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Transcoronary ablation of septal hypertrophy in HOCM: septal collaterals may cause unwanted inferior myocardial infarction

Case report

A patient with HOCM presented with worsening dyspnea on medical treatment with verapamil. Transcoronary ablation of the septal hypertrophy (TASH) via the 1st septal branch (SB) was performed. There were normal coronary arteries and a large 1st SB of the left anterior descending artery. It did not seem to receive or supply collaterals from or to the right coronary artery (RCA). The midventricular / LV outflow tract (LVOT) obstruction was severe (fig. 1). TASH was performed with slow injection of absolute alcohol ([AA] 96%) over 25 min. Following injection of 5 ml of AA over 20 min, there was no fall in ΔP_{mean}. Therefore, an additional 3 ml was instilled, which lead to a decrease of resting ΔP_{mean} to 15 mm Hg (fig. 2). At that time, the patient complained of severe chest pain and contrast injection into the SB revealed filling of the occluded RCA via septal collaterals. There were simultaneous

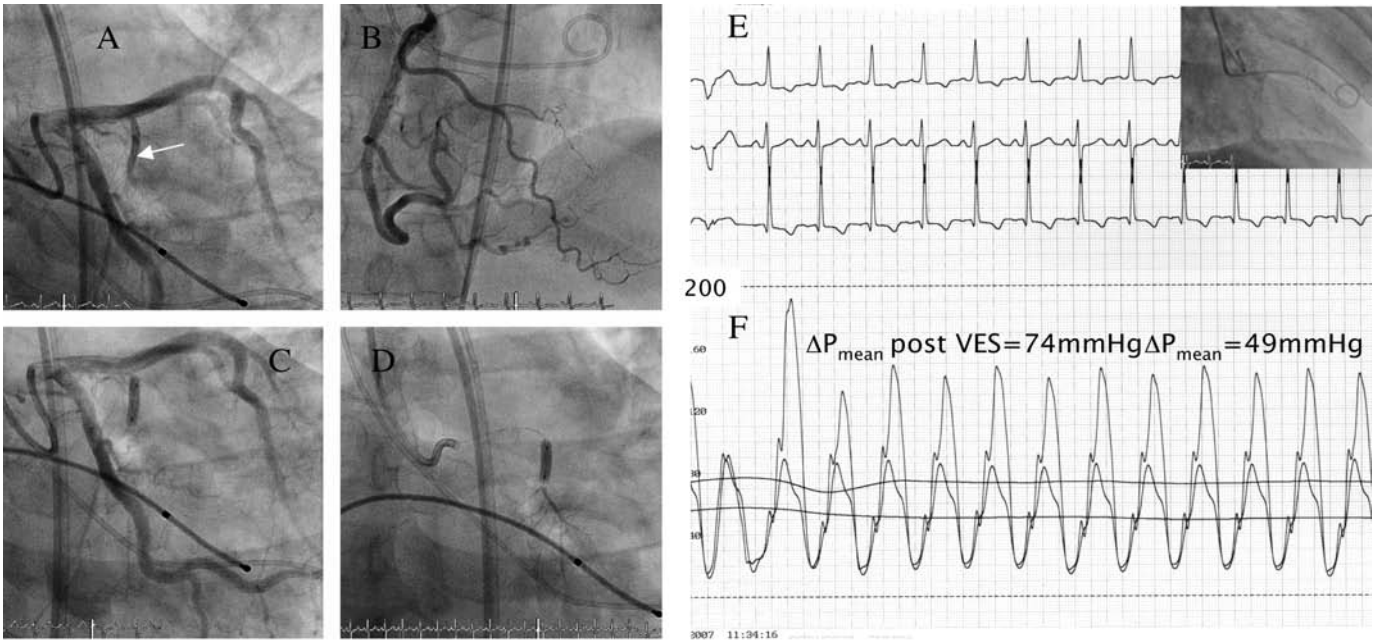

Figure 1
A shows the large-sized 1st septal branch (SB; arrow) of the left anterior descending artery;
B depicts the small normal right coronary artery (RCA);
C over-the-wire ballon occlusion of the 1st SB;
D injection of contrast through the balloon;
E ECG tracing during septal ablation;
F documents the pressure gradient between left ventricular caivity and aorta (ΔPmean).

