HOW I TREAT...PULMONIC STENOSIS: BEYOND VALVULOPASTY

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Persistent arterial duct, among the most common congenital cardiac diseases, is usually diagnosed and treated without trouble in most patients due to its unique murmur. Pulmonary stenosis, however, is a disease that may go unnoticed in many cases. In this session, we'll discuss the medical and surgical options so that the general practitioner can inform the owner about the prognosis of this disease.

Pulmonary stenosis (PS) is probably one of the most common congenital cardiac abnormalities in dogs. In valvular PS, pulmonary leaflets are fused, dome-shaped with a central opening (type A stenosis). In some cases, the leaflets are dysplastic, short and with reduced mobility (type B). However, this distinction is not as clear in dogs as it is in people, and most dogs display characteristics of both types.

The pathophysiological consequences of PS are due to the pressure overload in the right ventricle that is generated by the obstruction of blood flow. Hypertrophy and dilatation of the right ventricle are commonly seen, and may affect right ventricular filling so that right heart failure develops. The severity of the disease varies depending on the degree of the obstruction. The pressure gradient (PG) that is created between the right ventricle and the pulmonary artery helps us to classify this disease as mild (PG 25-50 mmHg), moderate (50-80) and severe (> 80).

Treatment varies depending on the severity of the disease. Mild pulmonary stenosis does not require treatment. In moderate cases, we usually administer beta blockers (atenolol) with the aim of improving diastolic time and thereby myocardial oxygenation. Several studies have shown the improvement of clinical symptoms in dogs with severe pulmonary stenosis after valvuloplasty. Briefly, a balloon catheter is positioned across the stenosis and is inflated, dilating the blockage and separating pulmonary leaflets.

Some cases of severe pulmonary stenosis do not improve significantly after a routine valvuloplasty, either due to the dysplastic nature of the leaflets, or the severity of the disease. Surgical correction is one option for these cases. However, few centres are able to carry out these techniques that normally require the use of extracorporeal circuits.

Novel techniques have been developed to treat these patients. These include the use of stents or cutting balloons that facilitate the dilation of the stenosis, although the long-term success of these techniques is unknown.