

Addome acuto in pronto soccorso: quando chiamare la radiologia in aiuto

Gliola Spattini
DVM, GP cert Cardio, CCRT, PhD, DECVI



Objectives

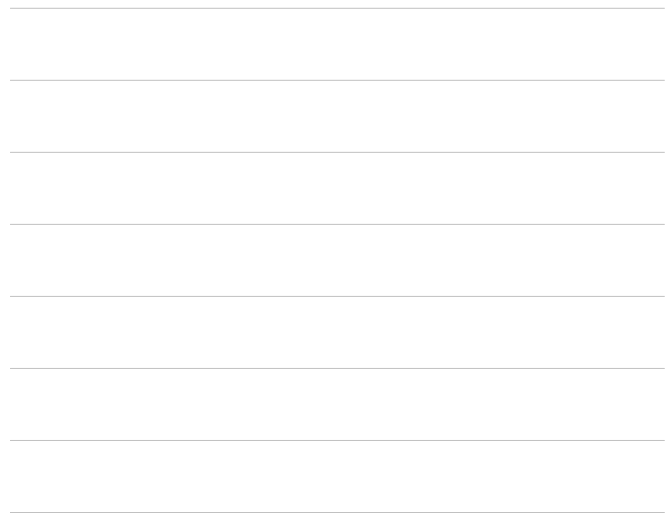
- Acute abdomen can be challenging
- Radiology and ultrasound are often complementary to each other



Missy, Dogue de Bordeaux, FI, 2 years


- Yesterday, She ate normally
- This morning, She ate less
- Distended abdomen from the afternoon
- Under treatment for severe dermatitis





Missy, FI, 2 years

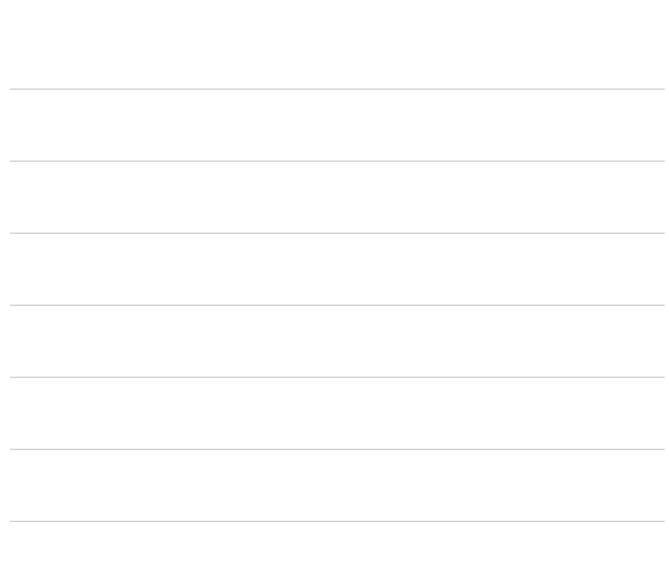
Blood works



RBC (milioni (uL)):	4.52	5.70	5.58	Acentociti:	0	Elipociti:	0
HGB (g/dL):	11.2	14.1	13.2	Anisocitosi:	0	Ispocromia:	0
HCT (%):	33.7	39.0	39.2	Agglutinazione:	0	Macrofisi:	0
MCV (fL):	72.8	63.1	72.6	Codociti:	0	Microfisi:	0
MCH (pg):	24.3	23.8	25.4	Cheilociti:	0	Parasitici eritrocitari:	0
MCHC (g/dL):	33.4	33.3	36.8	Caleociti:	0	Policromasia:	0
CHCM (g/dL):	34.3	37.8	37.8	Corpi di Heinz:	0	Punteggiate basofili:	0
MCHC/CHEM:	0.96	1.01	0.96	Corpi di Howell-Jolly:	0	Rouleaux:	0
CH (pg):	22.0	26.0	0	Cristalli di Hb:	0	Schistociti:	0
CHDW (pg):	2.72	3.34	0	Dacriociti:	0	Selenociti:	0
RDW (%):	14.2	15.6	14.7	Drepanociti:	0	Sferociti:	0
RDW (uL):	1.63	2.22	0	Eosinociti:	0	Stomatociti:	0
NRBC/100 WBC:	0	0	0	Echinociti:	0	Torociti:	0


