# 10-year-old, female/spayed Shetland Sheepdog

**History**

- Decrease appetite for several days
- Nonresponsive the morning of presentation

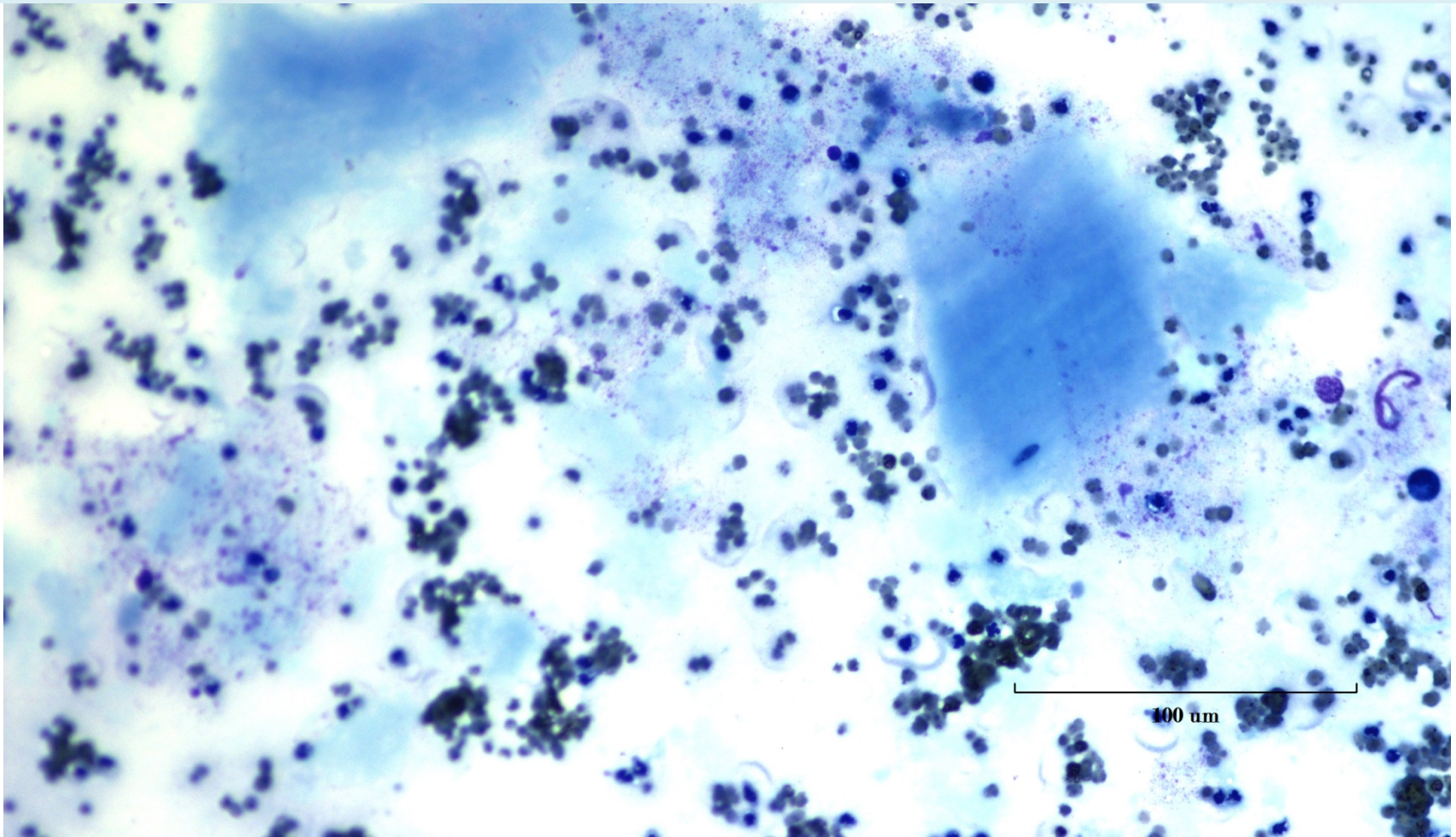
**CBC Findings:**

- Erythrocytosis
- Acute inflammatory leukogram characterized by
  - Left shift
  - Moderate toxic changes
  - Monocytosis
  - Lymphopenia

