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Management of Significant Coronary Stenosis Discovered in Pre-TAVI Coronary Angiography in An 83-Year-Old Patient: When and How to Revascularize? Literature Review from a Case Report

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Abstract **Case Report**

In recent years, we have witnessed the emergence of minimally invasive techniques such as Transcatheter Aortic Valve Implantation (TAVI) for the management of aortic valve stenosis in the elderly or at high surgical risk. TAVI, although with a low mortality rate and a simpler procedural technique, is not free from complications, especially with associated coronary artery disease. Here we report a clinical case of an 83-year-old diabetic patient with atrial fibrillation under rivaroxaban, admitted to the Angoulême hospital center for left heart failure. After management of the left heart decompensation, a transthoracic echocardiography confirms a severe aortic valve stenosis for an aortic valve surface of 0.8 cm2 and a mean trans-aortic gradient of 46 mmHG with an LVEF of 40%. A pre-therapeutic coronarography shows a tri-truncal lesion including a significant stenosis of the proximal left anterior descending artery. In view of the age of this patient, and surgical risk, a TAVI was proposed while discussing the modalities and timing of coronary revascularization.

Keywords: Coronary stenosis, TAVI, aortic valve stenosis, coronary revascularization.

INTRODUCTION

Aortic valve stenosis has undergone a revolution in recent years with the popularization of TAVI. Nevertheless, these patients with an increased surgical risk generally can be seen to discover coronary lesions making the management a little more complex.

CASE REPORT

83-year-old patient, diabetic, stented ischemic heart disease in 2007 on left main artery, atrial fibrillation known under rivaroxaban, admitted to the Angoulême Hospital Center for left heart failure. After management of the left heart decompensation, an objective transthoracic echocardiography: non-dilated LV site of global hypokinesia with LVEF at 40%. OG dilated to 26cm2, severe aortic valve stenosis (aortic valve surface of 0.8 cm2 and a mean trans-aortic gradient of 46 mmHG, Vmax to 4.5m/s), Moderate RV dysfunction (S´Onde at 9 cm/s, TAPSE at 14 mm), initial Aorta not dilated in its visualized portion.

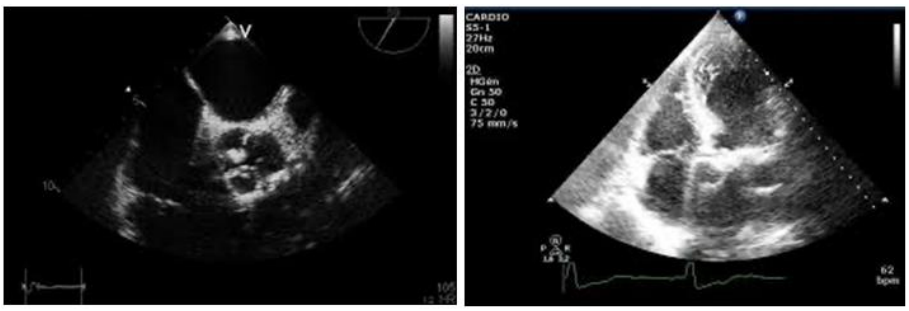

Fig-1: Transthoracic echocardiography

A pre-therapeutic coronary angiography finds

- Significant stenosis of the proximal IVA
- Significant stenosis of the proximal Cx
- Significant stenosis of the middle DC

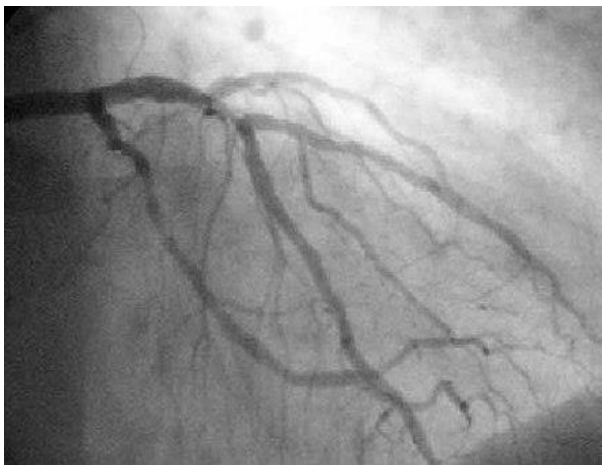

Fig-2: Coronary angiography image

In view of his data from the literature and after the staff of the Heart team, our patient benefited from a complete revascularization by angioplasty before benefiting from a TAVI, the whole of which took place in optimal conditions.