Varie RBC:	WBC (x 1000 (uL)):	15.8	5.45	12.38	Linfociti atipici:	0	
Conta corr. WBC (x 1000 (uL)):	15.8	5.45	12.38	Linfociti atipici:	0	Linfociti atipici:	0
Mielociti (uL):	0	0	0	Neutrofili tossici:	0	Neutrofili tossici:	0
Metamelociti (uL):	0	0	0	Corpi di Dohle:	0	Corpi di Dohle:	0
Neutrofili banda (uL):	0	0	286	Schizociti ciliati:	0	Schizociti ciliati:	0
Neutrofili segmentati (uL):	17622	3555	9314	Vacuolizzazione citopl.:	0	Vacuolizzazione citopl.:	0
Linfociti (uL):	990	1169	3810	Basofilia citopl.:	0	Basofilia citopl.:	0
Monociti (uL):	11588	186	798	Granuli tossici:	0	Granuli tossici:	0
Eosinofili (uL):	340	104	1164	Neutrofili giganti:	0	Neutrofili giganti:	0
Basofili (uL):	10	0	106	Macropoliciti:	0	Macropoliciti:	0
Danneggiate (uL):	0	0	0				
Indifferenziate (uL):	0	0	0				
Altre (uL):	0	0	0				

Varie WBC:	PLT (1000 (uL)):	403	176	479	Stima PLT:	ADEG: <input checked="" type="checkbox"/> INADEG: <input type="checkbox"/> AUMENT: <input type="checkbox"/>
	MPV (fL):	6.8	8.9	15.0	Varie:	Plastine attivate: <input type="checkbox"/> Macroplastine: <input type="checkbox"/>
	PCT (%):	0.272	0.21	0.52		Plastine allungate: <input type="checkbox"/> Inclusi piastrinici: <input type="checkbox"/>
	PDW (%):	9.5	15.8	24.5		



Missy, FI, 2 years

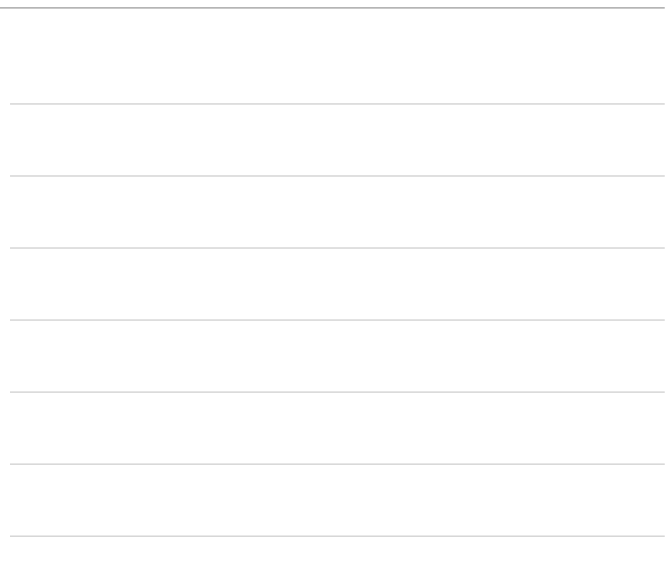
Blood works



CPK (IU/L):	155	42-155
AST (IU/L):	45	20-50
ALT (IU/L):	31	15-50
ALP (IU/L):	55	20-110
GGT (IU/L):	2.7	1-11
Coliesterasi (IU/L):		3347-7074
Bilirubina Totale (mg/dL):	0.30	0.15-0.4
Proteine Totali (g/dL):	8.0	5.5-7.5
Albumine (g/dL):	2.9	2.7-3.6
Globuline (g/dL):	5.1	2.9-3.9
Rapporto A/G:	0.57	0.7-1.2
Colesterolo (mg/dL):	208	150-350
Trigliceridi (mg/dL):	57	30-110
AMYLASE (IU/L):	659	300-1900
Urea (mg/dL):	48	18-45
Creatinina (mg/dL):	1.32	0.75-1.3
Glucosio (mg/dL):	157	60-100
Calcio (mg/dL):	8.6	8.2-12
Fosforo (mg/dL):	3.9	2.1-6.2
Magnesio (mg/dL):	0.67-0.94	0.67-0.94
Sodio (mEq/L):	147	143-151
Potassio (mEq/L):	4.1	3.5-5.1
Rapporto Na/K:	36	28.5-37.4
Cloro (mEq/L):	112	109-118
Cloro corretto (mEq/L):	111	105-115.9
HCO ₃ (mmol/L):		18.4-24.8
Divario Anionico:		13.1-19.4
Osteoi. sier. calc. (pmol/L):	290	277-291
Ferro (mg/dL):		100-200
Ferro totale (ppm/dL):	87	182-308
URIC (ppm/dL):		318-479
Saturazione (%):		28.2-56.8
Prot. C Reattiva (mg/dL):	1.17	0.01-0.22
Lipasi (egg) (U/L):		-

