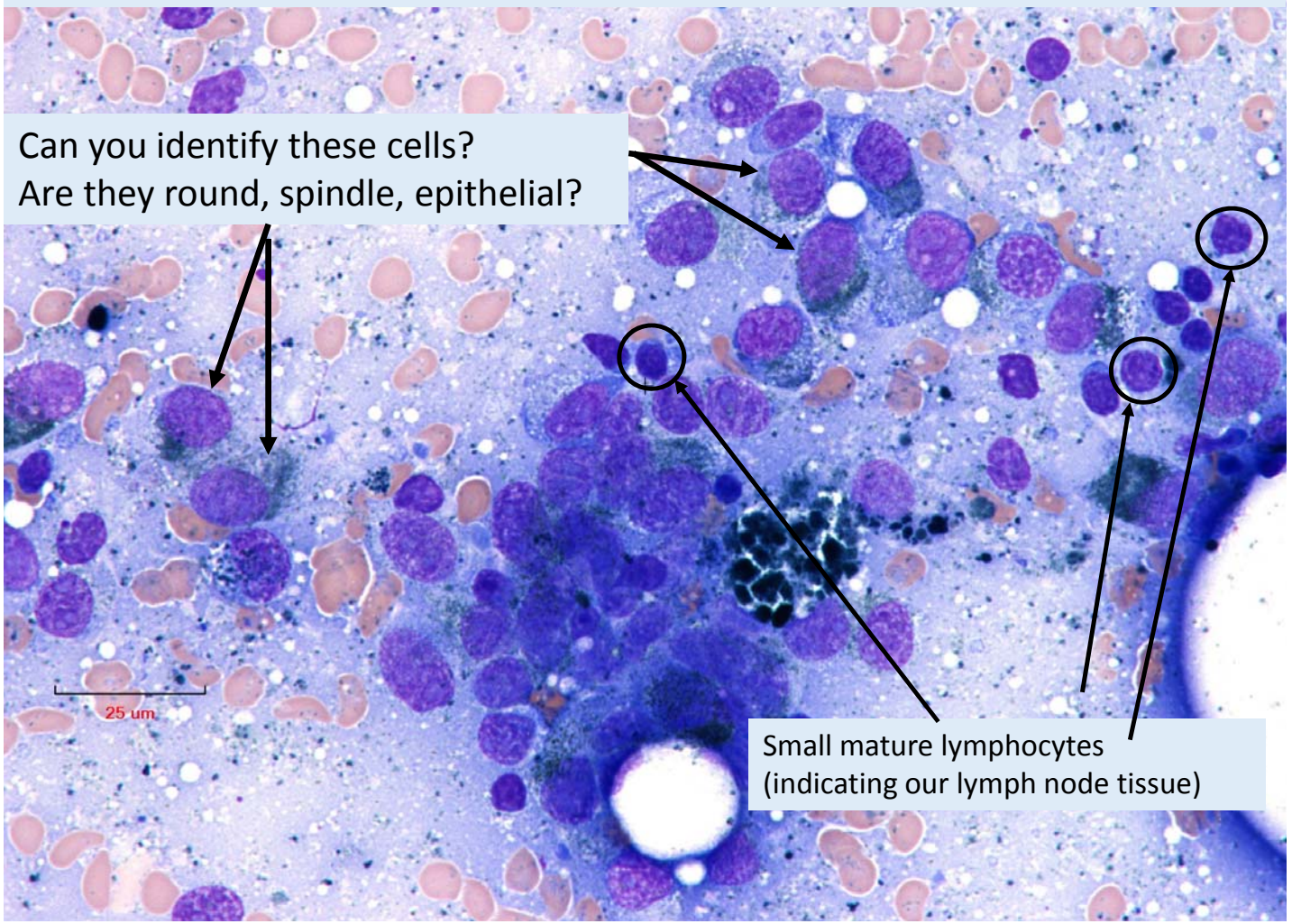
Aspirate of a submandibular lymph node

from a 6 year old male dog

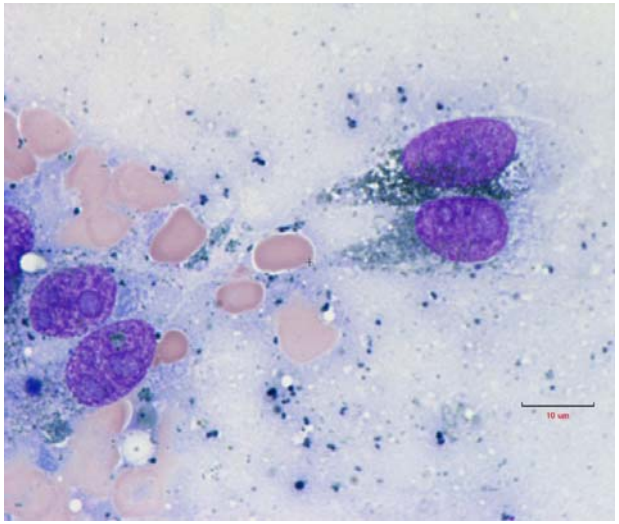


Are these the population of cells we expect to see in a lymph node?

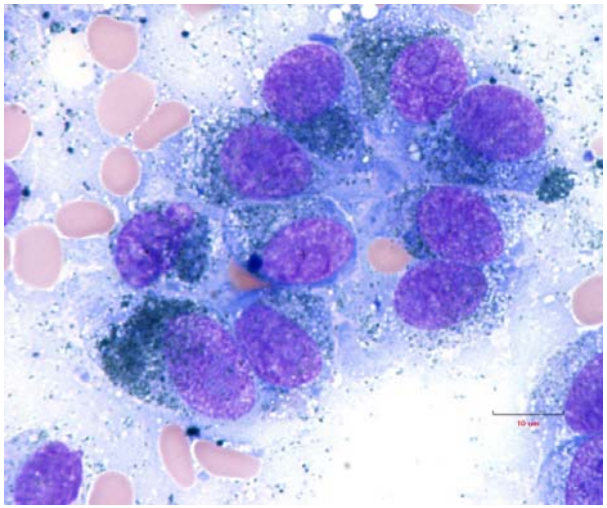


Atypical cell population, are the cells round, spindle or epithelial?

