



What is Pericardial Effusion ?

Definition and Causes

Pericardial effusion (PE) is the disorder characterised by the accumulation of fluid (serum, blood, chyle, pus) within the pericardial sac (a thin membrane that surrounds the heart and the roots of the great blood vessels). As fluid collects, it markedly impedes the filling ability of the heart (diastolic dysfunction). The right side of the heart tends to "suffer" most because of its thinner wall. PE may develop relatively slowly or rapidly. If the fluid accumulates gradually, the pericardium can stretch to accommodate a great volume of fluid with minimal cardiac impairment. However, when the fluid accumulates rapidly, the pressure within the sac also increases rapidly and right heart dysfunction occurs. Most PE in dogs are associated with tumours, while most cases of effusion in cats present in a milder form and are associated with congestive heart failure. Amongst the neoplastic causes of PE, haemangiosarcoma (HSA), a highly malignant tumour, is the most common. The other neoplastic causes of PE in dogs are heart base tumours (masses located around the aorta and pulmonary artery), mesothelioma and lymphosarcoma. Infections, haemorrhages, traumas, foreign bodies are other possible causes of PE. Finally,

when a primary cause is not identified, the effusion is called "idiopathic".

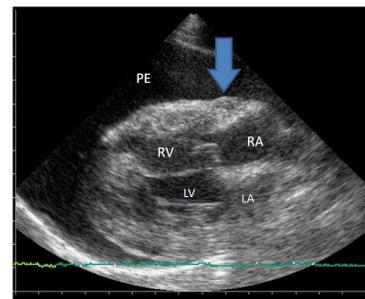
PE is commonly observed in Golden and Flat-coat retrievers, German shepherds and St Bernard dogs; however, PE can also be observed in many other breeds. The average age of dogs diagnosed with PE is 8-9 years and the most common symptoms are lethargy, respiratory difficulty, falling, reduced appetite, vomiting and abdominal distension (picture below). Less commonly excessive drinking and coughing are observed. In people, PE is often accompanied by chest pain and it is possible that dogs and cats with this condition may sense a similar pain. If left untreated, PE may ultimately cause death.



Diagnosis

The presence of the symptoms

described above is highly suggestive of PE. The veterinary surgeon will also detect muffled heart sounds, distension of the jugular veins and weak pulses. Chest radiographs often show a large rounded heart shadow.



However, confirmative diagnosis is provided by a ultrasound of the heart (*echocardiography*). This is a critical test because it allows identification of tumours (indicated by an arrow in the picture above; LA: left atrium; LV: left ventricle; RV: right ventricle; RA: right atrium).

Treatment

The fluid needs to be removed from the pericardial sac as soon as possible using a over-the needle catheter (*pericardiocentesis*). Dogs usually tolerate the procedure without sedation, although a mild sedation is sometimes necessary.

What should be expected now?

The prognosis of pericardial disease depends mostly on the nature of the effusion. Median survival time of dogs with cardiac haemangiosarcoma treated with pericardiocentesis alone is only 11 days, which may increase to approximately 2 months with surgical resection of the mass and to 6 months with a combination of surgery and chemotherapy. Heart base tumours carry a slightly better prognosis, with a median survival time of 42 days that can in-

crease to 730 days with surgical pericardial stripping (*pericardectomy*). A complete surgical removal of heart base tumours is difficult because of their vascular nature and close proximity to the main arteries. Mesotheliomas are difficult to diagnose without a histopathological exam of the pericardium, which can be obtained by surgical stripping. Prognosis of confirmed cases is approximately 300 days, which may

increase with combined chemotherapy. Finally, idiopathic pericardial effusion carries the best prognosis. In some cases, the effusion does not relapse; however, in other cases, repeated pericardiocenteses are necessary to control the effusion. Unfortunately repeated drainages increase the risk of restrictive pericarditis (the pericardium becomes stiff, altering the heart function) and therefore early surgical pericardectomy is always recommendable.

This handout provides a general overview on this topic and may not apply to all patients.

Please do not hesitate to contact us if your require any additional information. (www.cardiospecialist.co.uk)