Tempo di trombolisina (minuti attivata - aPTT (sec)):	12.8	12.2	12.2
Tempo di protrombina - PT (sec):	7.4	6.0	6.5
Fibrinogeno (mg/dL):	184	152	204
Proteina di precipitazione della fibrinolisi (FDP) (ppm/L):	0.92	< 0.5	0.4
D-Dimeri della fibrina (ppm/L):	15.67	0.01	0.14
Antitrombina (%):	124	110	107

Abdominal radiographs to check the stomach



Missy, Dogue de Bordeaux, FI, 2 years

Ultrasonographic diagnoses:

- Severe thickening of the submucosa
- Echoic sediment in the gallbladder

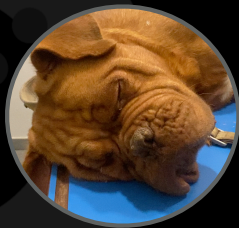
Conclusions:

- Suspected gastric oedema + functional gastric stasis
- Conservative management under hospitalisation and recheck



Missy, Dogue de Bordeaux, FI, 2 years

- Decompressed
- Responded well to medical treatment
- She seemed fine during the night but suddenly, She collapsed in the morning
- Recheck

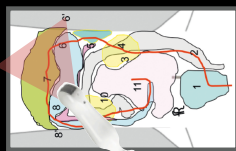


Missy, FI, 2 years

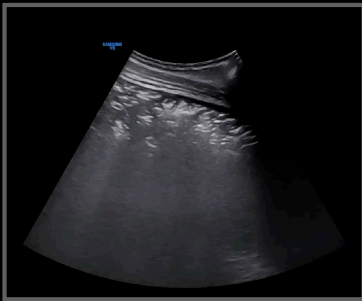
12 hours later



Probe position in a different patient



7-6



Missy, FI, 2 years



Missy, FI, 2 years



Your evaluation

- Is there gas in the hepatic portal branches?
- Is there gas in the gastric wall?
- What would you do next?



Missy, Dogue de Bordeaux, FI, 2 years

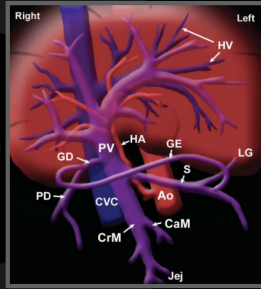
Differential diagnoses of gastric pneumatosis

- Gastric wall necrosis
- Gastric mucosal disruption
- Emphysematous gastritis
- Increased mucosal permeability

Canine and feline **emphysematous gastritis** may be differentiated from gastric emphysema based on clinical and imaging characteristics: Five cases.
Thierry F, Ferreira MF, Paterson GK, Liuti T, Del-Pozo J.
Vet Radiol Ultrasound. 2019 Mar;60(2):136-144. doi: 10.1111/vru.12691. Epub 2018 Oct 11.
PMID: 30311329

Missy, Dogue de Bordeaux, FI, 2 years

Ultrasonographic differentiation between **portal venous** and **parenchymal gas** may be important for the prognosis of canine and feline hepatic emphysema: 37 cases.
Manfredi S, Fabbri M, Bonazzi M, Leonardi F, Midari F, Parnoccoli L, Daga E, Orusi G, Votta A.
Vet Radiol Ultrasound. 2019 Nov;60(6):734-744. doi: 10.1111/vru.12797. Epub 2019 Aug 16.
PMID: 31518883



Portal vascular system. Atlas of Small Animal Ultrasonography
2nd ed., D. Pennick, M.A. d'Anjou. 2015 Wiley.