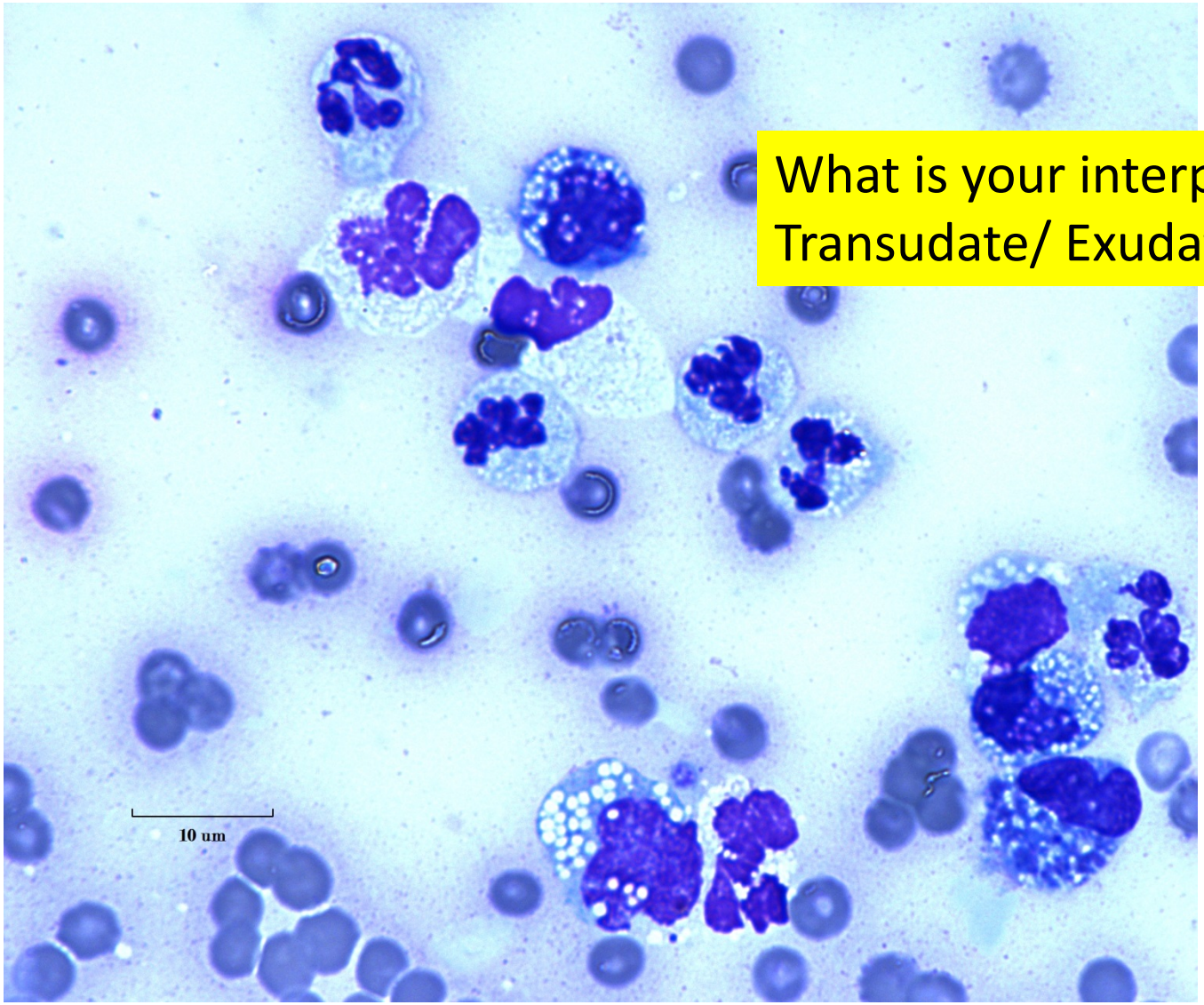
# Chemistry abnormalities

| Test | Result | | Units | Ref. Interval |
|---|---|---|---|---|
| Urea nitrogen | 69 | ↑ | mg/dL | 9-33 |
| Creatinine | 3.0 | ↑ | mg/dL | 0.5-1.5 |
| Protein, total | 4.8 | ↓ | g/dL | 5.4-7.6 |
| Albumin | 2.5 | ↓ | g/dL | 3.4-4.2 |
| Calcium, total | 8.9 | ↓ | mg/dL | 9.7-12.1 |
| Phosphorus | 10.8 | ↑ | mg/dL | 2.4-6.4 |
| Chloride | 100 | ↓ | mmol/L | 108-118 |
| Bicarbonate | 16 | ↓ | mmol/L | 18-29 |
| ALT | 222 | ↑ | U/L | 28-171 |
| ALP | 223 | ↑ | U/L | 1-142 |
| Creatine kinase | 1794 | ↑ | u/L | 128-328 |

