



Clinical case

Late mitral prosthesis deinsertion, a kind of mechanical prosthesis degeneration : a case report

Désinsertion tardive de prothèse mitrale mécanique, une sorte de dégénérescence de la prothèse mécanique :
à propos d'un cas

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Abstract

Mitral Prosthetic deinsertion is a complication of mitral valve replacement which prognosis depends on the severity of the prosthetic leak and the earliness of occurrence. Most of time it's precocious and secondary to endocarditis or loosening of sutures. We're reporting a case of a late mitral prosthetic deinsertion with no etiology, a kind of mechanical prosthesis degeneration.

Keywords : Mitral prosthetic, deinsertion, degeneration, rabat.

Résumé

La désinsertion de la prothèse mitrale est une complication du remplacement de la valve mitrale dont le pronostic dépend de la gravité de la fuite prothétique et de la précocité de son apparition. La plupart du temps, elle est précoce et secondaire à une endocardite ou à un relâchement des sutures. Nous rapportons un cas de désinsertion tardive d'une prothèse mitrale sans étiologie pouvant être assimilée, une sorte de dégénérescence de la prothèse mécanique.

Mots-clés : prothèse mitrale, désinsertion,

dégénérescence, rabat.

Introduction

Several complications should be identified during the follow-up of the valve replacement patient. Prosthetic deinsertion is the fifth most important complication, with haemorrhage being the most common, followed by thromboembolic events, structural failure for biological prostheses, infective endocarditis, deinsertion and prosthesis thrombosis. [1] It is most often early in the first few months after surgery. We report a case of mitral prosthetic deinsertion occurring 16 years after surgery with no etiology found, suggesting that the disinsertion may be an expression of prosthetic degeneration.

Clinical case

This is a 40 year old patient, occasional weaned smoker, who underwent double mitral and aortic valve replacement by mechanical prosthesis in 2005 for leaky mitro-aortic valve disease of rheumatic

origin with simple postoperative course. He was admitted with global cardiac insufficiency evolving for three months with a recent exacerbation of the symptoms. On admission, the patient had normal haemodynamic constants: BP: 125/75 mmHg, Heart rate: 76 bpm. He presented signs of right heart failure with spontaneous turgidity of the jugular veins, oedema of the lower limbs going up to the thighs with scrotal oedema, and moderate ascites. He also had bilateral mid-lung crackles with SPO₂/91% AA, respiratory rate: 26 cpm. The rest of the clinical examination was unremarkable. The ECG showed atrial fibrillation at 60 cpm, right bundle block, and right and left delayed VES. Chest X-ray showed hilar overload with bilateral pleural effusions. The biological work-up was unremarkable with no biological inflammatory syndrome or haemolysis. The transthoracic echocardiogram completed by a transoesophageal echocardiogram showed (Image 1 and Video 1) a severe para-prosthetic mitral leak (SOR: 90 mm², RV: 120 ml) opposite the small mitral valve, suggestive of prosthetic deinsertion. In addition, the aortic prosthesis was functional without abnormality. The atria were dilated, the LV dilated with good systolic function, the right ventricle dilated with impaired systolic function. There was no evidence of endocarditis or prosthesis thrombosis. The patient was depleted with high doses of diuretics and referred to a cardiovascular surgery center for management.

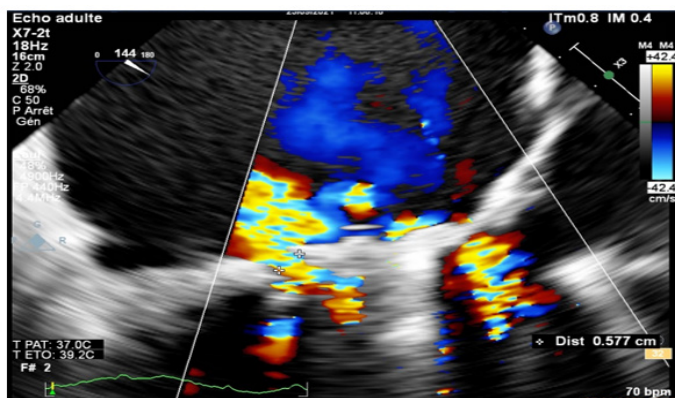
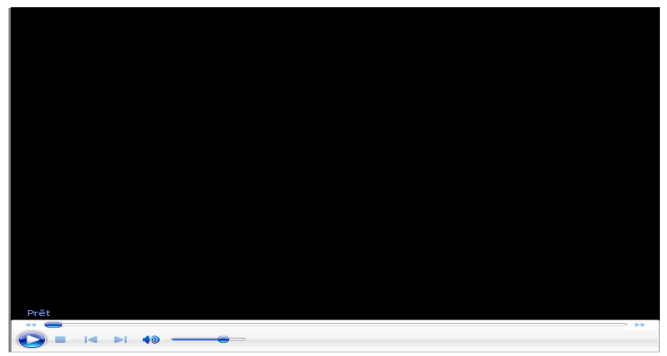