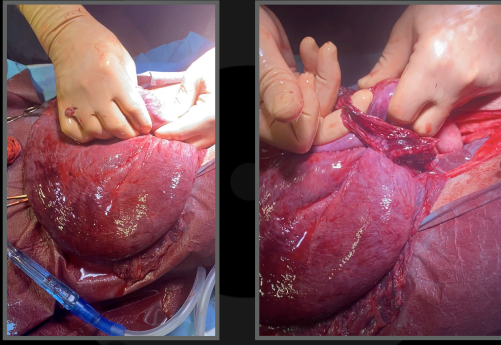
Missy, FI, 2 years



Primary splenic torsion in dogs: 102 cases (1992-2014).
DeGroot W, Giuffrida MA, Rubin J, Runge JJ, Zide A, Mayhew PD, Culp WT, Mankin KT, Amsellem PM, Petrukovich B, Ringwood PB, Case JB, Singh A.
J Am Vet Med Assoc. 2016 Mar 15;248(6):661-8. doi: 10.2460/javma.248.6.661.
PMID: 26953920 **Free article.**

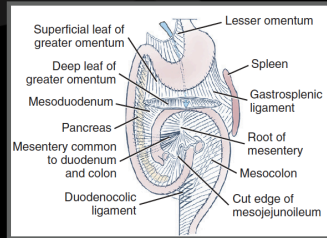


Missy, FI, 2 years



Missy, Dogue de Bordeaux, FI, 2 years

- Splenic torsion
- Rupture of the gastrosplenic ligament
- Pyloric entrapment



*Plan of visceral and connecting peritoneum, ventral aspect.
Miller's Anatomy of the Dog, 4th ed., H. Evans, A. de Lahunta.
2013 WB Saunders.*

Missy, Dogue de Bordeaux, FI, 2 years

Conclusions:

- Splenectomy and omental repair
- She recovered after surgery



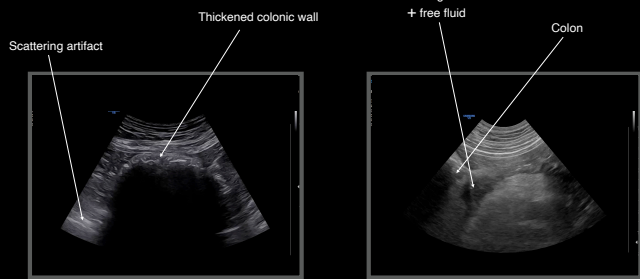
Olivia, Dogue de Bordeaux, FI, 6 years

Ultrasonographic diagnoses:

- Write your ultrasonographic report
- What is your most likely differential diagnosis?
- What would you do next?



Olivia, Dogue de Bordeaux, FI, 6 years



Olivia, FI, 6 years



Olivia, F1, 6 years





Olivia, F1, 6 years



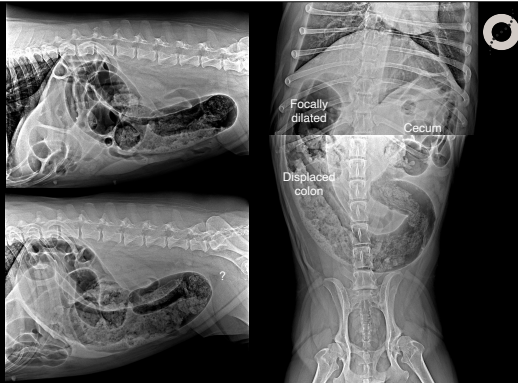
Olivia, Dogue de Bordeaux, FI, 6 years

Radiographic diagnoses:

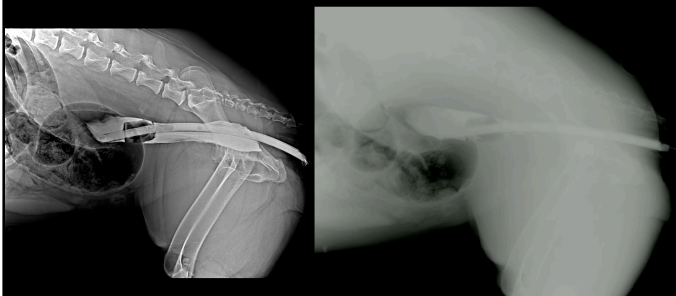
- Write your radiographic report
- What is your most likely differential diagnosis?
- What would you do next?



