

Non è tutto fegato quel che luccica: valutazione ecografica del parenchima epatico con Doppler e radiologia a supporto

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Diagnostic Mindset



Objectives

- Abnormal liver echogenicity is a not common finding
- Severe conditions can be present
- Prompt recognition of these changes can be life-saving for the patient



Deky, Zwergpinscher, MI, 10 years

- Anorexic for the last two days
- Vomiting white foam
- One year ago, bit by a large dog
- Two months ago, severe gastritis resolved



Per gentile Concessione di Davide Cecchieri

Deky, Zwergpinscher, MI, 10 years

- Pain on the cranial abdomen
- Dehydration
- II/VI systolic murmur
- Responded well to pain killers and hydration
- Owner refused other diagnostics



Deky, Zwergpinscher, MI, 10 years

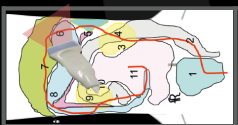
The next day

- Collapsed
- Worsened abdominal pain
- Urgent abdominal US performed

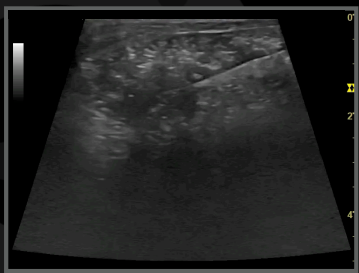


Deky, MI, 10 years

Another patient, to show the position of the probe



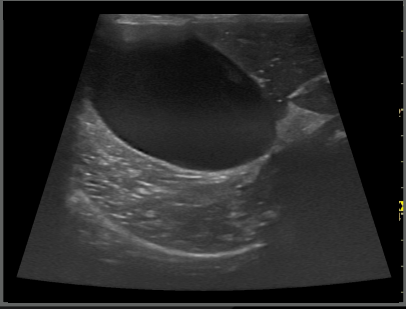
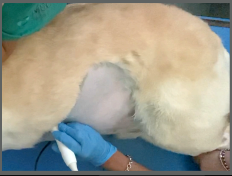
6-7 long



Deky, MI, 10 years

Another patient, to show the position of the probe

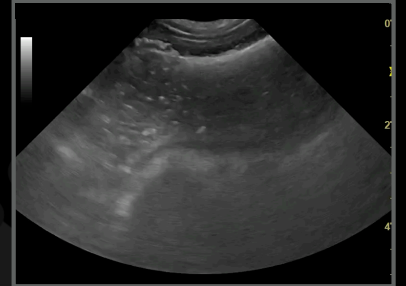
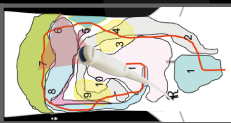
7-8 trans



Deky, MI, 10 years

Another patient, to show the position of the probe

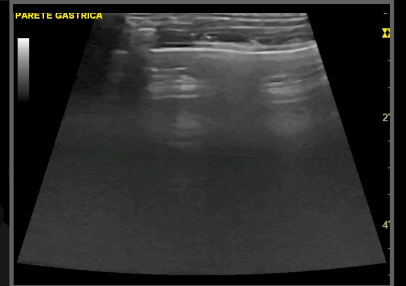
7-6 trans



Deky, MI, 10 years

Another patient, to show the position of the probe

7-6 trans



Ultrasonographic differentiation between portal venous and parenchymal gas may be important for the prognosis of canine and feline hepatic emphysema: 37 cases

Sabrina Manfredi¹ | Martina Fabbi¹ | Mattia Bonazzi^{1,2} | Fabio Leonardi¹ |
Francesca Miduri¹ | Ilaria Parrocchini² | Eleonora Daga¹ | Giacomo Gnudi¹ |
Antonella Volta¹ *Vet Radiol Ultrasound*, 2019;1-11.

(9), trauma (5), and liver neoplasia (5). An increase in serum liver enzymes was significantly associated with parenchymal emphysema ($P = .03$). Other clinical and laboratory findings were not associated with the type of hepatic emphysema. Hepatic portal venous gas was mostly transient in patients with ultrasonographic follow-up. The overall mortality was 40.5%. A significant difference was found between mortality by portal venous gas (21.7%) and mortality by parenchymal emphysema (90%) ($P = .003$). In conclusion, the ultrasonographic differentiation of hepatic

Received: 23 March 2018 | Revised: 7 July 2018 | Accepted: 8 August 2018
DOI: 10.1111/ru.12691

ORIGINAL INVESTIGATION

Canine and feline emphysematous gastritis may be differentiated from gastric emphysema based on clinical and imaging characteristics: Five cases

Florence Thierry¹ | Marisa F. Ferreira¹ | Gavin K. Paterson¹ | Tiziana Liuti¹ |
Jorge Del-Pozo¹ *Vet Radiol Ultrasound*, 2018;1-9.