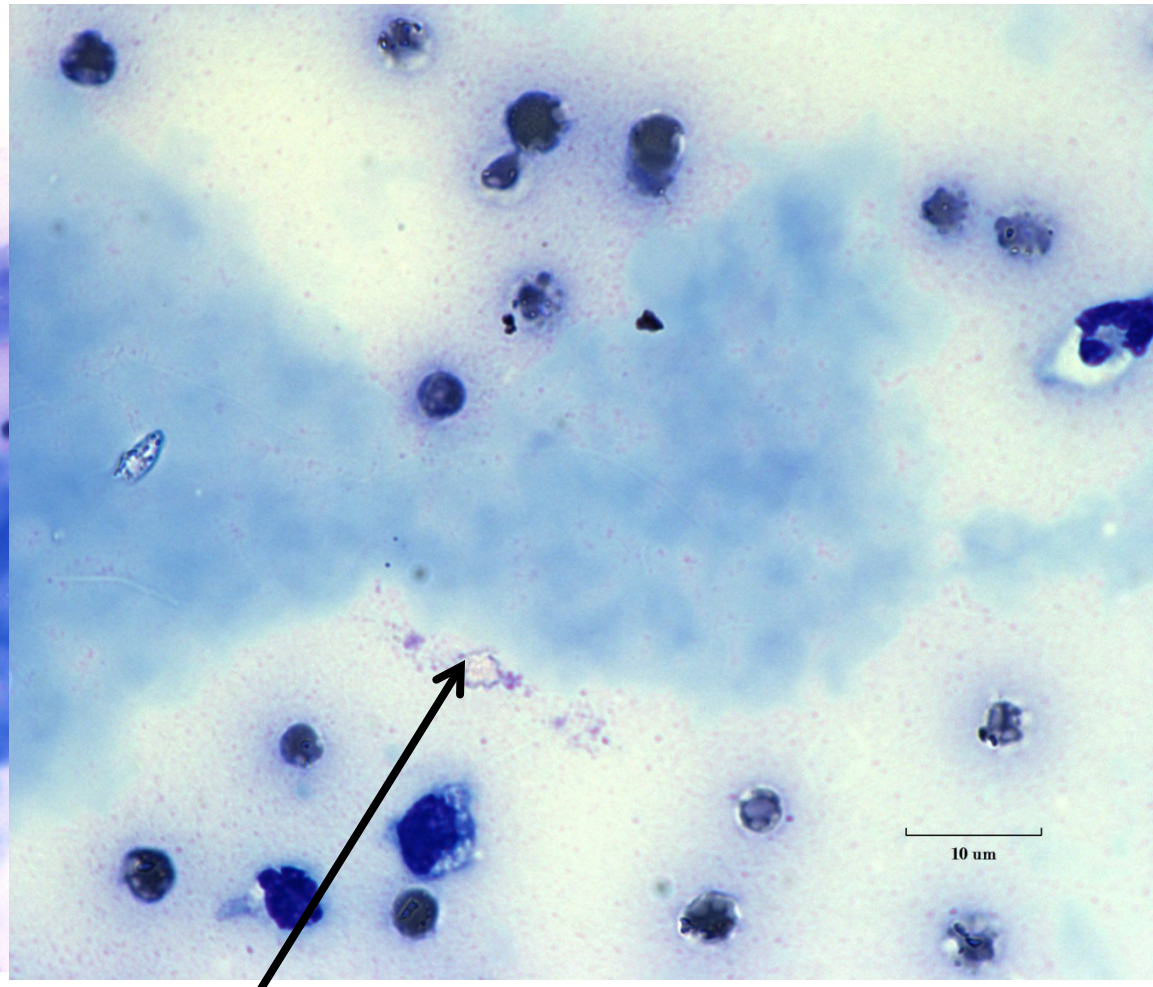
# Fine needle aspirate from abdominal fluid



