The 15th ECVIM-CA CONGRESS
1- 3 September, 2005 Glasgow, Scotland

Inherited arrythmogenic cardiomyopathy in two boxers.

L. García[1,2], J. Manubens[1], R. Gaztañaga[1], R. Paiva[1], R. Sánchez[2]
[1] Hospital Veterinari Molins. Barcelona. Spain [2] Hospital Veterinari L' Arca. Badalona. Spain

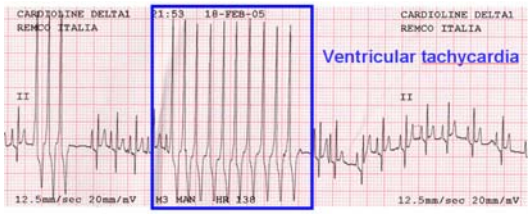
Introduction

Inherited arrythmogenic cardiomyopathy in Boxer is characterized by degenerative myocardial disease with right ventricular myocyte atrophy and fatty or fibrofatty infiltration. This disease is familial, apparently transmitted through autosomal dominant inheritance. There are three forms of the disease; a concealed form (dogs with no clinical signs but with a variable number VPCs), an overt form (with ventricular and sometimes supraventricular tachyarrythmias, syncope or exercise intolerance), and a left ventricular systolic myocardial dysfunction form (dilated cardiomyopathy). Most affected dogs have syncopal episodes due to a rapid ventricular tachyarrhythmia.

In the overt form the physical examination may be normal or premature beats or tachycardia may be ausculted. A presumptive diagnosis can be made by family history of the disease, presence of ventricular tachyarrythmia, and syncopal episodes. Histopathological examination of the myocardium is needed for confirmation of the diagnosis. Echocardiography and x-ray evaluation are usually normal. Affected dogs have right ventricular premature complexes on the ECG but, since it is an intermittent arrhythmia, it is important to carry out a 24-hour Holter register to evaluate the degree and severity of the arrhythmia.

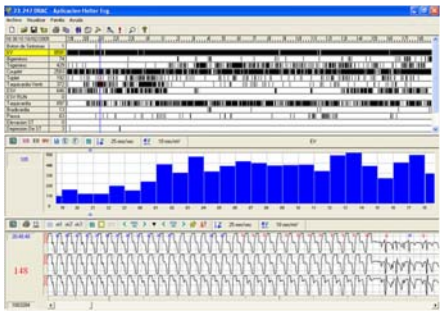
Cases History

Between November 2004 and February 2005, two boxer dogs (8 and 10 years old) were referred to the "Hospital Veterinari Molins - Cardiology and Respiratory Service" due to the recent occurrence of repetitive syncopal episodes. The CBC and the clinical biochemistry analyses were within normal limits. The thoracic radiographs and echocardiogram were normal. In both cases, the ECG showed the presence of right ventricular premature complexes (VPCs) that appeared in couplets, triplets and sometimes ventricular tachycardia (more than four VPCs together).

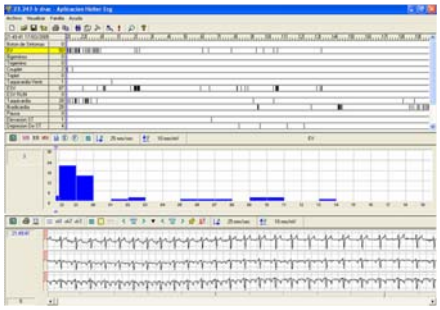


ECG with intermittent ventricular tachycardia

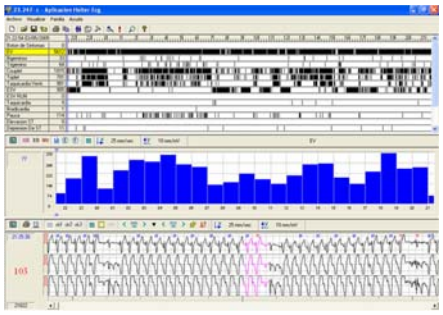
One of the patients died suddenly during a 24-hour Holter recording, which revealed R-on-T phenomena and sustained ventricular tachycardia. The results of the Holter monitor on the other dog showed 8.591 VPC with 372 episodes of ventricular tachycardia. After analyzing both records, the presumptive diagnosis was arrhythmogenic right ventricular cardiomyopathy.



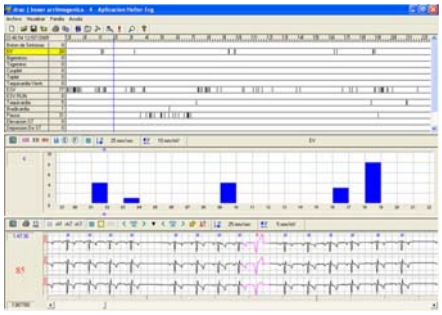
Second case –Sumary of the first 24-hour Holter recording.



Second case – Summary of the Holter recording after being medicated with sotalol at 3.4 mg/kg/12h for 4 weeks. This patient had only suffered one mild syncopal episode in the interim. The number of VPCs was reduced to 50/24 hours with only one episode of ventricular tachycardia.



Second case – Summary of the Holter recording taken six weeks after last presentation. The frequency of sotalol administration had been increased to every 8 hours two weeks before due to worsening of clinical signs (five syncopal episodes in one day).



Second case – Sumary of the Holter recording taken two months later. After the last Holter monitor, the frequency of sotalol administration was reduced to every 12 hours because we were suspicious that there may have been a proarrythmic effect of the drug at the higher dose. The patient has not shown any more syncopal episodes.

Discussion

Most cases are controlled only with ventricular antiarrhythmics. It has been observed that the administration of sotalol (1.5-3.5 mg/kg/12h) or the combination of mexiletine (5-8 mg/kg/8h) and atenolol (0.3-0.6 mg/kg/12h) are the most effective therapeutic regimens to reduce the number of VPCs, the severity of the arrhythmia, and the heart rate.

Some patients can live many years without treatment, others need antiarrhythmics, but the owner must be aware that the risk of sudden death is always present.

Acknowledgments

We are indebted to Dr. Mark D Kittleson who kindly reviewed this poster.

For any question you can e-mail me to:
laingarcia@yahoo.es