

## Percutaneous Closure of Native Anterior Mitral Leaflet Perforation Under 3D Transesophageal Echocardiography Guidance

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### Abstract

We are presenting a unique case of native anterior mitral leaflet perforation with severe mitral regurgitation leading to progressive dyspnea. Using real time 3D transesophageal echocardiography, not only accurately diagnosed this case but also successfully percutaneous closure has been done with device. Review of literature showed successful Transcatheter Closure of AML perforation of Only 4 cases, all post-operative status. So, it Seems to be First case of native AML perforation closure till date.

**Keywords:** Mitral valve; Perforation Percutaneous Closure

### Introduction

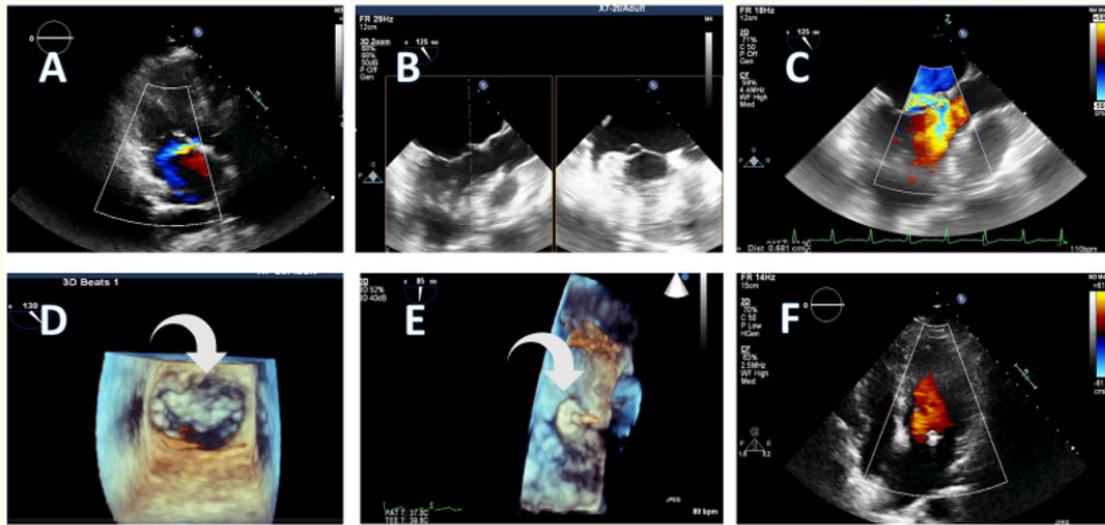
Real time 3D transesophageal echocardiography is very useful tool to not only diagnose structural cardiac defects as well as for procedural intervention guide also.

Native anterior mitral leaflet defects are not only for surgical repair, they can be closed percutaneously also with the help of vascular plugs.

It Seems to be First case of native anterior mitral leaflet perforation closure till date.

### Case Report

36 years old lady having progressive dyspnea on exertion NYHA grade III for last 3 years. She had normal vitals afebrile with blood pressure of 126/78 mmHg, pulse rate 81 beats per minutes, SPO2 99 % on room air. Her ECG and chest X ray report had no abnormality findings detected. She underwent 2D transthoracic echocardiography which suggested some rent in anterior mitral leaflet leading to severe eccentric MR. 2D transesophageal as well as 3D transesophageal echocardiography was done which confirmed the defect ~ 6 - 7 mm in anterior mitral leaflet at junction of A1-A 2 scallop with torrential eccentric mitral regurgitation jet. No vegetations were detected on transesophageal echocardiography. She was thoroughly investigated for the etiology for the perforation, multiple (5 in number) blood cultures were drawn and sent for culture sensitivity but all were sterile. Because of the severity of mitral regurgitation and the presence of symptoms she was advised for surgical repair of anterior mitral leaflet with her unwillingness to undergo surgical correction; percutaneous closure was decided. An 8-mm Amplatzer Vascular Plug II was positioned in the mitral valve perforation with an optimal outcome. Post procedure echocardiography showed no residual mitral regurgitation. On dynamic cardiac MRI, there is no leakage across device. she is clinically asymptomatic now. Review of literature showed successful Transcatheter Closure of anterior mitral leaflet perforation of Only 4 cases, all post-operative status. So, it Seems to be First case of native anterior mitral leaflet perforation closure till date.



**Figure:** Transthoracic echocardiography showed some rent in AML leading to severe eccentric MR; (Figure A). TEE clearly showed some defect ~ 6-7 mm in AML at junction of A1- A2 scallop (Figure B and C). Real time 3 D TEE confirmed the AML (A2 scallop) perforation (Figure D) with torrential eccentric MR jet. 8-mm Amplatzer Vascular Plug II was positioned in the mitral valve perforation (Figure E). Post procedure echocardiography showed no residual MR (Figure F).

## Discussion

Perforations of the mitral leaflets are not so common and mainly due to infective endocarditis [1,3]. There are few other causes like during surgery for the aortic valve, autoimmune diseases like antiphospholipid syndrome and systemic lupus erythematosus [4]. Anterior mitral leaflet perforation can occur at the fibrous continuity between the aortic valve and anterior mitral leaflet valve during aortic valve surgery [5]. In some patient, this is due to aortic regurgitation jet which eroded the surface of mitral leaflet and increased the risk of infection and perforation. Anterior mitral leaflet perforation has been reported only twice in a review of the complications in 475 cases after repair of aortic valve insufficiency done by Dyck, *et al.* [6] Large perforation in mitral leaflet may cause severe heart failure and once it has been diagnosed, require early intervention [1,2].

## Conclusion

Real time 3D transesophageal echocardiography is very useful tool to not only diagnose structural cardiac defects as well as for procedural intervention guide also.

Native anterior mitral leaflet defects are not only for surgical repair, they can be closed percutaneously also with the help of vascular plugs.

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## Conflict of Interest

There is no conflict of interest to be disclosed by both first as well as second author.

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