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Left Ventricular False Tendon

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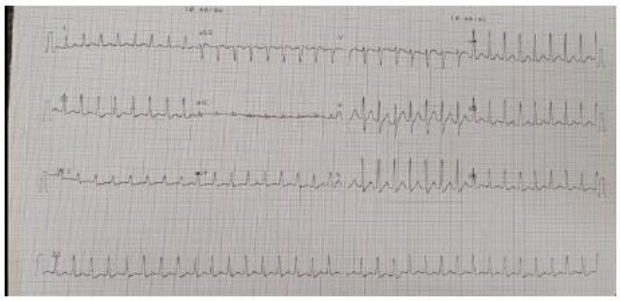
Abstract: ***Background**: Left ventricular false tendons (LVFTs) are chord like structures that have the LV cavity and are generally considered to be benign. However, they have been associated with arrythmias, LV hypertrophy and LV dilation in our studies. We hypothesis that LVFTs are associated with LV structure and functional changes assessed by echo cardiography. **Method**: We prospectively evaluated echo cardio graphic and clinical parameter of 3 patients identified as having LVFTs present with supraventricular tachycardia/ LVH / Mild LV systolic dysfunction.*

Keywords: LVFTs/ ventricular arrythmias/ LVH/ LV systolic dysfunction.

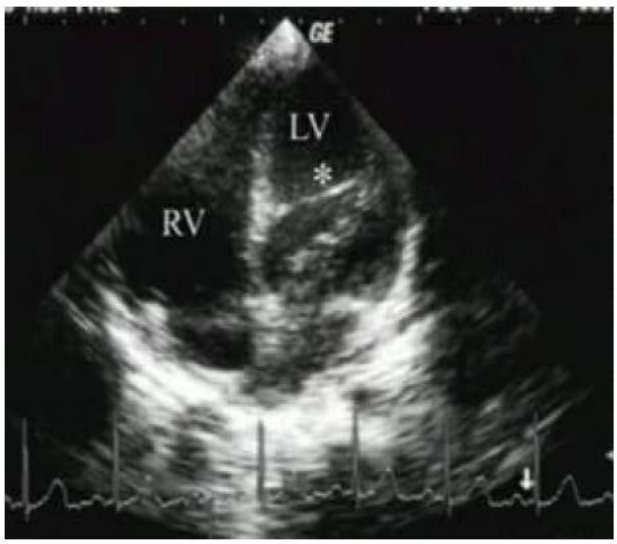
1. Case Report

A 62 - year - old man presented with complaints of chest discomfort. No other cardiac symptoms. Physical examination no abnormalities were present. ECG shows: SVT and reverted with adenosine



2d echo

- No regional wall motional abnormalities
- Normal LV systolic function EF65%
- Normal RV Function
- No PAH / NO CLOT
- Prominent Left ventricular false tendon
- From septal base to Apex was present
- Other parameters normal



Case 2: 17 - year - old male patient presented with palpitation no other cardiac symptoms
ECG shows - s wave in v1 + R wave in V5 more than 35mm F/S/O LVH

2d Echo

- No regional wall motion abnormalities
- Left ventricular hypertrophy
- Ef 60%
- No PAH
- NO PE/CLOT
- False tendon present in the middle LV segment.

Case 3: 52 year old male patient admitted with complaints of difficulty in breathing and chest pain. ECG shows poor r wave progression +. ECHO: mild LVSD. EF - 48%. Normal RVfunction. False tendon present in the mid LV segment. No PAH/no clot

CKMB Elevated

Introduction

Left ventricular false tendon's are echogenic fibromuscular structures, connecting the left ventricular free wall or papillary muscles and ventricular septum As they are not related to the mitral valve apparatus, the term "false" tendon is in use. Based on their location in the apical, mid or basal third segment along the long axis of the left ventricle. LVFTs can be classified as transverse (localised to one zone), diagonal (across the zones) or longitudinal (across all three zones) Most of the LVFTs are transverse and located in the apex.

1) LVFTs first reported by runner early in 1893
2) LVFTs are easily identifiable with bidimentional echocardiography.

Prevalence Different studies report a widely varying prevalence between 0.4% to 83% Common types of Left ventricular false tendons Image

Various terms used for left ventricular (LV) false tendons in the literature.

Diagnosis	Description
False Tendons	Stringlike structures with free interactivity course and connected to ventricular walls and/ or papillary muscles. Fibrosis, muscular or fibro- muscular composition
Trabeculation	Localised protrusions of the ventricular wall that have no free interactivity course
Hyper trabeculation	> 3 Trabeculations associated with intraventricular recesses
Non- Compaction Cardiomyopathy	Congenital primary cardiomyopathy characterized by sponge- like appearance of left ventricular myocardium
Intra- cardiac thrombus or tumour	Intra- cardiac thrombi or tumors are seen in a variety of clinical settings and can result in severe morbidity from embolic events

Clinical significance of LVFTs LVFTs are generally considered as bening anatomic variant, they have been associated with ventricular arrythmias and abnormal cardiac remodeling, including systolic and diastolic dysfunction and dilation

LVFTs + cardiac remodeling

Lfall et al. Study, patient with LVFTs had more prevalence heart failure, more left ventricular dilation, were more likely to have moderate to severe mitral regurgitation and had more severe systolic and diastolic dysfunction. An LVFT location near the middle and basal left ventricular segments was associated with increased left ventricular dysfunction. This study suggests that LVFTs may be associated with adverse structural and functional left ventricular changes, although the mechanism by which LVFTs may cause reduced systolic and diastolic function and increased dilation. LVFTs that run between the papillary muscles may stabilize these structures and retard the occurrence of functional mitral valve regurgitation.

LVFTs + ECG

Presence of LVFTs may be associated with abnormal ventricular repolarization in young healthy subjects Inverted symmetrical, biphasic, t wave can be seen v1 - v3 Presence of LVFTs has been related to the presence of j waves, so called terminal QRS Notching or slurring

LVFTs and ventricular arrhythmias

LVFTs containing purkinje fibres constitute part of the tachycardia network or that an LVFTs may produce stretch in the interventricular septum with increased automatically, ventricular premature beats or arrythmias might then be triggered due to increased automatically of these conduction tells durings mechanical stretch of the left ventricular wall at the insertion point.

2. Conclusion

Although benign, false tendons have been implicated in production of innocent murmur or ventricular tachyarrythmias. It can have a favourable effect in form of decreasing intensity of functional mitral resuscitation on echocardiography, false tendons have a fibrous or fibromuscular structure. The diagnosis of a LVFT should be based on the finding of a distinctive linear echogenic strand, transversing the LV cavity, connecting the LV free wall or papillary muscles and the ventricular septum, not related to the mitral valve apparatus and identified in at least two echocardiographic planes of view.

LVFTs and Mortality

Presence of LVFTs was not associated with the risk of mortality

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