

MINI-FOCUS ISSUE ON VALVULAR HEART DISEASE

BEGINNER

IMAGING VIGNETTE: CLINICAL VIGNETTE

A Left Atrial Mitral Valve Chord



Philippe B. Bertrand, MD, PhD,^a Timothy W. Churchill, MD,^a Jonathan J. Passeri, MD^{a,b}

ABSTRACT

A 77-year-old patient presented with a mobile structure on the anterior mitral valve leaflet and was diagnosed with endocarditis. Subsequent imaging demonstrated this finding was consistent with a left atrial mitral valve chord. Recognition of this rare mitral valve anomaly is key to avoid overdiagnostics and/or overtreatment. (**Level of Difficulty: Beginner.**) (J Am Coll Cardiol Case Rep 2020;2:526-7) © 2020 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 77-year-old woman with medical history notable for a remote stroke and a recent clinical diagnosis of pneumonia that was treated with oral antibiotics until a week before presentation was admitted to an outside hospital. She presented with complaints of shortness of breath and diaphoresis, and was found to be in atrial fibrillation with rapid ventricular response. Transesophageal echocardiography (TEE) before cardioversion revealed a mobile structure attached to the atrial surface of the mitral valve (**Figure 1, Video 1A**). Mild mitral regurgitation was noted, and no prior imaging was available for comparison. Blood cultures were sterile, yet the patient had recently completed a course of antibiotics. The cardioversion was aborted because of this finding, and the patient was started on empiric antimicrobial therapy with a plan to treat at least 6 weeks for culture-negative endocarditis on the basis of the TEE findings. Subsequently, the patient was transferred to our quaternary care institution for further workup and evaluation by a dedicated heart valve team.

Upon transfer to our institution, repeat TEE demonstrated the structure in question to be a thin, well-delineated strand, attaching to both the tip of the anterior mitral leaflet and to the interatrial septum (**Figure 1, Videos 1B, 1C, and 1D**). This was found to be most compatible with an anomalous left atrial to mitral valve chord. There was no evidence of intracardiac infection. There was no evidence of thrombus. Spontaneous conversion to normal sinus rhythm had by then been observed with rate control agents. All antimicrobial therapy was discontinued, the planned placement of an indwelling catheter was deferred, and the patient was discharged the following day on anticoagulation and continuation of rate control agents.

Anomalous left atrial mitral valve chordae are a rare congenital anomaly. The prevalence in the population is largely unknown, and the clinical relevance is unclear. A number of case reports highlight anomalous left atrial chords as a cause of significant mitral regurgitation for which surgical treatment can be indicated (1). In

From the ^aCardiac Ultrasound Laboratory, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts; and the ^bHeart Valve Clinic, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, or patient consent where appropriate. For more information, visit the JACC: Case Reports [author instructions page](#).

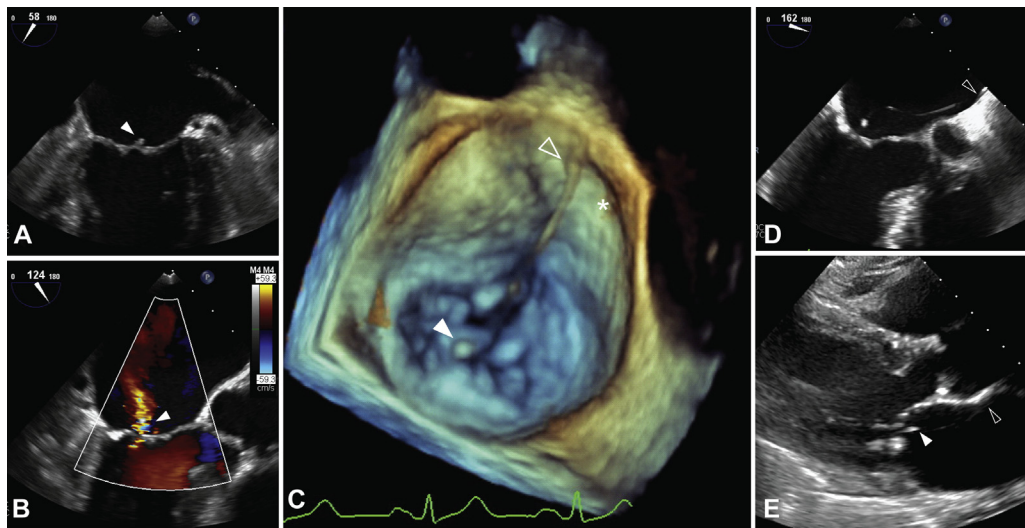
Manuscript received November 6, 2019; accepted November 9, 2019.

addition, there is 1 report of a left atrial chord being involved in a complex endocarditis case (2). However, in patients without significant mitral regurgitation or active infection, adequate recognition of this rare anomaly is equally essential to avoid unnecessary diagnostic testing and/or medical/interventional treatment (3).

**ABBREVIATIONS
AND ACRONYMS**

TEE = transesophageal echocardiography

FIGURE 1 Echocardiographic Presentation of the Anomalous Left Atrial Chord



Two-dimensional transesophageal echocardiography demonstrates a mobile echodense structure attached to the central portion of the anterior mitral valve leaflet (A, arrowhead, Video 1A). There is evidence of mild mitral valve regurgitation (B). Three-dimensional mitral valve evaluation in the surgeon's view (aortic valve on top) demonstrates a left atrial chord attached to the interatrial septum (open arrowhead) anterior of the foramen ovale (asterisk) and inserting on the central portion of the anterior mitral leaflet (C, solid arrowhead). Two-dimensional transesophageal echocardiography in an off-axis long axis view shows the insertion of the anomalous chord to the interatrial septum (D, open arrowhead). Finally, transthoracic echocardiography shows the linear structure attaching to the anterior mitral leaflet (solid arrowhead) and to the interatrial septum (E, open arrowhead).

ADDRESS FOR CORRESPONDENCE: Dr. Philippe B. Bertrand, Cardiac Ultrasound Laboratory, Massachusetts General Hospital, Harvard Medical School, 55 Fruit Street, Yawkey 5, Boston, Massachusetts 02114. E-mail: pbbertrand@mgh.harvard.edu.

REFERENCES

1. D'Onghia G, Martin M, Mancini MT, et al. A late presentation of congenital cardiac anomaly: accessory chordae from the left atrium causing severe mitral regurgitation. *Echocardiography* 2018;35:750-2.
2. Chhabra SK, Bogar LJ, DeCaro MV, Cohen IS. Complex mitral valve endocarditis involving a left atrial false tendon. *J Am Coll Cardiol* 2012;60:2330.
3. Floria M, Gerard M, Marchandise B, Schroeder E. Aberrantly inserted chordae tendineae without significant mitral regurgitation. *J Clin Ultrasound* 2014;42:57-8.

KEY WORDS echocardiography, endocarditis, mitral valve disease

APPENDIX For supplemental videos, please see the online version of this paper.