Evidence of pneumoperitoneum was described in dog 2 and likely resulted from gas diffusion from the gastric wall to the peritoneum, which also appears to be the case in the present study.⁴ Intramural gastric gas can diffuse into the gastric vascular supply before being drained by the portal vascular bed, which was not clinically significant in dog 3.

Deky, Zwergpinscher, MI, 10 years

Conclusions:

- Gastric pneumatosis
- Portal and hepatic gas infiltration
- Pneumoperitoneum

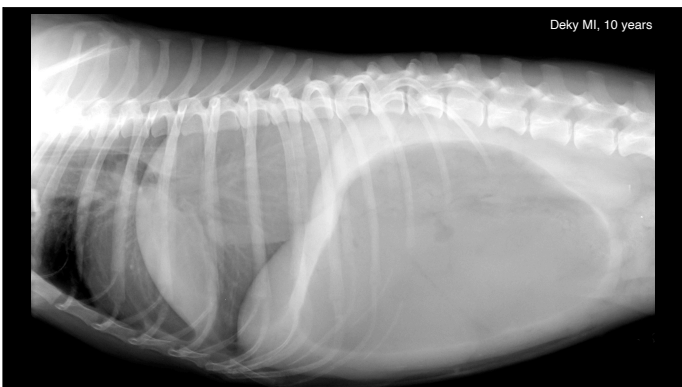
Next steps:

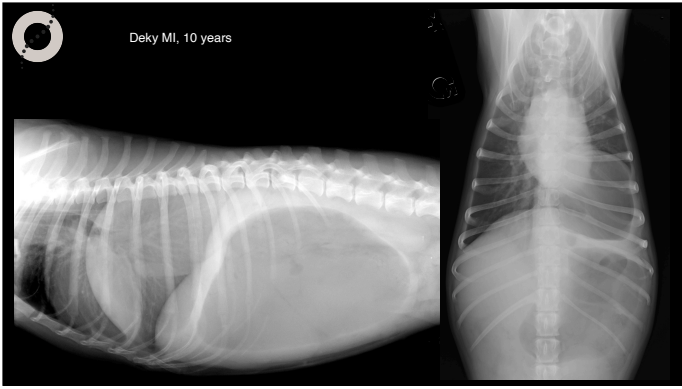
- Abdominal radiographs

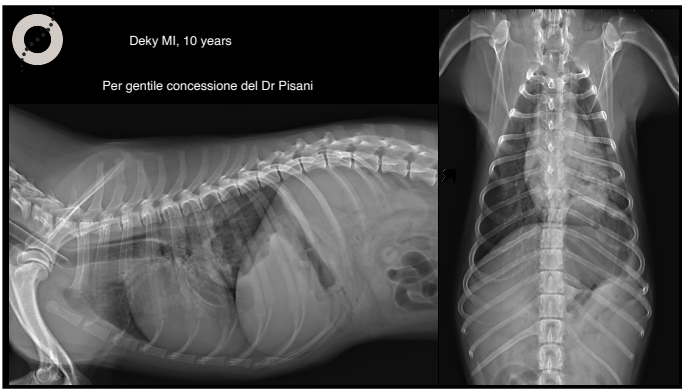


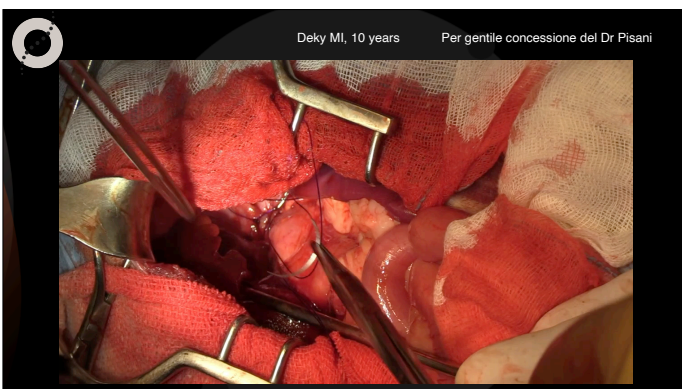


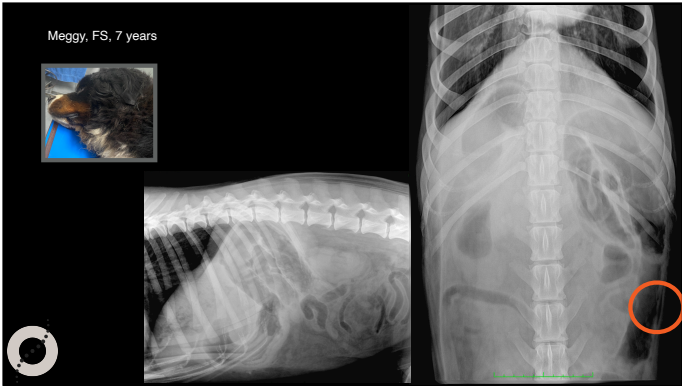












Key points
Empysematous cholecystitis and pneumobilia

- Gas in the biliary system and GB
- Gas in rounded pocket relatively centrally located
- Prognosis poor

