Diagnostic Exercise
From The Davis-Thompson Foundation*

Question Sheet

Case: **221**; Month: **September**; Year: **2023**

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Clinical History: A 3-year-old female spayed mixed breed canine (*Canis familiaris*) presented to Tuskegee University College of Veterinary Medicine's Small Animal Hospital with a history of marked anorexia for 3 weeks and a slowly expanding abdomen. An abdominal mass was palpated on clinical presentation and physical examination, and ascites were suspected after abdominal ballottement. Diagnostic testing included a complete blood count (CBC), serum biochemical profile (CHEM), and diagnostic imaging. Bloodwork revealed an increase in hepatic enzyme activity. Diagnostic imaging included survey radiographs and ultrasound of the thorax and abdomen. The radiographs revealed an additional multinodular mediastinal mass, and the ultrasound showed multiple masses within the liver, lungs, and spleen. Due to continued ill thrift and a poor prognosis, the owners elected for humane euthanasia. The carcass was submitted for a postmortem evaluation.

Necropsy Findings: At autopsy, multiple masses were identified within the mediastinum, liver, adrenal glands, spleen, and kidneys (Fig. 1). The multinodular mediastinal mass measured 9 cm x 5.5 cm x 7 cm. The mass bulged on the cut surface and was mottled tan to yellow to red (Fig. 2). Within the abdominal cavity, there was about 0.75 L of serosanguinous fluid. There were multifocal to coalescing, firm to soft masses throughout all lobes of the liver ranging in size from 9 cm x 8 cm x 5 cm to 1 cm x 0.5 cm x 0.5 cm (Fig. 3). Both adrenal glands were completely replaced by a solitary mass that measured 9 cm x 5 cm x 5 cm. The adrenal mass on the cut surface contained hard, white to red caseous material with a distinct vascular network (Fig. 4A-C). Bilaterally, the kidneys had multifocal, round, white to red, soft to firm masses that invaded both the cortex and medulla of the renal parenchyma and ranged in size from 0.3 cm to 0.7 cm in diameter (Fig. 4D). The spleen had multifocal, round, tan, masses throughout the parenchyma that measured approximately 1 cm x 2 cm x 0.4 cm (Fig. 5). There was a diffuse enlargement of all palpable lymph nodes within both the thoracic and abdominal cavities. We did not identify other significant macroscopic changes.

Gross Images:

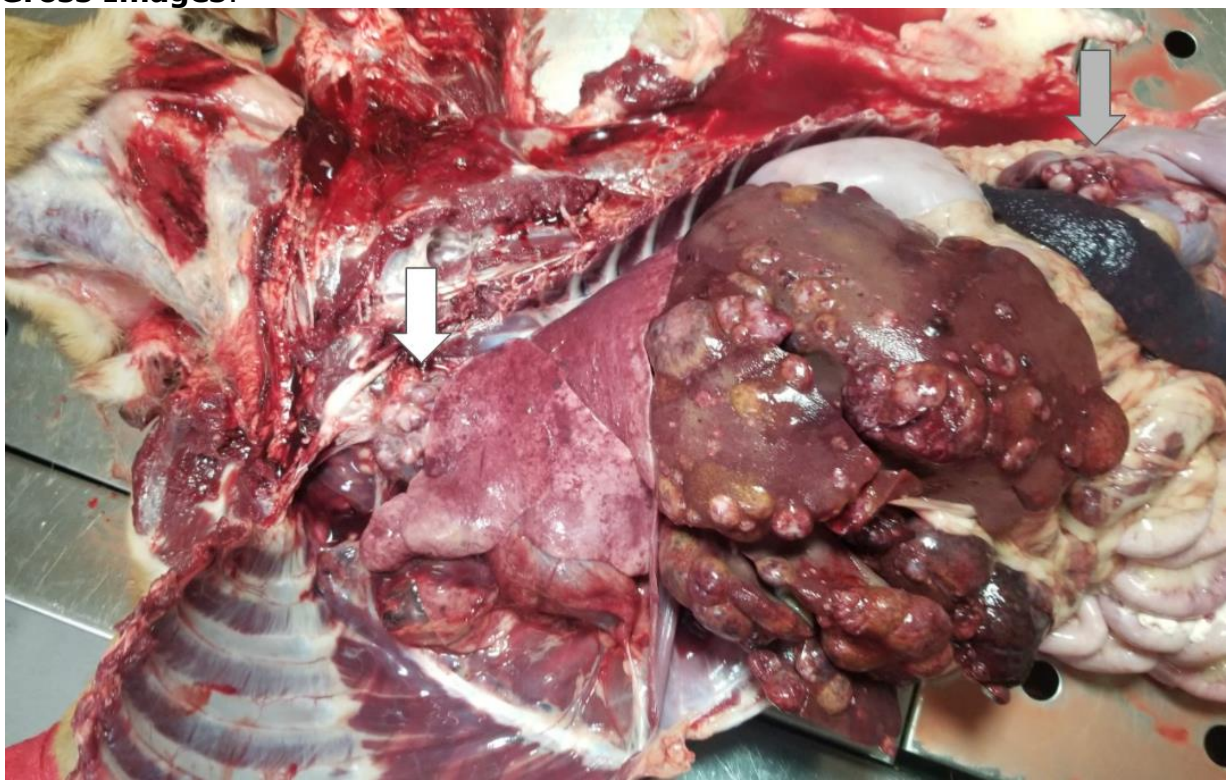

Figure 1: Whole body

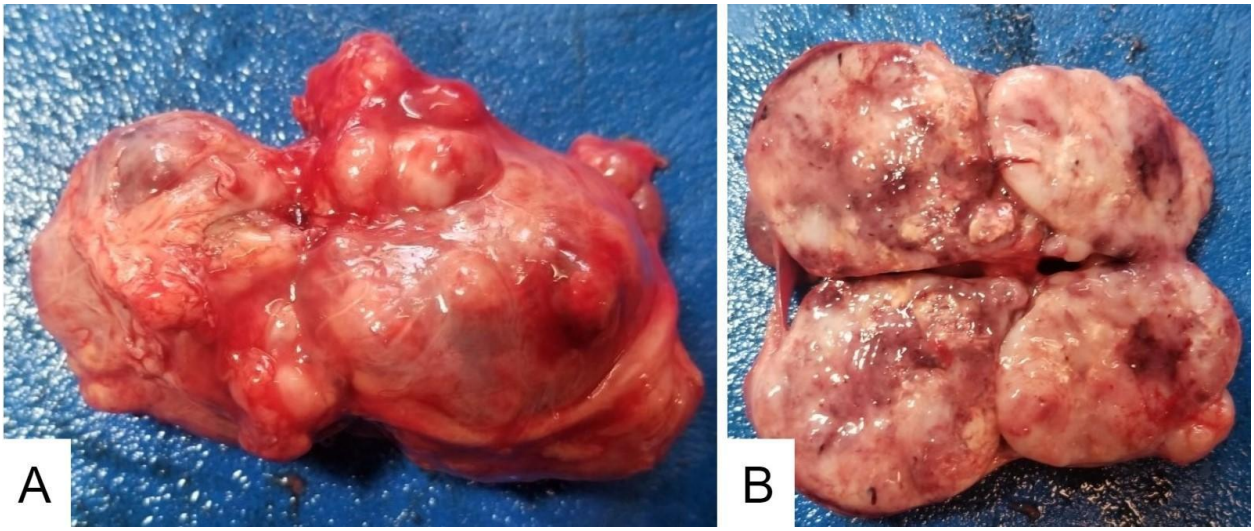

Figure 2: Mediastinal mass

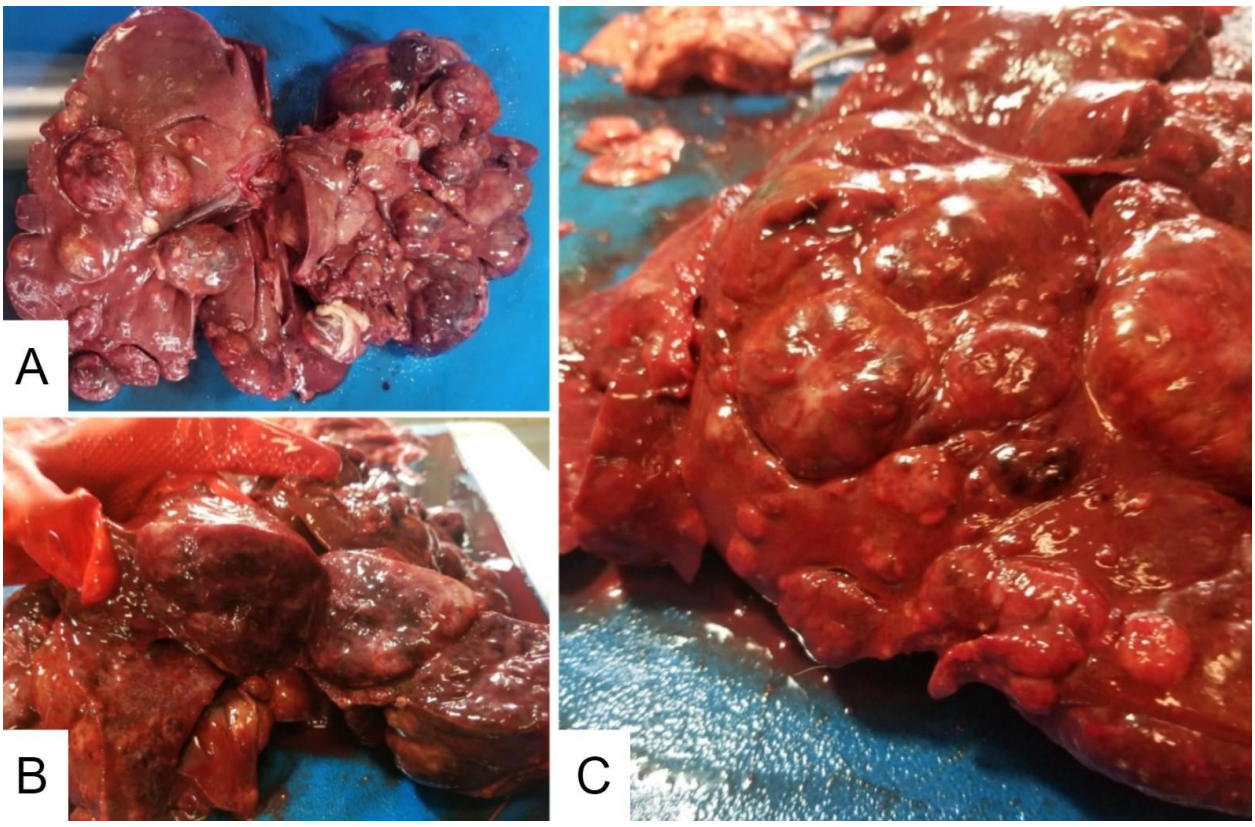

Figure 3: Liver masses

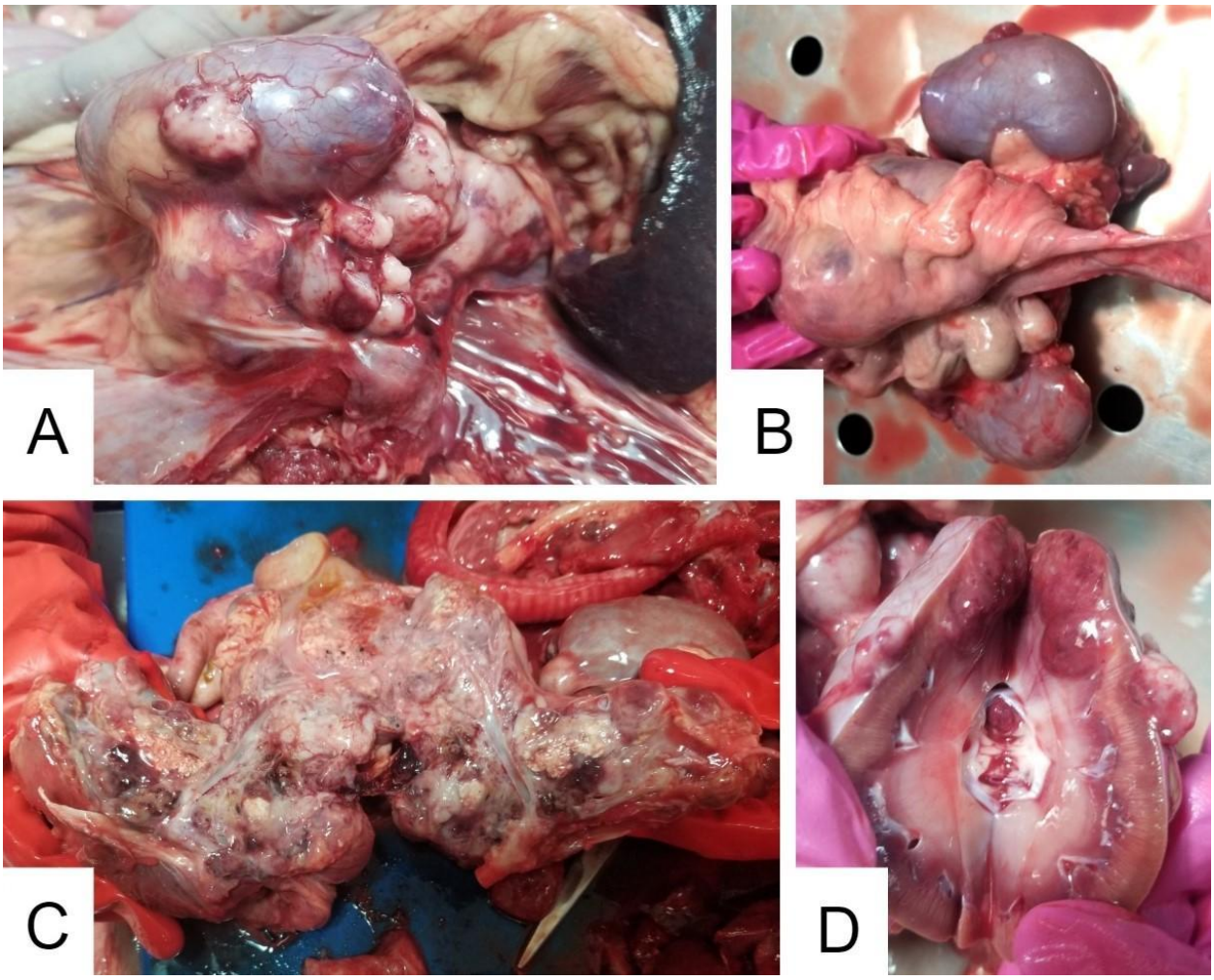

Figure 4: Adrenal masses and kidney masses

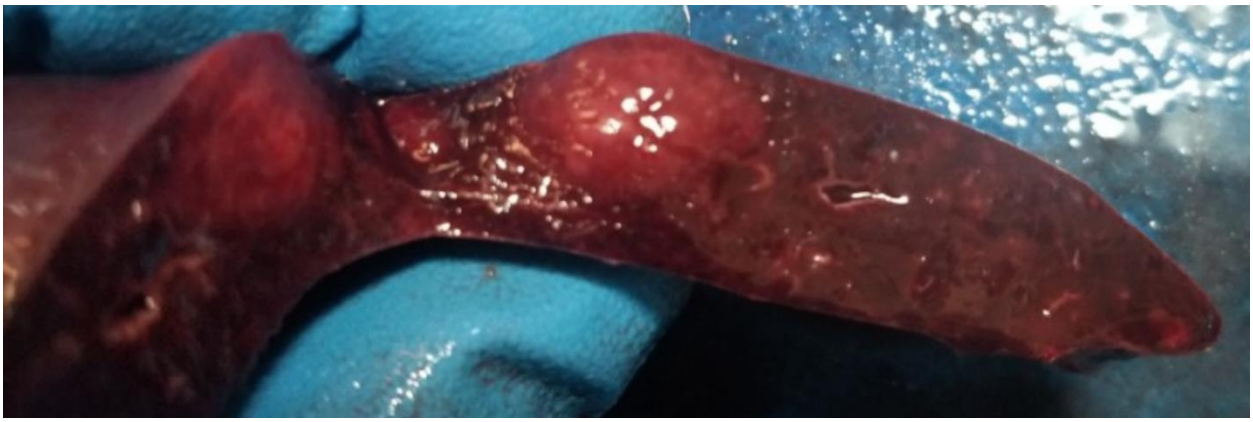

Figure 5: Splenic mass

Follow-up Questions

- *In which organ do you suspect this abnormality originated from*?
- *What are your top differentials*?
- *Which immunohistochemical markers would you order*?

*The Diagnostic Exercises are an initiative of the Latin Comparative Pathology Group (LCPG), the Latin American subdivision of The Davis-Thompson Foundation (DTF). These exercises are contributed by members and non-members from any country of residence. Consider submitting an exercise! A final document containing this material with answers and a brief discussion will be posted on the DTF website (https://davisthompsonfoundation.org/diagnostic-exercise/).

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