# Abdominal fluid: TNCC = 17,820/uL
# Protein = 5.7 g/dL



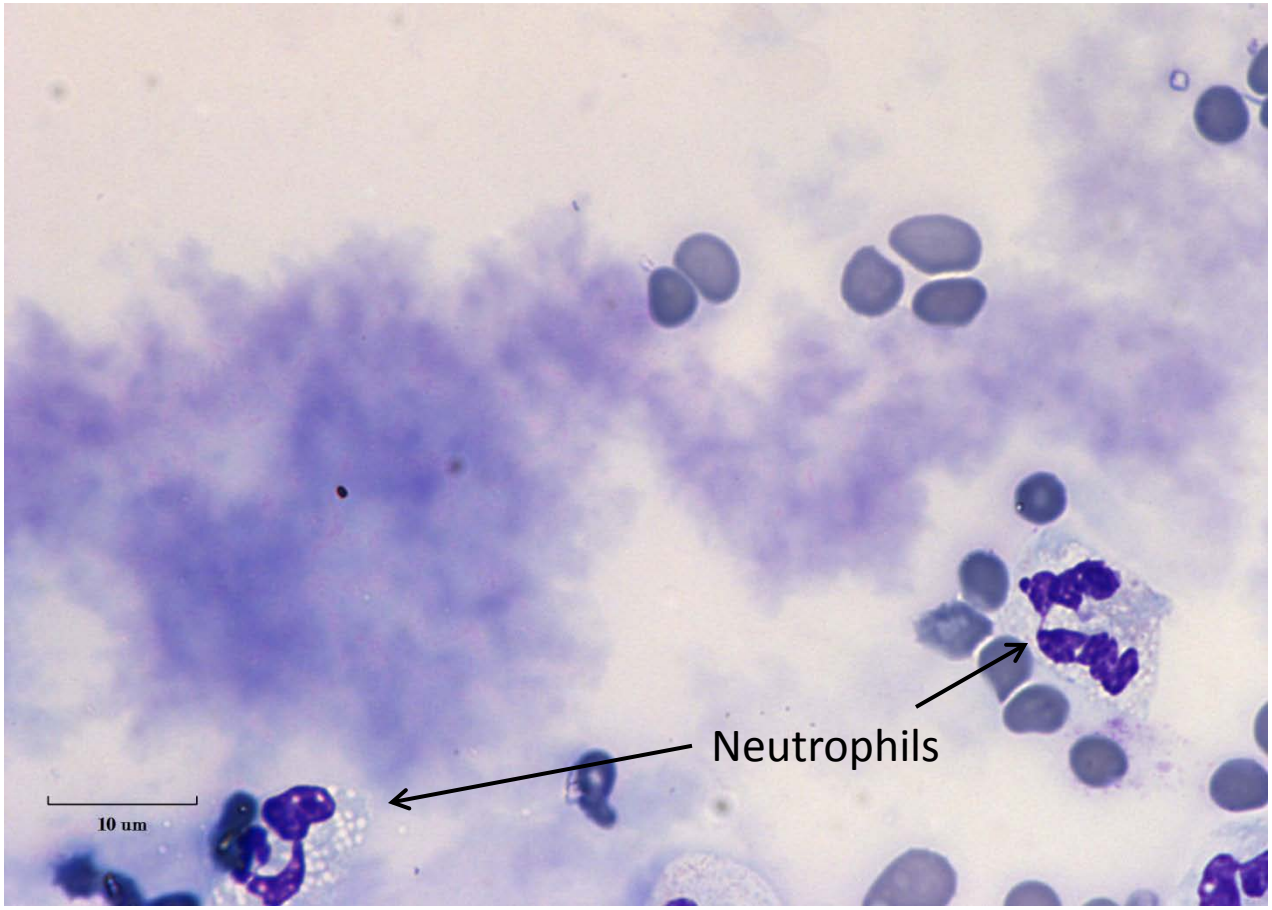

What is your interpretation:
Transudate/ Exudate?



