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A 15 kg, 8 month old, male, Labrador retriever dog is presented with a history of intermittent circling, ataxia, and occasional vomiting. Physical examination reveals a thin dog with no other abnormalities noted. Laboratory work (complete blood count, chemistry profile with electrolytes, and urinalysis) is performed. Results of a complete blood count and reference ranges are listed below. Abnormal values are in bold font. The image is from the blood smear.

Complete Blood Count

	Patient Values	Reference Range
RBC (x 10 ⁶ /uL)	6.9	5.5-8.5
Hemoglobin (g/dL)	10.4	12-18
PCV (%)	34	37-55
MCV (fL)	49.2	60-77
MCHC (g/dL)	30.5	32-36
WBC (x 10 ³ /uL)	11.1	6-17
Neutrophils (x 10 ³ /uL)	5.1	3-11
Bands (x 10 ³ /uL)	0.1	0-0.3
Lymphocytes (x 10 ³ /uL)	3.7	1-4
Monocytes (x 10 ³ /uL)	0.9	0.2-1.4
Eosinophils (x 10 ³ /uL)	1.3	0.1-0.75
Platelets (x 10 ³ /uL)	241	164-510
Cell morphology	See projected image	

1. List three abnormalities visible on the image of the blood smear.
 - A. _____
 - B. _____
 - C. _____

2. Interpret the results of the complete blood count. Be specific.

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Results of the chemistry profile with electrolytes and reference ranges are listed below. Abnormal values are in bold font.

Chemistry profile with electrolytes

	Patient Values	Reference Range
Total protein (g/dl)	5.3	5.1-7.3
Albumin (g/dl)	3.0	2.6-3.5
Globulin (g/dl)	2.6	2.6-5.0
Alkaline phosphatase (U/L)	177	4.0-95
ALT (U/L)	363	26-200
Bilirubin (mg/dl)	0.25	0.1-0.3
CK (U/L)	211	92-357
BUN (U/L)	5	10-25
Creatinine (mg/dl)	0.7	0-1.3
Calcium (mg/dl)	9.6	9.5-11.8
Phosphorus (mg/dl)	4.5	3.3-5.8
Magnesium (mg/dl)	1.7	1.7-3.3
Glucose (mg/dl)	70	80-100
Cholesterol (mg/dl)	42	68-224
Bicarbonate (mmol/L)	18.6	13.9-30
Sodium (mEq/L)	148	146-160
Potassium (mEq/L)	4.8	3.5-5.9
Chloride (mEq/L)	118	108-125

1. Interpret the results of the chemistry profile. Be specific.

PAGE 3 (2 minutes)

Results of the urinalysis are listed below. The image is from the urine sediment.

Urinalysis

Color	Yellow
Turbidity	Clear
Specific Gravity	1.023
pH	8.5
Protein	Negative
Glucose	Negative
Ketones	Negative
Blood	Negative
Bilirubin	1+
Urobilinogen	Trace

Urine sediment exam: **See projected image.**

1. Identify the material on the image indicated by the arrow.

2. Based on the results of the urinalysis and blood work presented, list two other clinicopathologic tests that would further characterize this dog's problem.

A. _____

B. _____

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Results of serum bile acid analysis and reference ranges are listed below. Abnormal values are in bold font.

Serum Bile Acids

	Patient Values	Reference Range
Fasting (umol/L)	98	<10
Post-prandial (umol/L)	260	<20

1. What do these results indicate?

2. What is the most likely clinical diagnosis?

3. Other than abdominal radiography, list two noninvasive imaging procedures that would be appropriate to perform in this dog.

A.

B.

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Lateral and ventrodorsal abdominal radiographs of this dog are shown.

1. List two radiographic abnormalities visible on these radiographs.

A. _____

B. _____

2. What is the radiographic diagnosis? Be specific.

3. List four findings on abdominal ultrasonography that would be supportive of your clinical diagnosis.

PAGE 6 (4 minutes)

This image is a composite view of transcolonic scintigraphy from this dog. Cranial (Cr) and caudal (Ca) are indicated. The arrow indicates the location of the xiphoid process.

1. Describe and interpret the results.

2. List two diagnostic limitations to transcolonic scintigraphy other than radiation safety issues.

A.

B.

2. What is the significance of a shunt fraction of 78% in this dog?

PAGE 7 (4 minutes)

Portography is performed, and the **images** are projected.

1. Identify the type of portography that has been performed.

2. Describe the abnormality demonstrated by this image. Be specific.

3. List three advantages of this type of portography compared to other methods of contrast portography.

A. _____

B. _____

C. _____

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The diagnosis of a single extrahepatic portosystemic shunt is confirmed. The dog is anesthetized and prepared for abdominal surgery.

1. Other than direct visualization, list three methods for intra-operatively confirming the location of the shunting vessel.

A. _____

B. _____

C. _____

2. List five different procedures for attenuating this single extrahepatic portosystemic shunt at surgery.

A. _____

B. _____

C. _____

D. _____

E. _____

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Gradual attenuation of the shunting vessel is planned by placement of an ameroid band constrictor, a liver biopsy is obtained, and the dog recovers uneventfully. At 6 weeks postoperatively, the dog is normal on physical examination, except for mild abdominal distention.

1. List four complications which have been reported as acute or chronic complications of portosystemic shunt attenuation.

2. What is the most likely mechanism for the abdominal distention in this dog?

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The **image** is an intraoperative image of a dog with a condition similar to this dog's condition.

1. Is treatment of the abdominal distention in this dog necessary? Circle the correct answer.

YES

NO

2. If yes, list the treatment.

3. According to Szatmári et al. (J Am Vet Med Assoc, 2004), define hepatopetal and hepatofugal blood flow and explain how ideal attenuation of a shunting vessel is achieved.

4. Make short-term postoperative dietary recommendations for this dog.

5. Make short-term postoperative treatment recommendations for this dog.

PAGE 11 (2 minutes)

1. According to Fryer, et al (JVIM 2011), what percent of dogs treated with leviteracetam postoperatively following surgery for PSS developed seizures?
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2. In the same study, what was the recommended dosage of leviteracetam in dogs?
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This Concludes the Small Animal Soft Tissue Case-Based
Examination