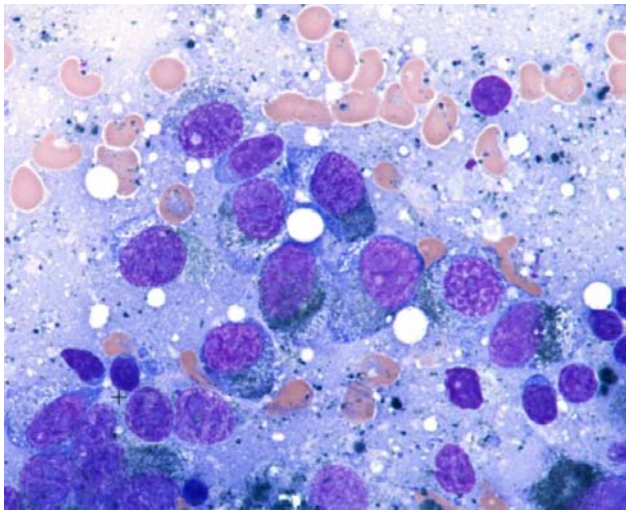
Same mass



Spindle



Epithelial

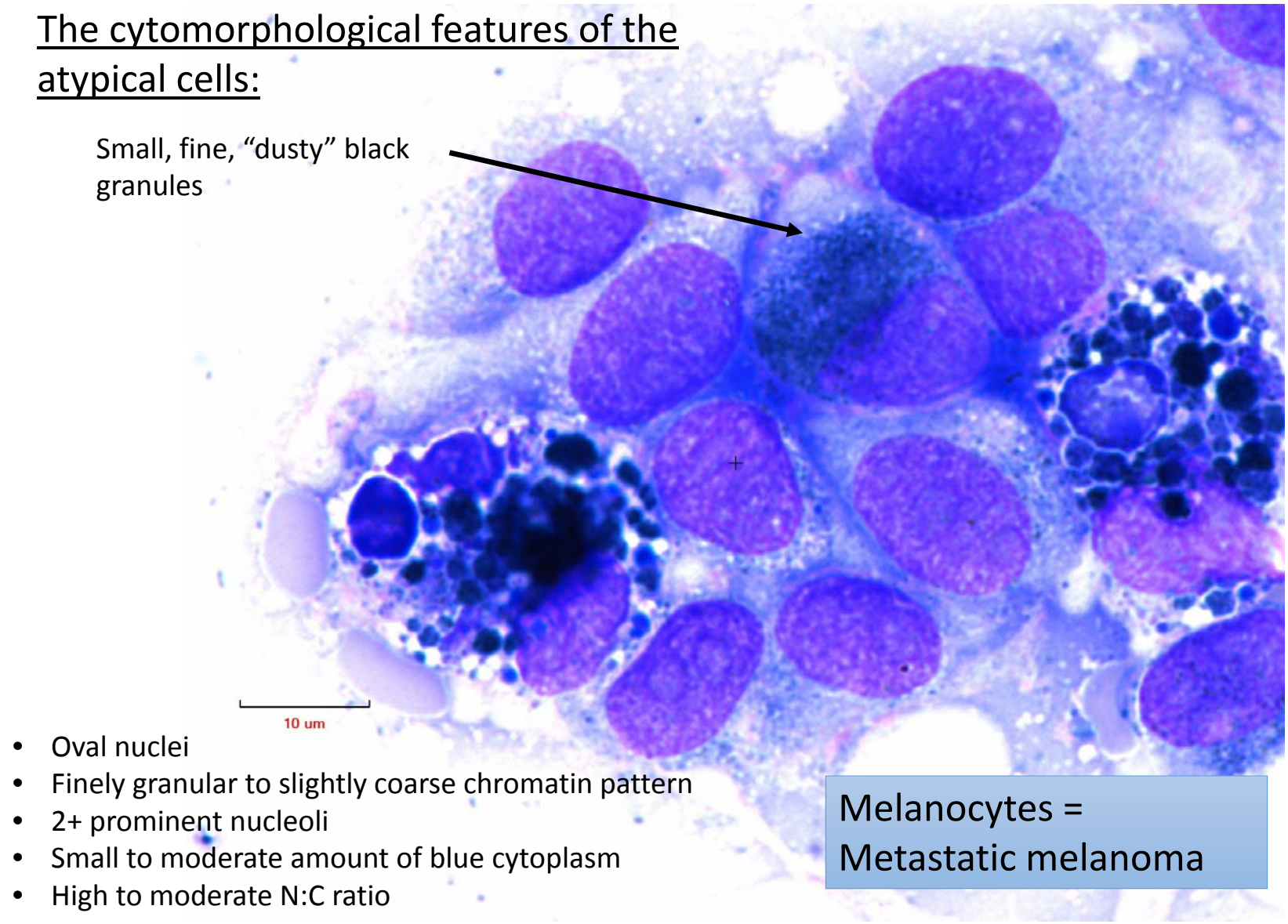


Round

<u>Question</u>: what are the black granules within the cytoplasm?

The cytomorphological features of the atypical cells:

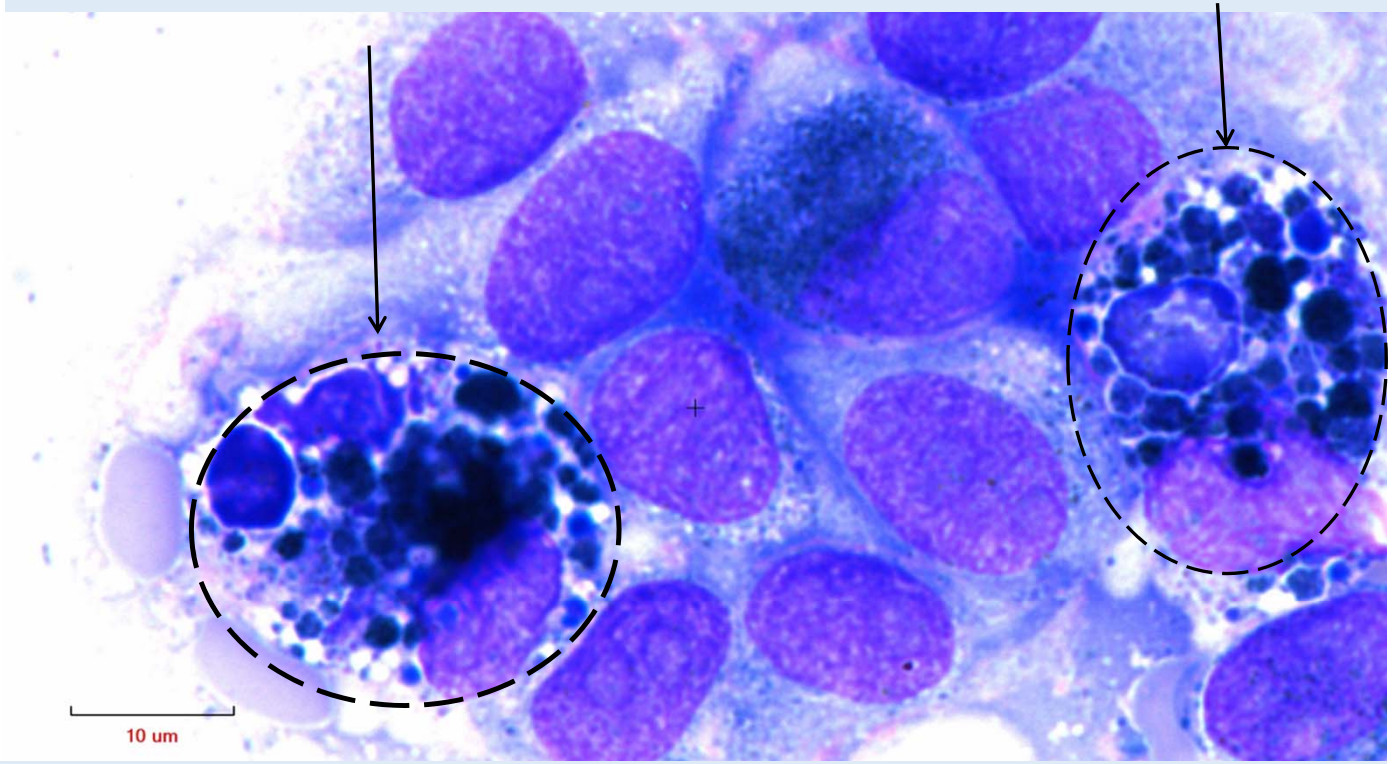
Small, fine, “dusty” black granules



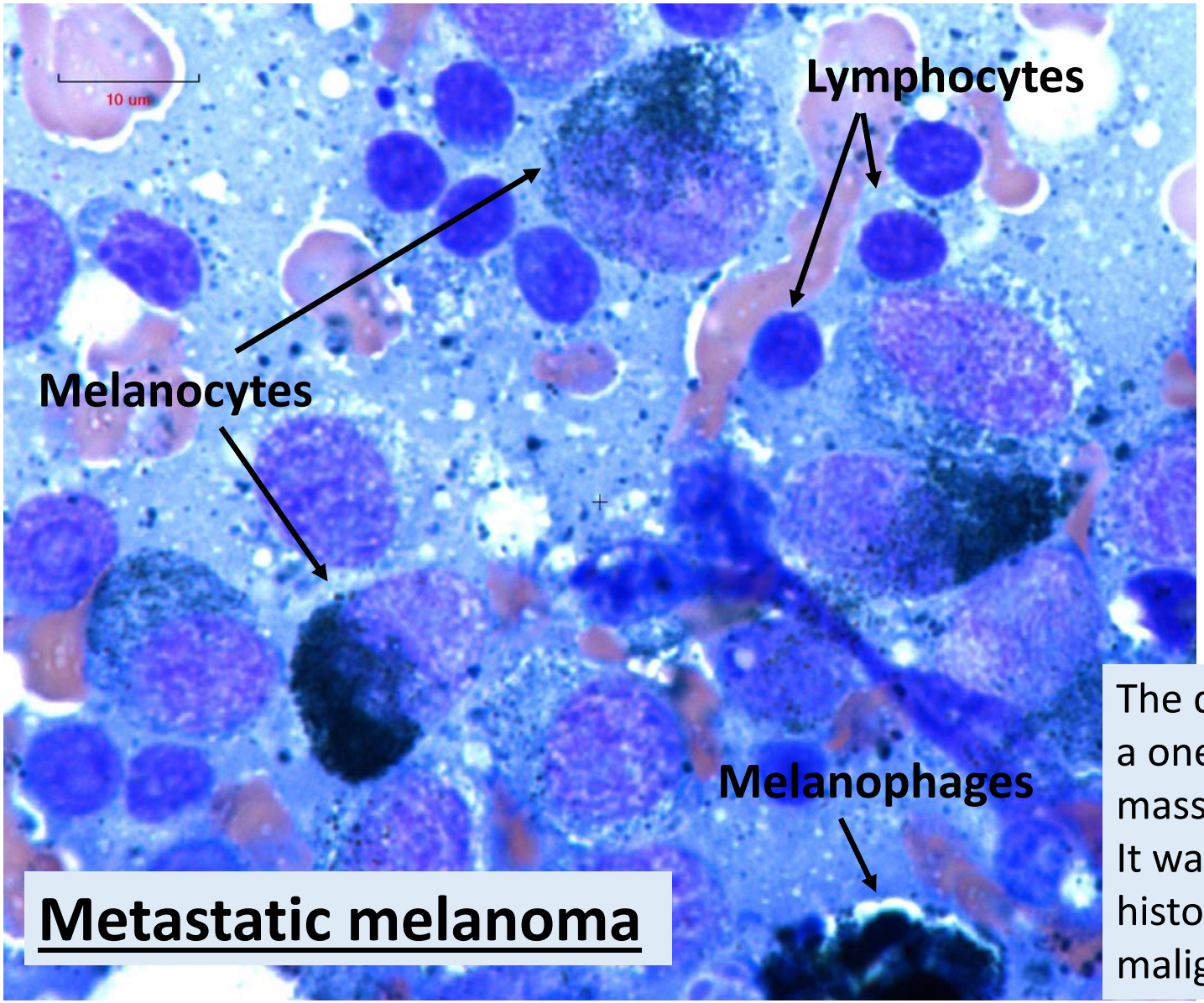
- Oval nuclei
- Finely granular to slightly coarse chromatin pattern
- 2+ prominent nucleoli
- Small to moderate amount of blue cytoplasm
- High to moderate N:C ratio