Dea, Mongrel, FS, 12 years

- Abdominal and back pain
- Hypertermia
- Weakness

Dea, Mongrel,
FS, 12 years



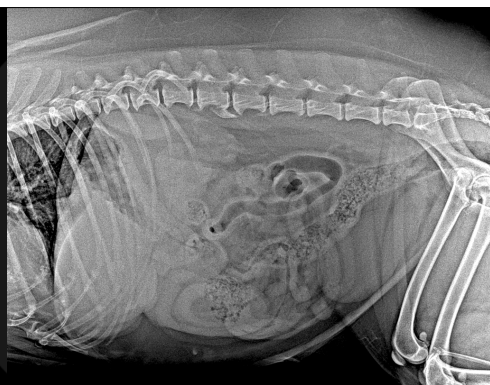
RBC (milioni μL):	6.55	5.79	8.50	Acanociti:		Elipociti:	
HGB (g/dL):	15.2	14.1	21.2	Anisocitosi:	+	Ipocromia:	
HCT (%):	43.4	39.0	59.2	Agglutinazione:		Macrofili:	
MCV (fL):	68.3	68.1	72.6	Codociti:	+	Microfili:	
MCH (pg):	23.2	23.8	25.4	Cheirociti:		Parassiti eritrocitari:	
MCHC (g/dL):	33.9	33.3	36.8	Cilicociti:		Policromasia:	
CHCM (g/dL):	34.3	37.8		Corpi di Heinz:		Punteggiature basofile:	
MCNCCCM:	0.94	1.01		Corpi di Howell-Jolly:		Rouleaux:	
CH (pg):	22.0	26.0		Cristalli di Hb:		Schistociti:	
CHDW (pg):	2.72	3.34		Dacriociti:		Selenociti:	
RDW (%):	13.7	11.6	14.7	Drepanociti:		Sferociti:	
RDW (g/L):	13.0	2.22		Ectrociti:		Stomacociti:	
NRBC/100 WBC:	0	0	0	Echinociti:		Torociti:	
Varie RBC:							
WBC ($\times 1000 \mu\text{L}$):	6.6	5.45	12.98	Linfociti attivati:			
Conta corr. WBC ($\times 1000 \mu\text{L}$):	5.65	5.45	12.98	Linfociti atipici:			
Mielociti (μL):	0	0	0	Neutrofili tossici:			
Metamielociti (μL):	0	0	0	Corpi di Doehle:			
Neutrofili banda (μL):	0	0	0	Schiumosità citopl.			
Neutrofili segmentati (μL):	5742	3925	9314	Vacuolizzazione citopl.			
Linfociti (μL):	1.98	1169	3810	Basofilia citopl.			
Monociti (μL):	1.12	186	798	Granuli tossici:			
Eosinofili (μL):	0	104	1504	Neutrofili giganti:			
Basofili (μL):	0	0	106	Macroplaciti:			
Danneggiate (μL):	0	0	0				
Indifferenziate (μL):	0	0	0				
Altre (μL):	0	0	0				
Varie WBC:							
PLT ($1000 \mu\text{L}$):	244	176	479	Stima PLT:	ADEG: <input checked="" type="checkbox"/> INADEG: <input type="checkbox"/> ALIMENT: <input type="checkbox"/>		
MPV (fL):	9.3	8.9	15.0	Varie:	Plastine attivate: <input type="checkbox"/> Macroplastine: <input type="checkbox"/>		
PCT (%):	0.226	0.21	0.52	Plastine allungate: <input type="checkbox"/> Inclusi plastrici: <input type="checkbox"/>			
PDW (%):	18.6	51.8	24.5				

