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Recurrent Infective Endocarditis Following Transcatheter Edge-to-Edge Mitral Valve Repair with MitraClip System

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AUTHOR'S SUMMARY

We experienced the case of a 61-year-old man who had recurrent infective endocarditis following transcatheter edge-to-edge mitral valve repair using the MitraClip system. Infective endocarditis after MitraClip implantation is a serious complication with high mortality. Early surgical intervention should be considered even in cases of high surgical risk.

A 61-year-old man with a history of posterolateral myocardial infarction and end-stage renal disease developed decompensated heart failure secondary to severe functional mitral regurgitation (MR) (**Supplementary Video 1**). Since he was high-risk surgical patient with advanced frailty, we performed percutaneous edge-to-edge mitral valve repair using the MitraClip system (Abbott Vascular, Santa Clara, CA, USA) and corrected severe MR to mild degree (**Supplementary Video 2**). Two months postoperatively, he developed a sudden fever. Three separate blood cultures were positive for methicillin-resistant *Staphylococcus aureus* (MRSA). Although signs of bacterial vegetation were inconclusive on initial transesophageal echocardiography (TEE), we suspected infective endocarditis. Given the prohibitive surgical risk, we selected a conservative approach with intravenous antibiotics. Initially, the patient was hemodynamically stable with no evidence of vegetations on repeated transthoracic echocardiography. However, after 5 weeks, MR exacerbated acutely with hemodynamic deterioration. TEE revealed large mobile vegetation on the clip (**Figure 1A and B**, **Supplementary Videos 3 and 4**). We performed an emergency surgery and intraoperatively confirmed nodular vegetations on the anterior mitral valve leaflet (**Figure 1C-E**). Despite successful valve replacement surgery, the patient developed recurrent prosthetic valve endocarditis, possibly due to pathogenic factors of MRSA, and died 49 days after surgery.

Infective endocarditis after MitraClip implantation is a rare but serious complication with a high mortality rate of 42%.¹⁾ Although the optimal treatment strategy for this life-threatening complication remains unknown, all but one reported patient (who was managed medically)

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Conflict of Interest

The authors have no financial conflicts of interest.

Author Contributions

Data curation: Kadoya Y, Fukai K, Matsubayashi K, Yamano T; Formal analysis: Kadoya Y; Investigation: Kadoya Y, Matsubayashi K, Yamano M, Yamano T, Nakamura T; Methodology: Matoba S; Resources: Matoba S; Supervision: Zen K, Yamano M, Yamano T, Nakamura T, Matoba S; Writing - original draft: Kadoya Y; Writing - review & editing: Zen K, Fukai K, Matsubayashi K, Yamano M, Yamano T, Nakamura T, Matoba S.

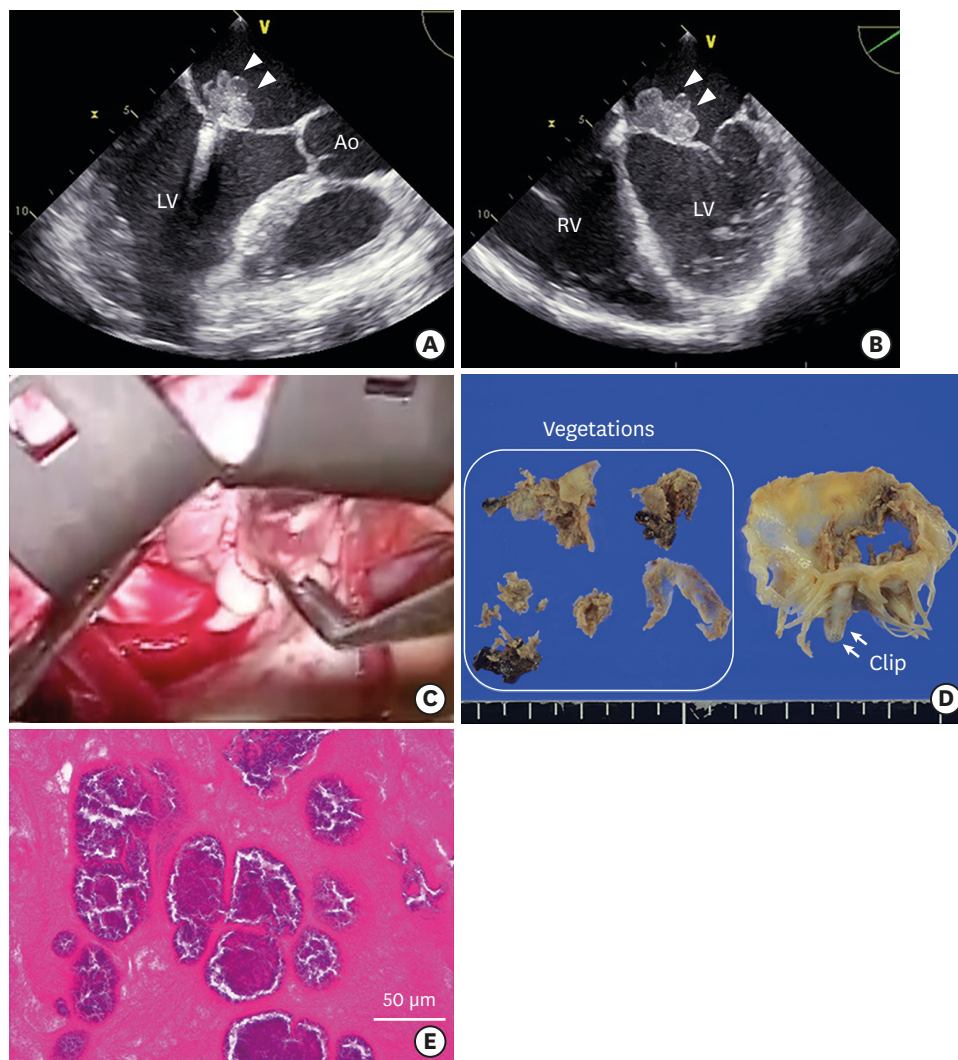


Figure 1. Infective endocarditis following MitraClip implantation. Transesophageal echocardiography showing large vegetations (arrowheads); (A) Long-axis view, (B) Four-chamber view. (C) Surgical view from the left atrium showing several nodular vegetations. (D) Excised vegetations and a clipped native mitral valve (arrows). (E) Histological findings reveal bacterial colonies. RV = right ventricle; LV = left ventricle; Ao = aorta.

underwent surgical valve replacement.^{1,2)} Early surgical intervention should be considered even in cases of high surgical risk.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

Transesophageal echocardiography showing severe functional mitral regurgitation before MitraClip implantation.

[Click here to view](#)

Supplementary Video 2

Transesophageal echocardiography finding immediately after MitraClip implantation.

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Supplementary Video 3

Transesophageal echocardiography showing large vegetations: long-axis view.

[Click here to view](#)

Supplementary Video 4

Transesophageal echocardiography showing large vegetations: four-chamber view.

[Click here to view](#)

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