thereafter using transoesophageal echocardiography, ventriculography and cardiac computed tomography. Four of six surviving pigs were sacrificed at 4 weeks after implantation and one at 8 weeks thereafter. One pig died due to an unrecognized valved stent malpositioning that occurred 4 days after implantation. All the animals exhibited normal haemodynamics immediately after mitral valved stent implantation and maintained stability for 6 h of monitoring. They claimed that all animals had been implanted with a bovine pericardial valved stent without any technical failures. The haemodynamic results were good enough. However, the question to be clarified is if the fixation technique of the valved stent will be enough for a better fixation in the long-term follow-up.

The mitral valve apparatus does not have a whole anatomical annulus. It is actually a discontinuous band of a connective tissue that exists only in some parts of the attachment of the posterior leaflet [2]. This means, unlike the aortic position, using a sutureless technique in the mitral position may result in dislocation of the valved stent even if it has basal neochordal support. Since, according to Adam and Carpentier’s discussion [3]. Carpentier says that the annular dilatation process is predominantly seen in the posterior annulus and it also involves the anterior part of the annulus, although to a lesser extent than the posterior annulus. There is no structure that prevents the annulus from dilatation in the sutureless transapical replacement of the valved stent in the mitral position. Therefore, left ventricular pressure in the systolic phase of cardiac cycle and even dynamic movement of the left heart may result in the separation of the annulus from the valved stent, especially in the posterior part of the annulus in the long-term follow-up.

In conclusion, it is an admirable study. We readers thank the authors for sharing their experience and knowledge of a new surgical approach to minimally invasive mitral valve replacement. The explanation of previously described points may necessitate further investigation to overcome possible fixation problems.

REFERENCES


LETTER TO THE EDITOR RESPONSE

Reply to Tavlasoglu

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We appreciate the remarks of Dr Tavlasoglu [1] concerning our experimental study dealing with off-pump transapical mitral valve replacement [2].

Dr Tavlasoglu is concerned about mitral valved stent fixation in the long-term follow-up. He explains the anatomy of the mitral annulus and refers to Carpentier who says that the mitral annular dilatation process is predominantly seen in the posterior annulus [3]. Dr Tavlasoglu hypothesizes that blood pressure and a movement of the heart during the cardiac cycle could lead to paravalvular leakage and stent dislocation.

Our group has gained experience in transfemoral and transapical valved stent implantations with short- and long-term follow-ups for many years. We have not seen any late stent dislocation so far. In contrast, the exact positioning of the valved stents and early stent dislocation and movement are the problems we have been faced with, and we still are.

Once the valved stent is in place, it will be incorporated into the surrounding structures [2, 4].

To overcome the problem of acute paravalvular leakage, our group performed studies with a self-expandable super-absorbent polymer [5]. So far, we have used this polymer in tricuspid valved stent implantation. However, it is intended to adopt this polymer to our mitral valved stent.

We thank Dr Tavlasoglu for his interest in catheter-based valve replacement and hope that this discussion will encourage more research groups to work in this field. There is still a long way to go until we reach the lofty goal of the perfect catheter-based valve replacement technology.
REFERENCES


LETTER TO THE EDITOR

Which management strategy should be chosen for calcified masses of the mitral annulus?†

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The recent images published by Akita et al. [1] showing intracardiac calcified masses at the level of the mitral annulus represent a specific stage in the spectrum of an evolving disease. Mitral annulus calcification (MAC) may appear under different forms depending from its evolution stage: mitral annulus calcification; homogeneous calcified mass of the mitral valve; liquefaction necrosis of the mass; with reduction or stability of the mass dimension’ during follow-up [2].

This condition may sometimes alter mitral valve function, provoking a transvalvular gradient or regurgitation by a distortion of the valvular apparatus [3]. However, the presence of calcified mitral annular masses protruding inside the left atrium should not be considered per se as an indication for surgery in the absence of an altered valve function. Surgery should not be recommended for the presence of only calcified masses at the level of the mitral annulus. It is true that pathologies of a different nature may affect the annulus or the nearby tissues. However, several imaging modalities [ultrasound, computed tomography scan and cardiac magnetic resonance (CMR)] may currently help to specify the nature of those calcified masses [2–4]. Different pathologies, such as soft tissue calcified sarcomas, calcified echinococcosis cysts, cardiac osteocondromas and cardiac calcified amorphous tumours (CAT), should be included in the differential diagnosis [2]. However, specific imaging signs may help to reach a presumptive diagnosis. Soft tissue sarcomas are usually large and invasive masses with calcifications mostly involving only part of the necrotic tumour [4]. In echinococcal cysts, calcifications are classically peripheral. Primitive osteosarcomas can show massive calcification, but they usually grow rapidly [4]. If liquefaction necrosis occurs in MAC, and this is usually associated with a reduced mass dimension during the follow-up and with a benign prognosis [2, 5]. A cardiac CAT, showing a mass (thrombi, infections or infestations) with a mix of calcifications and inflammatory infiltrates, should also be considered in the differential diagnosis [6].

In conclusion, in patients with MAC, surgery should be indicated by the gradient across the valve or by the grade of regurgitation. In cases without abnormal valve function, conservative management may be effective even with large masses [2]. Multimodality imaging studies would help to specify their nature. Indications for surgery should be carefully weighed, in consideration also of the higher incidence of MAC in patients with clinical or subclinical chronic renal failure, as in the reported case.

REFERENCES


1 The corresponding author of the original article [1] was invited to reply, but did not respond.