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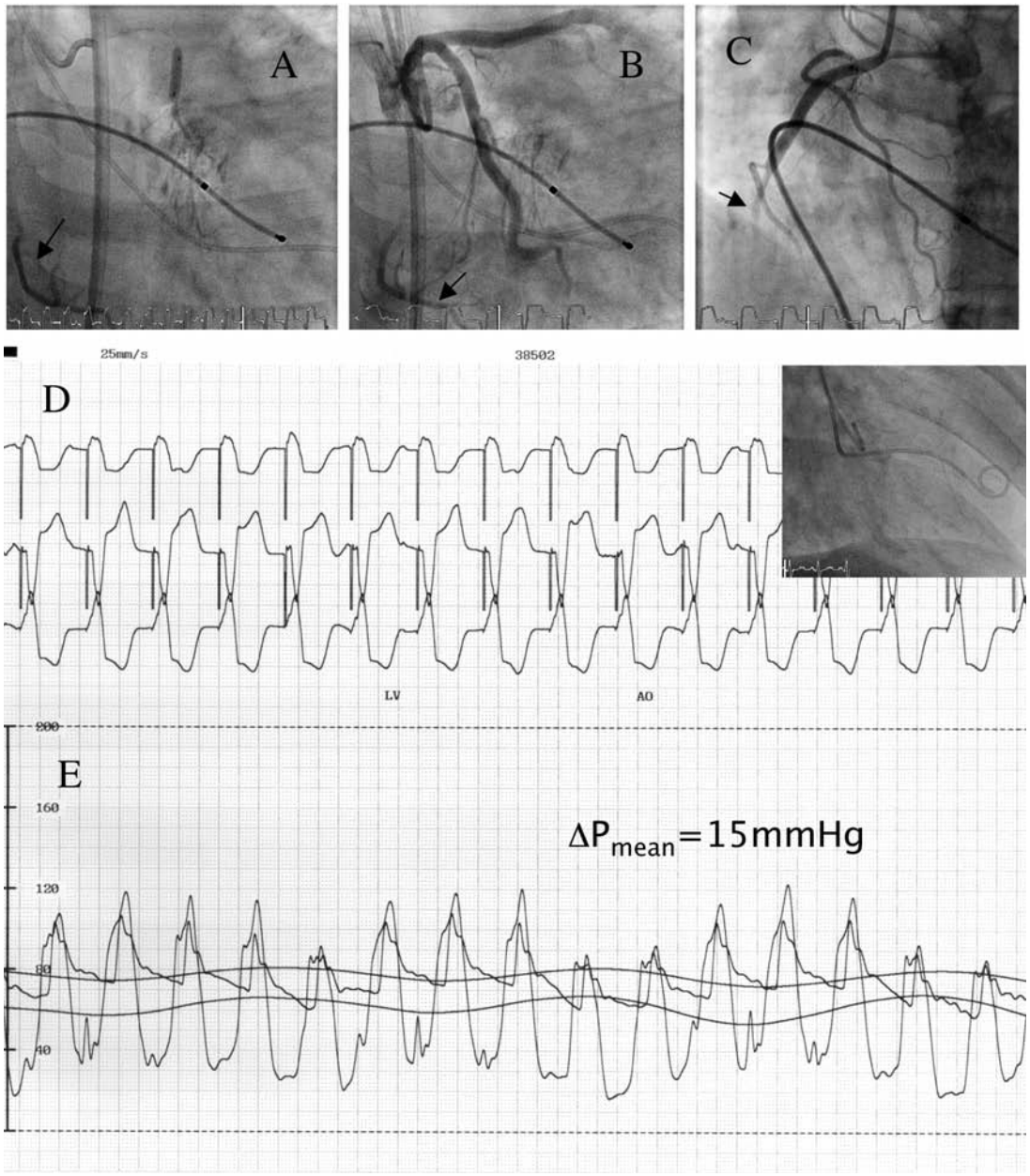

Figure 2
A and B show retrograde filling of the RCA (arrows) from the septal injection;
C Occlusion of the distal RCA (arrow);
D ST-T changes in the ECG;
E Reduction of the pressure gradient post alcohol ablation.

inferior ST-segment elevations. So far, there has been a similar case report *speculating* on the *possible* cause of septal collaterals for inferior or apical myocardial infarction during TASH [1]. Due to the fact that 80% of individuals with normal coronary arteries have at least *some* preformed recruitable collateral vessels ($^1/_4$ of them have collaterals which prevent signs of ischaemia during brief vascular occlusion) [2], the likelihood is high that with septal balloon occlusion collaterals to the RCA are recruited. The present report provides the first proof of "collateral damage" during TASH.

References

1 Chowdhary S, Galiwango P, Woo A, Schwartz L. Inferior infarction following alcohol septal ablation: A consequence of collateral damage? Catheter Cardiovasc Interv. 2007:69: 236–42.
2 Wustmann K, Zbinden S, Windecker S, Meier B, Seiler C. Is there functional collateral flow during vascular occlusion in angiographically normal coronary arteries? Circulation. 2003;107:2213–20.