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Poppy graduated from the Royal Veterinary College and completed a rotating internship followed by a small animal surgical residency at the Queen Mother Hospital for Animals, RVC. Poppy became a lecturer in small animal surgery at the University of Pennsylvania in 2014, gaining her European College of Veterinary Specialists diploma in 2015. Poppy returned to the UK to work in a private referral hospital before moving back to the RVC in 2017 to undertake a two-year fellowship in cardiothoracic surgery. Poppy is now a lecturer in small animal surgery, subspecialising in cardiothoracics, and works mainly on the open heart surgery programme.



**Suggested Personal & Professional Development (PPD)*

MITRAL VALVE REPAIR

Mitral valve repair surgery in dogs

Surgery for mitral valve disease has been the gold standard treatment in humans for many years. Mitral valve repair has been shown to be superior to valve replacement in multiple studies in both the medium and long-term, and the decision between the two is based mainly on patient factors.

Myxomatous mitral valve disease (MMVD) is the most common heart disease in dogs and yet, until recently, a surgical treatment was not available. The mitral valve apparatus is made up of the valve itself, which is divided into two main leaflets (anterior/septal and the posterior/mural), the papillary muscles from which the chordae tendinae originate, and the valve annulus – the region that the valve is suspended in the left atrium.

MMVD causes degenerative changes such as thickening to the edge of the valve leaflets, and thickening and weakening of the chordae tendinae. Over time, these chordae tendinae become elongated and can rupture, allowing flail or prolapse of the valve leaflets. These changes lead to mitral regurgitation, which in turn pulls the valve leaflets away from each other due to stretching of the left atrium, and consequently, the mitral annulus. This leads to further mitral regurgitation, with a vicious cycle continuing, until, in many cases, left-sided congestive heart failure occurs.

Cases of MMVD in dogs are invariably managed medically, with guidelines for this based around the ACVIM consensus statement. As MMVD is progressive, once a dog has entered into heart failure (ACVIM stage C), medication can only go so far, with a continuation of clinical deterioration inevitable, despite medications, and



Figure 1. Pumps of the cardiopulmonary bypass machine that enable circulation of blood from the body, through the components of the machine and back into the body via an arterial cannula.

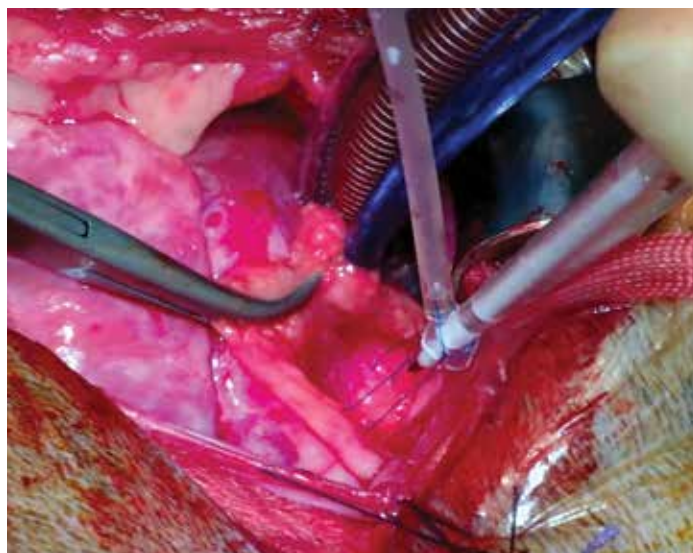


Figure 2. Aortic root cannula being inserted into the root of the aorta via a horizontal mattress suture to help secure it in place.

a median survival time of around 10-11 months once stage C has been reached.

Several centres have attempted a surgical option for MMVD over the years, with mitral valve replacement

using a bovine or porcine valve being reported in a small number of dogs. Unfortunately, thrombosis of the valve replacement was a problem, as has been seen with replacement of the tricuspid valve in dogs as well.