Dea, Mongrel,
FS, 12 years

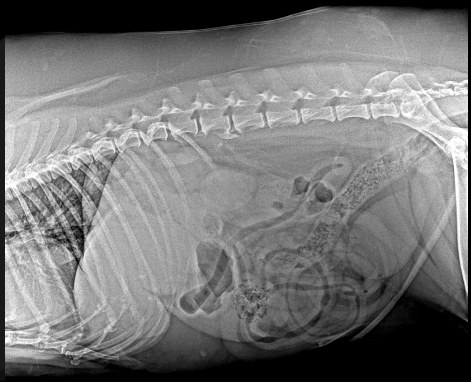


CPK (U/L):	191	42-155	URBC ($\mu\text{g/dL}$):	182-306
AST (U/L):	71	20-50	TIBC ($\mu\text{g/dL}$):	318-479
ALT (U/L):	310	15-50	Saturazione (%):	28.2-56.8
ALP (U/L):	7465	20-110	Prot. C Reattiva (mg/dL):	0.01-0.22
GGT (U/L):	12.6	1-11	Lipasi (dggr) (U/L):	46
Colinesterasi (U/L):		3347-7074		
Bilirubina Totale (mg/dL):	0.32	0.15-0.4		
Proteine Totali (g/dL):	6.6	5.5-7.5		
Albumine (g/dL):	3.4	2.7-3.6		
Globuline (g/dL):	3.2	2.6-3.9		
Rapporto A/G:	1.06	0.7-1.2		
Colesterolo (mg/dL):	267	150-300		
Trigliceridi (mg/dL):	144	30-110		
AMILASI (U/L):	755	300-1800		
Urea (mg/dL):	42	18-45		
Creatinina (mg/dL):	0.75	0.75-1.3		
Glucosio (mg/dL):	104	60-100		
Calcio (mg/dL):	10.5	8.2-12		
Fosforo (mg/dL):	1.9	2.1-6.2		
Magnesio (mg/dL):		0.67-0.94		
Sodio (mEq/L):	149	143-151		
Potassio (mEq/L):	4.3	3.9-5.1		
Rapporto Na/K:	34.7	28.5-37.4		
Cloro (mEq/L):	113	109-118		
Cloro corretto (mEq/L):	110.7	109.1-115.9		
HCO-3 (mmol/L):		18.4-24.8		
Divalo Anionico:		13.1-19.4		
Osmol. sier. calc. (mOsm):	293	277-291		
Ferro totale ($\mu\text{g/dL}$):	47	100-200		

Dea, Mongrel,
FS, 12 years



Dea, Mongrel,
FS, 12 years



Dea, Mongrel,
FS, 12 years

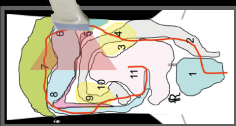




Dea, FS, 12 years

Probe position in another patient

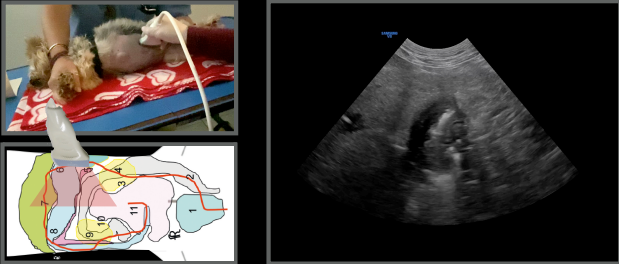
6-7



Dea, FS, 12 years

Probe position in another patient

6-7

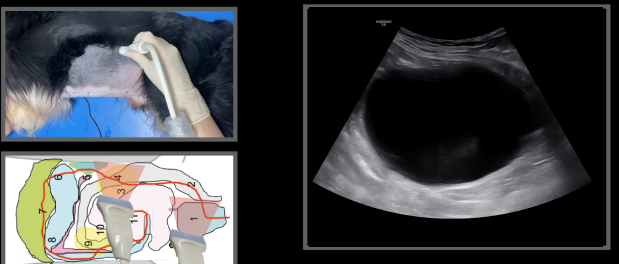


This block contains a clinical photograph of a probe being applied to a patient's neck, an anatomical diagram of the neck with numbered points 6-7, and a corresponding ultrasound image showing a dark, anechoic area.

Dea, FS, 12 years

Probe position in another patient

3-4

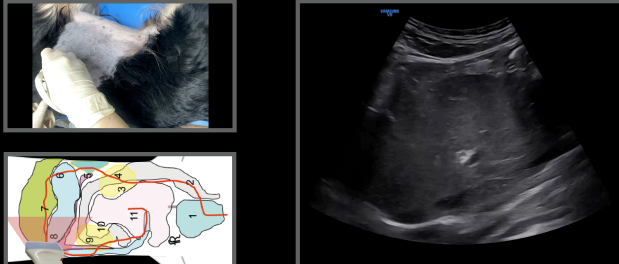


This block contains a clinical photograph of a probe being applied to a patient's neck, an anatomical diagram of the neck with numbered points 3-4, and a corresponding ultrasound image showing a dark, anechoic area.

Dea, FS, 12 years

Probe position in another patient

7-8



This block contains a clinical photograph of a probe being applied to a patient's neck, an anatomical diagram of the neck with numbered points 7-8, and a corresponding ultrasound image showing a dark, anechoic area.

Dea, Mongrel, FS, 12 years

Four days later

- Responded well to treatment
- Went home





Dea, Mongrel, FS, 12 years

One week later





Dea, Mongrel, FS, 12 years

One week later



Conclusions

- Recognizing specific patterns enables a more targeted and accurate ultrasound interpretation
- Radiology can support and confirm the diagnosis



Thank you



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