



Big Dog Little Dog

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NON-SURVIVORS

- 14% non-survivors
- Most common injury overall is a body wall hernia
- >4 injuries
- 29% had R+A
- Avg lactate 7.1
- 86% had plasma
- More NS received pRBCs



“jake”

- 6yr MN Poodle
- Released from leash and MIA for 30 minutes
- Found in the creek surrounded by coyotes
- Suffered multiple bite wounds
- Significant blood loss



Initial Triage

- Mentation: Dull
- TPR 29.2/153/30
- BP: unable to detect
- Initial diagnostics
 - Istat Chem 8
 - PCV/TS : 40/4.4
 - BG : 24.1

I-STAT CHEM8+

Pt: 100470
Pt Name: Jake.

Na	140	mmol/L
K	4.1	mmol/L
Cl	115	mmol/L
iCa	1.03	mmol/L
TCO2	14	mmol/L
Glu	483	mg/dL
BUN	44	mg/dL
Crea	2.0	mg/dL
Hct	40	%PCV
Hb*	13.6	g/dL
	*via Hct	
Asp	16	mg/dL

Initial Assessment + treatment

- Hypothermic
- Shock
- Hyperglycemic
- Hypoproteinemia
- Multiple superficial and penetrating bite wounds
- IV catheter
- Crystalloid 55ml/kg IV
- Pentaspan bolus 5ml/kg IV
- Hydromorphone 0.005mg/kg/IV
- Reassess TPR + BP before proceeding to additional diagnostics

RULE OF 20

1. Fluid balance
2. Oncotic pull
3. Glucose
4. Electrolytes
5. Oxygen + ventilation
6. Mentation
7. Blood pressure
8. Heart rate and rhythm
9. Albumin
10. Coagulation
11. PCV/TS
12. Renal function
13. WBC
14. GI
15. Drugs
16. Nutrition
17. Pain
18. Mobilization
19. Wound care
20. TLC

Secondary Diagnostics and Treatment

- CBC
- Chem 17
- PT: 21 (11-17)
- PTT: 104 (72-102)
- Abdominal and chest x-rays
- Blood typing :DEA 1.1 +
- Recheck PCV/TS 12/2.8
- FFP 20ml/kg
- Oxygen (nasal)
- Fentanyl CRI 5-15mcg/kg/min
- Ampicillin 22mg/kg IV q8
- Enrofloxacin 10mg/kg IV q24
- Metronidazole 7.5mg/kg IV q24
- Whole blood 20ml/kg IV
- Continuous ECG

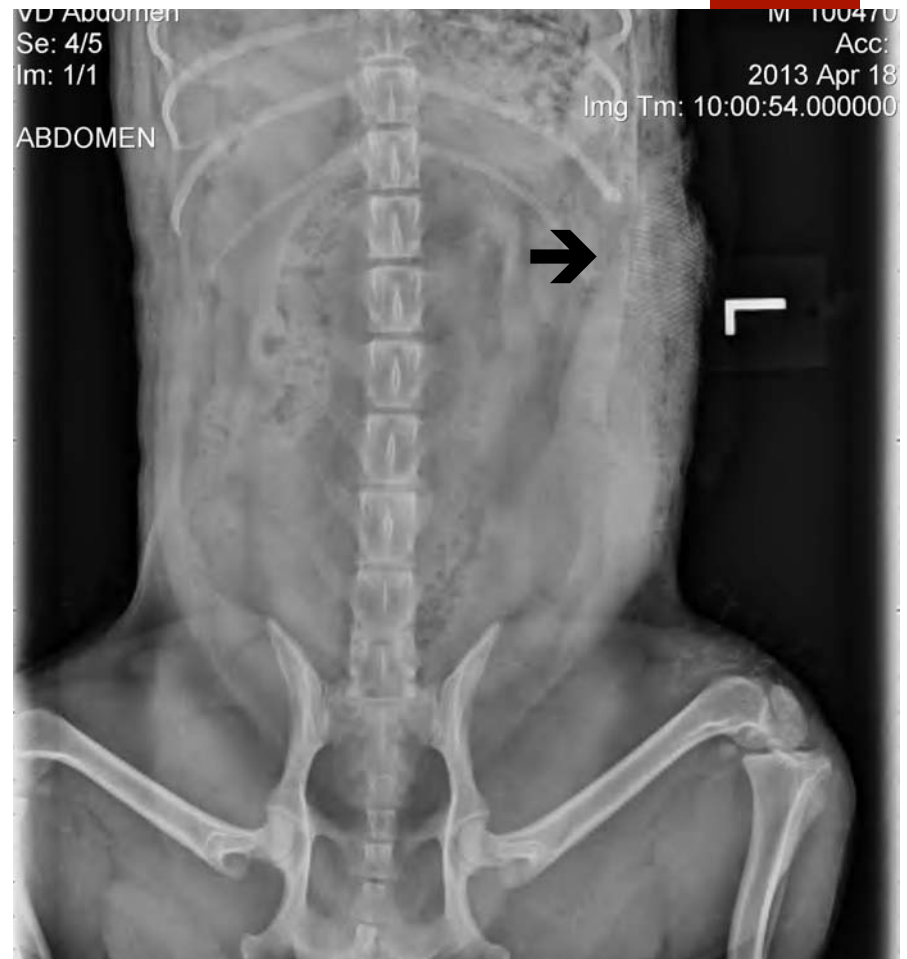
TEST	RESULT	REF INTERVAL	LOW/N/HIGH
HCT←	6.24%	5.56-8.87	
% RETIC	1.6%		
Retic	99.8 L/uL	10-110	
WBC←	3.45 x10 ⁹	5.50-16.76	Low
%Neut	70.2%		
%Lymph	22.6%		
%Mono	4.6%		
%Eos	2.6%		
%Baso	0%		
Neut	2.24 x 10 ⁹ /L	2.95-11.65	Low
Lym	0.78 x10 ⁹ /L	1.05-5.1	Low
Mono	0.16 x 10 ⁹ /L	0.16-1.12	
PLT←	186 K/uL	148-484	