Melanocytes = Metastatic melanoma

But what about these cells? They appear different.
They have globular, round, black pigments that vary in size, consistent with macrophages that contain phagocytized melanin→ **melanophages**



Melanophages can be present in normal lymph nodes any time there is damage to melanocytes that release free melanin into the area drained by the lymph node either by non-neoplastic cells (damage to pigmented skin) or neoplastic cells (melanoma). **Differentiation from melanocytes has important clinical impact!**



Metastatic melanoma

The dog in our case had a one month history of a mass on the upper lip. It was diagnosed on histopathology as a malignant melanoma

Canine Oral Melanoma

- In general, oral melanomas have worse prognosis than cutaneous melanomas.
- Melanomas are one of the most frequently diagnosed neoplasms of the canine oral cavity, and the majority of these are malignant. [1]
- Cocker Spaniel, Miniature Poodles, Pekingese/Poodles and Chow Chow are predisposed to oral melanoma.
- The most common location of oral melanoma is the gingiva.
- Oral melanomas are tumors of adult/aging dogs (average age 11.4 years, range 1-91).
- Metastasis of oral melanomas are frequent with regional lymph nodes and the lungs most commonly affected.
- Prognosis of oral melanoma is poor and unrelated to mitotic index or tumor location. [2]

Canine Amelanotic Melanoma

- Poorly pigmented amelanotic melanocytic neoplasms can be diagnostically challenging on both cytologic and histopathologic exam
- Melaoncytes arise from embryonic neuroectoderm and commonly differentiates into spindloid or epithelioid cells
- The cellular features of these tumors may therefore be hard to differentiate from other neoplasms including carcinoma, soft tissue sarcoma, and round cell neoplasms such as lymphomas.
- Immunohistochemical stains can be used to detect amelanocytic melanoma
- **Melan-A, PNL-2, Tyrosinase-related protein-1 and 2** (TPR-1 and TPR-2) were found to be highly sensitive and 100% specific for detection of canine oral/lip amelanocytic melanoma.
- S-100 and microphthamia transcription factor (MiTF) were found to be highly sensitive but less specific for the detection of melanocytic neoplasms, as they also labeled well-differentiated soft tissue spindle cell sarcomas. [3]

References

1. Smedley RC, Spangler WL, Esplin DG, Kitchell BE, Bergman PJ, Ho HY, Bergin IL, Kiupel M. Prognostic markers for canine melanocytic neoplasms: A comparitive review of the literature and goals for future investigation. Vet Pathol 2011;48:54-72.
2. Ramos-Vara JA, Beissenherz ME, Miller MA, Johnson GC, Pace LW, Fard A, Kottler SJ. Retrospective study of canine oral melanoma with clinical, histologic and immunohistochemical review of 129 cases. Vet Pathol 2000;37:597-608
3. Smedley RC, Lamoureux J, Sledge DG, Kiupel M. Immunohistochemical diagnosis of canine oral amelanotic melanocytic neoplasms. Vet Pathol 2011;48:32-40.