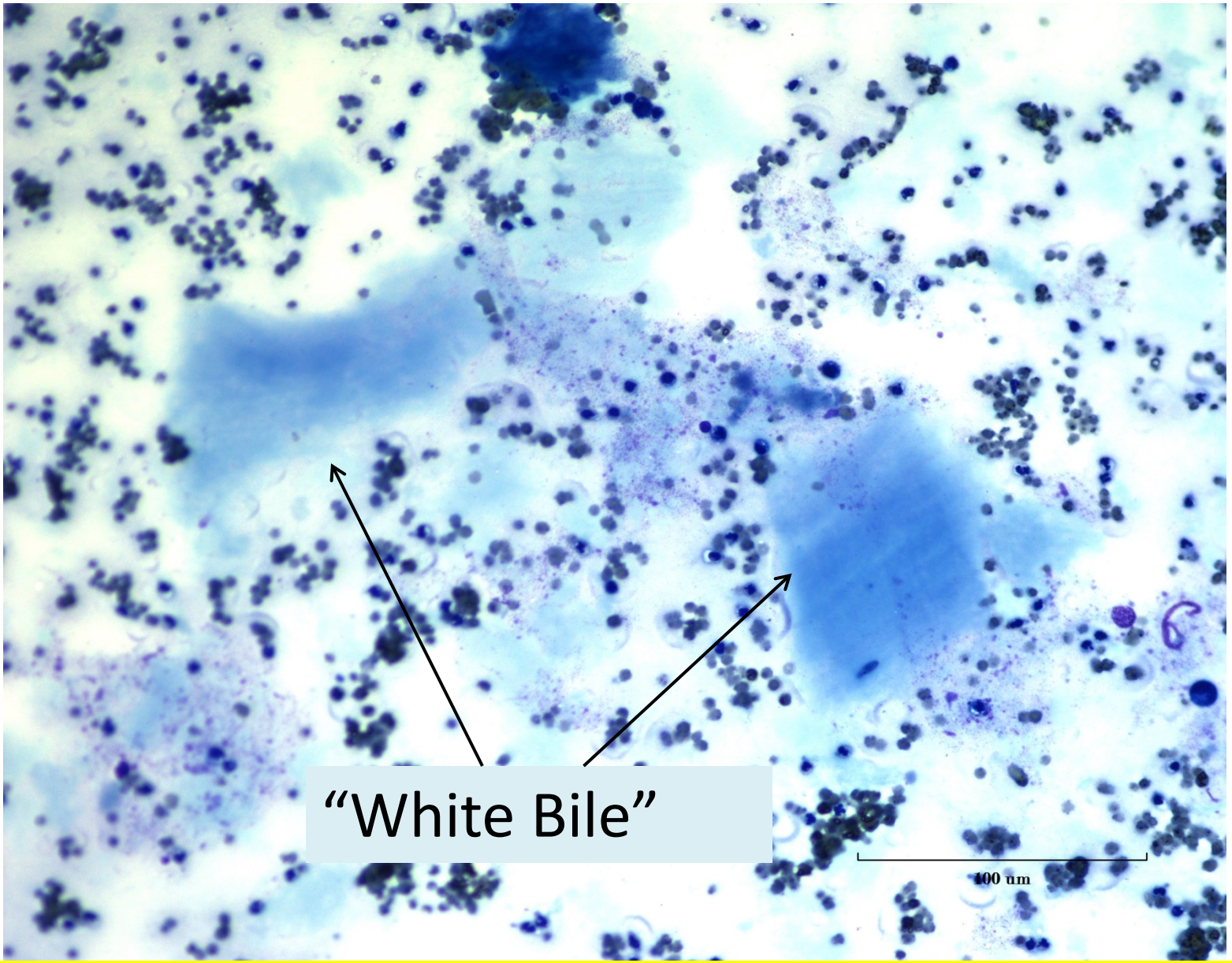

What is the blue matrix seen?

Bilirubin in serum< 0.2 mg/dL.

Bilirubin in abdominal fluid = 0.4 mg/dL




What is your interpretation?




Interpretation: Bile effusion (white bile) with neutrophilic macrophagic exudate

# Bile peritonitis in dogs

- Bile peritonitis is the inflammatory response of the peritoneal cavity to the presence of free bile
- Rupture of the biliary system may occur spontaneously or more commonly a complication of biliary tract inflammatory disease, obstruction, manipulation or trauma.
- Out of 45 cases of dogs with gallbladder disease, mucocele or bacterial gallbladder infection was the most common concurrent findings in dogs with gallbladder rupture. [1]
- Patients with sterile biliary effusion have a much lower mortality rate than those with septic biliary effusion.[2]
- Cytologic examination of the abdominal fluid typically shows golden to green pigment within macrophages or free in the background.

- If the abdominal fluid bilirubin concentration is greater than twice the concurrent bilirubin concentration a diagnosis of bile ascites is confirmed.

# “white bile” in cytology

- There are cases of bile peritonitis in which on cytological examination a blue acellular, mucinous, amorphous extracellular material will be the prominent cytological finding- **as seen in this case**. [3]
- Similar findings have been described in human patients secondary to extrahepatic biliary obstruction and is termed “white bile”.
- The etiology of white bile varies, however it is believed that it is produced by biliary and gall bladder epithelium as a sequela to extrahepatic biliary obstruction.

# References:


1. Crews LJ, Feeney DA, at el. Clinical, ultrasonographic, and laboratory findings associated with gallbladder disease and rupture in dogs: 45 cases (1997-2007).JAVMA. 2009;234(3):359-366.
2. Ludwing LL, Mcloughlin MA, at el. Surgical treatment of bile peritonitis in 24 dogs and 2 cats: a retrospective study (1987-1994). Vet Surg. 1997;26(2):90-98.
3. Owens SD, Gossett R, at el. Three cases of canine bile peritonitis with mucinous material in abdominal fluid as the prominent pathological finding. Vet Clin Pathol. 2003;32(3):114-120.