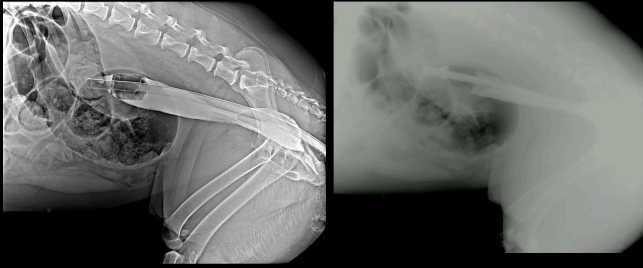
Olivia, FI, 6 years



Positive contrast enema



Positive contrast enema



Olivia, Dogue de Bordeaux, FI, 6 years

Radiographic positive contrast enema conclusions:

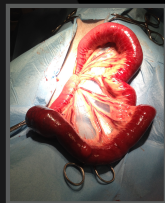
- Descending colon abrupt occlusion
- Cecum and colon displacement
- Confirmed suspicion of a colonic torsion



Olivia, Dogue de Bordeaux, FI, 6 years

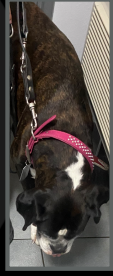
Follow up

- Surgery confirmed colonic torsion
- After resolving the torsion, the colon was fine
- Sent to the referring veterinarian the following day



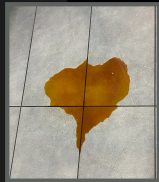
Fiamma, Boxer, FS, 6 years

- Lethargic and anorexic since yesterday
- Six months ago amputated left front limb for osteosarcoma
- Three weeks before negative radiographic and ultrasonographic staging



Fiamma, Boxer, FS, 6 years

- Responding well to chemotherapy
- Experimental vaccination for osteosarcoma
- Pink mucous membrane
- Abdominal pain
- Dark faeces and coca-cola like urine

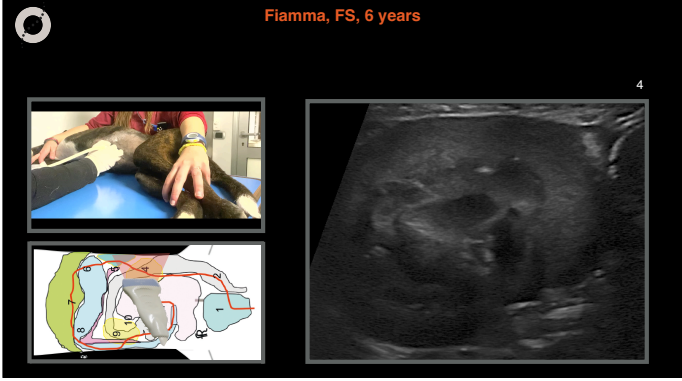


Fiamma, Boxer, FS, 6 years

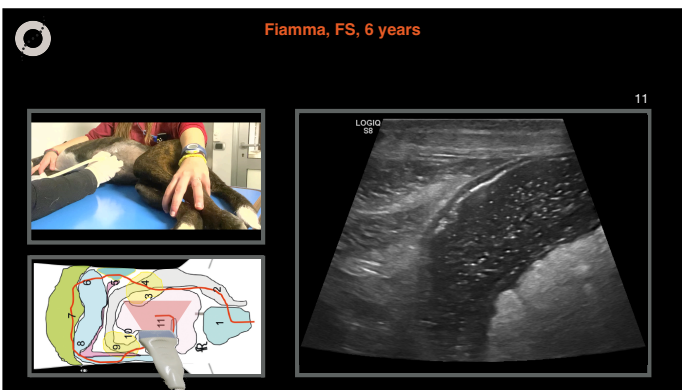
- The referring veterinarian performed A-fast and found abdominal effusion
- Suspected ruptured abdominal mass
- Send for re-evaluation and surgery



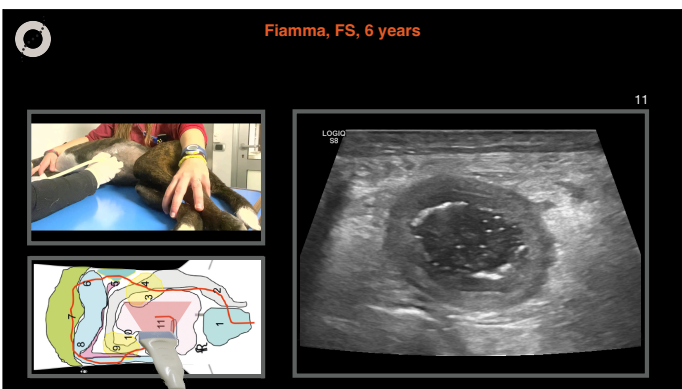
Fiamma, FS, 6 years



Fiamma, FS, 6 years



Fiamma, FS, 6 years



Conclusions

- Especially in large dogs radiology should be included
- Ultrasound could not be sufficient to define the most likely differential diagnosis



Thank you



Diagnostic Mindset
www.diagnosticmindset.com