TEST	RESULT	REF INTERVAL	LOW/N/HIGH
Glu ←	27.30	4.11-7.95	High
UREA	14.6	2.5-9.6	High
Crea	*****		
Ca	2.0	1.98-2.2	
TP ←	44	52-82	
Alb ←	23 g/L	23-40	
Glob	21 g/L	25-45	
ALT	897 U/L	10-100	High
ALKP	35 U/L	23-212	
GGT	26 U/L	0-7	High
Tbili ←	12 umol/L	0-15	

Thoracic radiographs



Abdominal radiographs

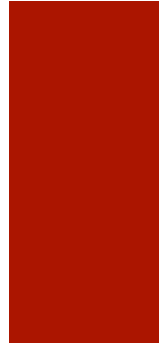
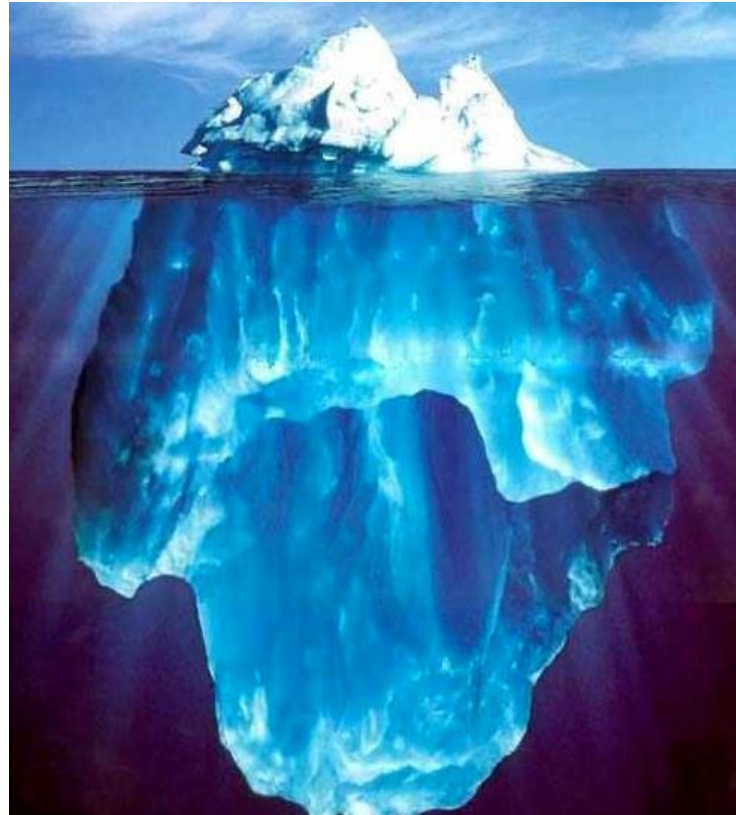