DISCUSSION

Angioplasty is nowadays an efficient alternative means for coronary artery revascularization in patients at very high surgical risk. In the context of an indication for TAVI, a discussion may consist of deciding whether or not to revascularize on the one hand or the best timing for revascularization on the other. In its 2017 recommendations, the ESC half-decided on the question by highlighting revascularization by pre-TAVI angioplasty if the lesions are proximal with a stenosis of more than 70%, class IIa recommendation, level of evidence C [1]. What then also of these middle or distal lesions as the case of our patient? But also is there really a benefit in terms of morbidity and mortality medical treatment vs revascularization?

A Polish cohort of 896 patients including 462 coronary patients with a subgroup of patients having benefited or not from pre-TAVI angioplasty, with the main composite endpoint all-cause mortality at 3 days. The results elucidated an advantage of the revascularization group with TAVI with 7.7% mortality against 10% of the TAVI group without revascularization[2]. This study and like so many others urge us to prioritize revascularization whenever possible.

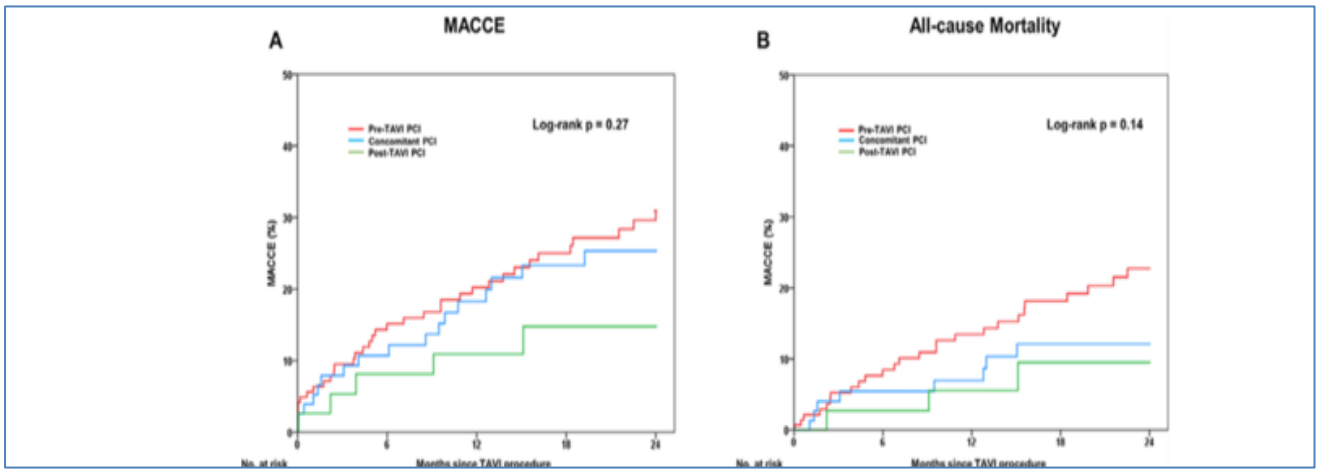

Fig-3: Cohorte chinoise avec supériorité de la rvasc. Post TAVI

Regarding the timing of revascularization, several studies have been done in this direction and remain quite divergent regarding the timing of revascularization without a clear consensus [3]. Admittedly, procedural facilities may give advantage to one revascularization timing over another, but in terms of post-TAVI morbidity and mortality, there is not necessarily any advantage of pre-TAVI revascularization as one might think. Here we are referring to a Chinese cohort by Tomoki et Al which involved 1756 patients who benefited from TAVI, of whom 258 patients had one or more coronary lesions to be treated, and 1498 had TAVI alone. The results showed us in this small cohort a higher percentage of MACCE and mortality for the groups having benefited from pre- and per-TAVI revascularization with a clear advantage for the post-TAVI group [4].

In view of all of these studies and the recommendations of the ESC, a fairly broad collegial discussion is required in order to best provide the best therapeutic strategy for the patient.

CONCLUSION

The management of coronary artery disease in the context of an indication for TAVI remains delicate, especially with the limits of the recommendations of the ESC on the issue, which only speak of proximal lesions.

The decision should be taken by a multidisciplinary staff, in particular with the intervention of the cardiologist, geriatrician and cardiac surgeon in order to propose an efficient PEC for the patient.

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