Image 1 : Transoesophageal echocardiogram showing paraprosthetic leak



Video 1 : Transoesophageal echocardiogram showing paraprosthetic leak

Discussion

Prosthesis deinsertion is a serious complication of mitral valve replacement. It can be early (less than 4 months after surgery) or late, secondary to infective or aseptic endocarditis due to loosening of sutures on tissue weakened by multiple procedures or annular calcifications. [2-3] In the Veterans Study, the probability of deinsertion after mitral valve replacement was 17% for mechanical prostheses and 7% for bioprostheses. [4] However, it is important to distinguish prosthesis deinsertion from small paraprosthetic leaks that are usually observed in the early postoperative period, before complete healing of the annulus (31% of patients retain small asymptomatic leaks at the third postoperative month) [5] In our patient's case, the deinsertion occurred 17 years after mitral valve replacement surgery without any etiology being found, raising the issue that prosthesis deinsertion could be a kind of mechanical prosthesis degeneration. The prognosis of prosthetic deinsertion is all the more severe the earlier it occurs in endocarditis due to the virulence of the germs involved and the difficulties of intervening early in a fragile situation (50% mortality) [3]. The clinical presentation depends on the extent of the deinsertion [4]:

- the majority of small paraprosthetic leaks, discovered by systematic ultrasound examination, do not have a clinical translation. When the leak is larger, the functional signs are not very specific, such as fatigue or dyspnoea ;

- signs of congestive heart failure have been reported in 70% of cases of severe paraprosthesis leakage, which was the case in our patient.

- haemolysis is classically associated with deinsertions without any correlation between the size of the disruption and the importance of the anaemia. TTE is used to assess the impact of the leak on the cardiac chambers and pulmonary pressures ; TEE is essential to determine the severity of the lesions [6-7]. Management involves both medical and surgical treatment. Medical treatment consists of iron and folic acid supplementation in moderate haemolysis ; beta-blocker therapy has been proposed to reduce heart rate and possibly the extent of turbulence. In more advanced stages, in the case of heart failure or significant haemolytic anaemia, non-specific medical treatment combines diuretics, ACE inhibitors and transfusion. Erythropoietin has been proposed for high risk surgical patients with uncompensated haemolytic anaemia. Surgical treatment consists of removal of the deinserted material and reimplantation of a new prosthesis. [4] In our patient's case, the flare-up of congestive heart failure was controlled on high doses of diuretics before he was referred to a cardiovascular surgery center for re-revision surgery.

Conclusion

Mitral prosthesis deinsertion is an early complication usually occurring within the first few months of mitral valve replacement with a prosthesis. Its prognosis is all the more severe as it is secondary to an early infective endocarditis on prosthesis. The case we have reported is particular in that it is a late mitral prosthesis deinsertion without any etiology found that could be part seen as a kind of a mitral mechanical prosthesis degeneration.

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References

- [1] Hammermeister KE, Sethi GK, Henderson WG, et al.— A comparison of outcomes in men 11 years after heart valve replacement with mechanical valve or bioprosthesis. *N Engl J Med*, 1993, 328, 1289-1296.
- [2] Désinsertion d'anneau mitral prothétique dans les suites d'une plastie mitrale E. NELLESEN , P. LANCELLOTTI , T. YANS , M.A. RADERMECKER , L.A. PIÉRARD *Rev Med Liege* 2002; 57 : 6 : 361-362
- [3] Delahaye F, Antchouey AM, De Gevigney G.— Endocardite infectieuse. *Rev Prat*, 2000, 50, 1665-1671.
- [4] Les fuites paraprothétiques, B. CORMIER, Institut cardiovasculaire Paris Sud, Massy, juin 2008, *Cardiologie pratique*
- [5] Gueret P, Vignon P, Fournier P, et al. Transœsophageal echocardiography for the diagnosis and management of non obstructive thrombosis of mechanical mitral valve prosthesis. *Circulation* 1995 ; 91 : 103-110
- [6] Ansingkar K, Nanda NC, Aaluri SR, et al. Transœsophageal three-dimensional color Doppler echocardiographic assessment of valvular and paravalvular mitral prosthetic regurgitation. *Echocardiography* 2000 ; 17 : 579-83
- [7] Ionescu A, Fraser AG, Butchart EG. Prevalence and clinical significance of incidental paraprosthesis valvular regurgitation: a prospective study using transœsophageal echocardiography. *Heart* 2003 ; 89 :1316-21

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