RULE OF 20

- ✓ Fluid balance
- ✓ Oncotic pull
- ✓ Glucose
- ✓ Electrolytes
- ✓ Oxygen + ventilation
- ✓ Mentation
- ✓ Blood pressure
- ✓ Heart rate and rhythm
- ✓ Albumin
- ✓ Coagulation
- ✓ PCV/TS
- ✓ Renal function
- ✓ WBC
- ◆ GI
- ✓ Drugs
- ◆ Nutrition
- ✓ Pain
- ◆ Mobilization
- ◆ Wound care
- ◆ TLC

Tertiary diagnostics and treatment

TIP of the iceberg phenomenon



Surgical exploration

- **Surgery identified**
 - **Splenic laceration**
 - **Colonic perforation**
 - **Renal trauma**
 - **Body wall perforation**
 - **Tracheal tear**



Post op ICU care

- Intubated overnight
- Drain care; penrose and JP
- FLK CRI
 - Fentanyl 4-15mcg/kg/min
 - Lidocaine 50mcg/kg/min
 - Ketamine 5-10mcg/kg/min
- Norepinephrine CRI
- Isolyte and pentaspan
- Urinary catheter
- Continuous monitoring



Recheck RULE OF 20

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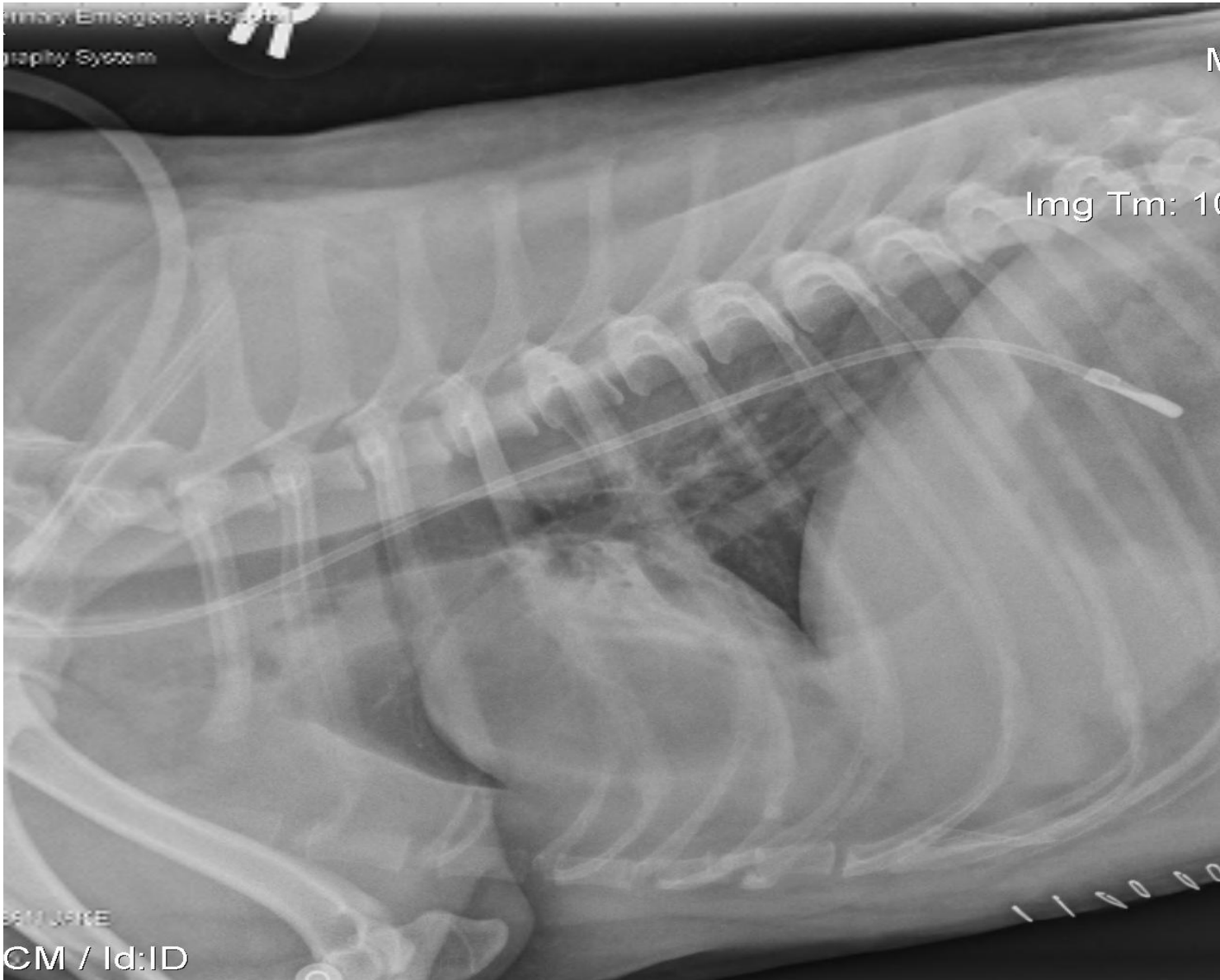
POST OP MONITORING

