

For each of the following ECGs determine the atrial rate, ventricular rate, describe/name the ECG, and describe your approach to management of a patient presenting with this ECG.

1. 50mm/s. 7y F/S doberman with high-grade heart murmur, coughing, collapse. Thready pulses.



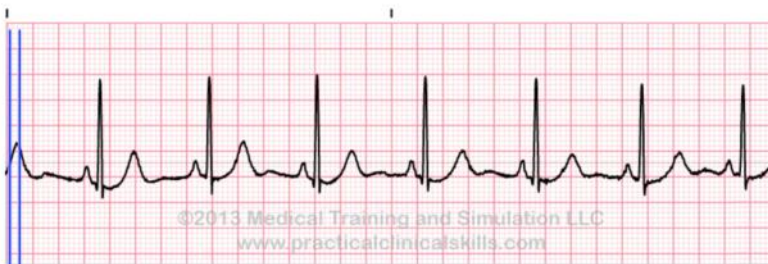
Tachycardic

Strip at 50mm/s means 10 boxes=1 second
 Every black hash mark at the top=every 15 boxes
 This is a 3 second strip
 So multiply number by rhythm
 (If it was a 25mm/s strip it would be 6 seconds)

Atrial Rate: ~250-350 beats/min (Very high)
 Ventricular Rate: 140 beats/min
 Describe/name: irregularly irregular intervals, tall and skinny=supraventricular, p for qrs=no, qrs for every p=no, RHYTHM=ATRIAL FIBRILLATION
 Mgmt Approach: Diltiazem
 -Why diltiazem: Ca channel blocker, working at the SA node to slow down repolarization and the rate of conduction,

Afib in dogs is usually a secondary condition associated with end stage heart disease (structural disorder causing an electrical disorder, so conversion is not usually successful because its not a primary electrical disorder)
 Survival time in the 3-6 months range (Large breed with DCM and afib at time of diagnosis, its about the same for small breed dogs with MMVD as well)
 Goal of Afib in dogs and cats is rate control
 -canine target rate of: 120 ideally (140 initially)
 -goal is well perfused patient
 -feline target rate of: 180 ideally
 -afib fairly uncommon in cats

2. 25mm/s. 4y M/C labrador retriever with 3 day history of coughing with a terminal retch. Tracheal sensitivity/honking cough when trachea palpated. Exam is otherwise normal.



Atrial rate: 70 beats/min
 Ventricular rate: 70 beats/min
 Description/name: regular, p for qrs=yes, qrs for p=yes, normal sinus rhythm
 Mgmt approach: none

No documented reason for arrhythmias with splenectomies we just know that it happens

3. 25mm/s. 12y F/s German Shepherd 24h post-splenectomy.



Atrial: no true p waves
Ventricular: 70 beats/min
Describe/name: regularly irregular, qrs for p=no, p for qrs=no, wide and bizarre=ventricular origin, idioventricular rhythm
Mgmt approach: wait and monitor, figure out underlying cause (As long as patient has good perfusion!)

Idioventricular rhythm: normal rate but all ventricular

V-tach: >180 beats/min, occasionally >160 beats/min

Idioventricular rhythm: a perfusing rhythm with a mono-focus (not multifocal in origin)

-if patient is perfusing=monitor and evaluate why
-is there a reversible cause that we can fix?

- hypoxemia
- splenectomy
- poor perfusion
- electrolyte abnormalities

-if patient is not perfusing=treat!

4. 5y Jack Russel Terrier immediately post-op bilateral MPL surgery. Routine anesthesia, standard drugs, etc. Previously healthy dog. 25mm/sec paper speed assumed



Atrial rate: 60 beats/min
Ventricular rate: 50 beats/min
Description/name: p for qrs=yes, qrs for p=no, successively prolonged P-R interval until dropped QRS, Second degree AV block (Mobitz type 1)
Mgmt approach: monitor for resolution

Type 1 Mobitz: attributed to high vagal tone

Why?

- alpha 2 agonist administration
- really fit animals/people (racing greyhounds)
- under anesthesia: lots of drugs can induce this
 - as long as still perfusing, wait it out and it will go away when they wake up

This should go away when stimulated (sympathetic tone kicks in)

5. 12y male castrated Labrador mix with 3-day history of progressive lethargy, inappetence, vomiting. Examination identifies mild abdominal pain, moderate dehydration, melanic diarrhea.

pH	7.21	Na	158	Crea	10.3
pCO ₂	31	K	44	Glucose	108
HCO ₃	11.3	Cl	114	Alb	2.7
BE	-14.2	iCa	1.27	Phos	17.6
sO ₂	68	Lactate	2.4		
pO ₂	34				

GOLD MARK

Glycols

5 Oxyprolene (acetaminophen toxicity)

L-Lactate

D-Lactate

Methanol

Aspirin: acute signs of toxicity=altered mentation with respiratory distress b/c trying to breath off all of the CO₂ due to severe metabolic acidosis (7.7-7.8)

Renal acids

Ketoacids

Describe the blood gas and electrolyte panel using the traditional approach to acid-base.

Acidemia: Metabolic acidosis possible respiratory compensation

Drop in 8 points of HCO₃ without a corresponding (8x0.7=5.6) 5.6 decrease in pCO₂

-PCO₂ should be 5.5 points lower so 34.5 +/-4 (pretty close, on the edge)

-could be compensated

Anion Gap: (Na+K) - (HCO₃+Cl)=(158+4.4)-(11.3+114)=162.4-125.3=37.1

REALLY HIGH

Differentials: acetaminophen, D-lactate, renal acids, ketones

Describe the blood gas using the strong ion difference & SIG approach to acid-base

Strong Ion Difference (SID)=Na-Cl=158-114=44

What is normal= approximately 30

This value is high, which means that we have a strong ion acidosis

Strong Ion Gap (SIG)=