P wave variability

Wandering Pacemacker

Jordi Manubens Grau; Rodrigo Morais Paiva; Roberto Gaztañaga Egusquiza; Lain García Guasch

Hospital Veterinari Molins; Pol. Ind. Molí dels Frares, B-27, 08620 Sant Vicenç dels Horts, Barcelona
www.hvmolins.com rodrigo_molins@yahoo.com

Introduction:

Jodi a 5 year old female Rottweiller was presented at Hospital Veterinari Molins for a pre cirugic check up for extraction of an uncomplicated subcutaneous nodule. Previous history was unremarkable.

General examination was normal.

An electrocardiogram was performed.
ECG examination:
What is the atrial frequency?
What is the ventricular frequency?
Are the P waves always followed by a QRS complex?
Has every QRS complex a P wave before?
What is the PR interval?
What is the morphology of the P waves?

Interpretation:
Atrial and ventricle frequencies are approximately the same at 80 bpm. All P waves originate an appropriate QRS complex and all QRS complexes have a pre-existing P wave. The PR interval is approximately 0,10 seg.
The morphology of the P waves is variable and in some cases they aren't even present.

Differential diagnosis:
Sinus Pause, Sinus Block, Wandering Pacemaker.

A three simultaneous ECG strip was performed:

ECG examination:
The P waves that are absent on Lead II are visible on other Leads?

Interpretation:
The lack of P waves is suggestive of lack of Supraventricular lack of electrical activity. This can be from Atrial Standstill, Sinus Node blocks or pauses. A wandering pacemaker must be considered, in which there is variability of the P waves and in some instances they cannot be detected on one Lead but can be visible on others. Atrial premature complexes is another possibility but in this situation apart from the loss of P Wave consistency there would be alterations in the cardiac rhythm since these impulses are from abnormal origin.

Diagnosis:
Wandering pacemaker.

Follow up:
Jody proceeded to surgery and no complications were detected.
Acknowledgements:

“If I have seen farther than other man is because I stood in the shoulders of giants”

Bibliography

1. Kittleson MD; Electrocardiography: Basic concepts, diagnosis of chamber enlargement, and intraventricular conduction disturbances; En: Kittleson MD; Kienle RD (ed); Small Animal Cardiovascular Medicine; Mosby, 1998; pg 72-94
2. Kittleson MD; Diagnosis and treatment of arrhythmias; En: Kittleson MD; Kienle RD (ed); Small Animal Cardiovascular Medicine; Mosby, 1998; pg 449-494
3. Miller MS; Tylley LP; Smith FWK; Fox PR; Electrocardiography. En: Fox PR; Sisson D; Moise NS (ed); Textbook of Canine and Feline Cardiology; WB Saunders, 1999; pg 67-105
4. Moise NS; Diagnosis and Management of Canine Arrhythmias. En: Fox PR; Sisson D; Moise NS (ed); Textbook of Canine and Feline Cardiology; WB Saunders, 1999; pg 331-385