A 53-year-old man, who had undergone dental treatment 2 months prior, presented with a slight fever and generalized weakness for several weeks. He was examined carefully in a regional hospital. There was no elevation of inflammatory markers, and his blood culture was negative. Electrocardiogram showed atrial fibrillation. Transthoracic and transesophageal echocardiography (TEE) demonstrated a large mass of 20×17 mm attached to the mitral valve or chorda and slight mitral regurgitation. Although atypical clinical signs, including lack of elevation of inflammatory markers and presence of mixed high and low echoic lesions (Figure 1; Movies S1–S3), were found, infective endocarditis with a large vegetation or cardiac tumor was suspected. He was referred to Tachikawa Medical Center for consideration of surgical treatment.

An operation was performed to prevent embolism. The mitral valve was observed via a transaortic and left atrial approach. There was no evidence of vegetation or tumor around the mitral valve and no findings of typical infective endocarditis. Only abnormal mitral chordae tendineae with a mesh-like morphology were observed (Figure 2). We noted that the unusual echocardiographic findings were due to a network structure of mitral valve chorda. Therefore, only a MAZE operation was performed. The patient’s postoperative course was uneventful, and sinus rhythm was maintained.

It is well known that there are 3 types of mitral valve chordae tendineae and that typical rough zone chorda split into 3 cords soon after originating from the papillary muscle. Those 3 cord branches commonly insert into the leaflet, therefore, chordae tendineae with reticular structure is an extremely rare condition. Kuboki et al reported that only 1 in 6,500 consecutive autopsies (0.015%) had abnormal chordae tendineae with reticular structures. This condition seems to be a congenital anomaly. Although unique findings such as coexisting low and high echoic lesion were observed on echocardiography in the present case, it was difficult to distinguish abnormal mitral chorda from vegetation or tumor. From the viewpoint of embolic risk, it is very important to differentiate congenital anomaly from other masses. The present case was not diagnosed but suspected as infective endocarditis based on the Duke criteria. Abnormal mitral chorda may be misdiagnosed as vegetation or tumor, if anomaly of the mitral valve chorda is not considered.

With regard to echocardiographic findings of abnormal structures associated with valve or perivalvular apparatus, there is a lack of significant findings in approximately 3.3% of patients with infective endocarditis. Generally vegetation is a
small to large, irregular, mobile echodense mass attached to the valves or endocardial structure, and, in contrast to congenital anomalies, may resolve or change in appearance over time. Moreover, most often the tumor is solitary and has a frond-like appearance. There is usually a well-demonstrated mobile mass attached by a small stalk, usually arising from the mid-portion of the valve leaflets. In the present case, the margin of the abnormal structure was comparatively regular, and mixed high and low echoic lesions were clearly found.

In summary, TEE was performed at surgery, but we could not confirm the network structure. We believe that echocardiography, particularly TEE, is very useful to differentiate abnormal structure from vegetation and other masses, but it may be difficult to identify abnormal mitral valve chorda, such as network structure on echocardiography, if we do not have knowledge of that in advance. Therefore, we suggest that a diagnosis of abnormal mitral valve chorda should be considered on the basis of the characteristic echocardiographic findings, such as those observed in the present case.

**Disclosures**

None.

**References**


**Supplementary Files**

**Supplementary File 1**

**Movie S1.** Presenting transthoracic echocardiography. Short-axis video demonstrating a large coexisting low and high echoic lesion attached to the mitral valve or chorda.

**Supplementary File 2**

**Movie S2.** Presenting transthoracic echocardiography. Long-axis video demonstrating a large mobile mass attached to the mitral valve or chorda.

**Supplementary File 3**

**Movie S3.** Presenting transthoracic echocardiography. Four-chamber video demonstrating a large, comparatively soft mass attached to the mitral valve or chorda.

Please find supplementary file(s): http://dx.doi.org/10.1253/circj.CJ-13-1012