Day 2

- TPR: 36.3/153/60
 - SPO2 96%,
 - ECG NSR
 - BP 118mmHg
- PCV/TS 26/3.0
 - FFP
- Clinicare CRI
- Abs -BAM
- Analgesics

Day 3

- Alert!
- TPR: 36/144/40
- PCV/TS 18/3.7
 - pRBC transfusion
- BG 7.7
- Abs-BAM
- Analgesics – reduced



Recheck RULE OF 20

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- ✓ Glucose
- ✓ Electrolytes
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- ✓ Mentation
- ✓ Blood pressure
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- ✓ Albumin
- ✓ Coagulation
- ◆ PCV/TS
- ✓ Renal function
- ✓ WBC
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Day 4

- TPR: 36/160/40, BP 170
- Painful
- Excessive vocalization
- Resists movement
- PCV/TS 15/3.4
 - pRBC transfusion
- Restart analgesic CRI's

Rule of 20

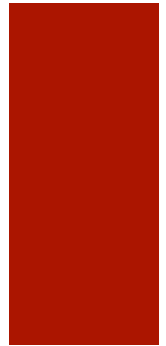
- ◆ Blood pressure
- ◆ Heart rate and rhythm
- ◆ GI
- ◆ Drugs
- ◆ Nutrition
- ◆ Pain
- ◆ Mobilization
- ◆ PCV/TS

Day 5

- TPR: 38/132/44, BP 120
- Alert and mobile
- Drinking but not eating
- Regurgitating clinicare
 - Famotidine
 - ondansetron
 - cerenia
- PCV/TS 16/4.2, icteric

Rule of 20

- ◆ GI
- ◆ Nutrition



Day 6

- BAR!
- TPR 37.5/128/44, BP 150
- Continued to regurgitate
- PCV/TS 14/4.4
 - pRBC transfusion 26/4.8
- Fentanyl → buprenorphine
- PO clavaseptin, tramadol, metronidazole,
- GI: famotidine, cerenia, ondansetron, metoclopramide

Test	Results	Ref Interval	Low/N/High
WBC	15.9 x 10⁹/L	5.7-16.3	
RBC	2.4 x10¹²	5.5-8.4	Low
Hb	58 g/L	129-180	Low
Hct	018 L/L	0.37-0.55	Low
MCV	74 fl	60-77	
MCH	24 pg	19.5-26	
MCHC	330 g/L	320-360	
Platelets	5 x 10⁹/L	164-510	Low
nRBC	5		
% Retic	3.1		
Retic	74.4 x10³/uL	10-110	
Bands	1.0 %		
Neuts	87%		
Mono	11%		
Lymphs	1.0%		

TEST	RESULT	REF INTERVAL	LOW/N/HIGH
TP	22 g/L	54-75	Low
Alb	13 g/L	28-39	Low
Glob	9 g/L	18-39	Low
Tbili	147 umol/L	0-5.0	High
ALKP	275 IU/L	24-141	High
ALT	345 IU/L	5-95	High
AST	664 IU/L	5-71	High
Glu	7.5 mmol/L	3.5-7.0	High
Urea	13.4 mmol/L	3-10	High
Crea	104 umol/L	29-135	
Calcium	1.80 mmol/L	2.2-3.0	Low

Revisit our problems list

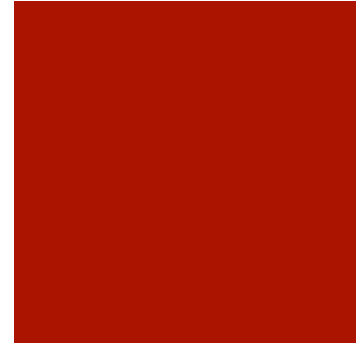
- Regurgitation
- Moaning
- Anemia
- Thrombocytopenic
- Icteric and elevated LE
- Hypoalbuminemic
- Elevated creatinine
- Low calcium

PLANS?

- Adjust pain medications?
- Evaluate feedings and GI tract?
- Repeat CXR and AXR?
- Abdominal ultrasound?
- Additional pRBC and plasma transfusions?
- Re-explore?



“jake” suffered from acute cardiac arrest. So what happened?



- VAGAL ARREST
- DIC
- Sepsis
- Thromboembolic disease