

## Case Report

# Papillary muscle and left ventricular trabecular calcification in rheumatic mitral stenosis

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### ABSTRACT

Calcification of mitral valve apparatus in rheumatic pathology is not uncommon but isolated papillary muscle calcification and surrounding trabeculation is very rarely seen. Here valve leaflets and annulus are not calcified. This signifies the involvement of other factors in initiation of calcification other than rheumatic scarring. It may be chronic ventriculopathy that leads to trabecular calcification which involves papillary muscle and may later involve annulus. Clinical significance is that in high risk cases balloon mitral valvotomy can be given a chance rather than replacement of valve as annulus and leaflets are pliable.

**Keywords:** Papillary muscles, Mitral valve, Rheumatic valvular disease, Calcification

### INTRODUCTION

Calcification of mitral valve apparatus in rheumatic pathology is not uncommon but isolated papillary muscle calcification and surrounding trabeculation is very rarely seen.

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Clinical significance is that in high risk cases balloon mitral valvotomy can be given a chance rather than replacement of valve as annulus and leaflets are pliable.

We report an unusual isolated papillary muscle calcification in a case of severe rheumatic mitral stenosis.

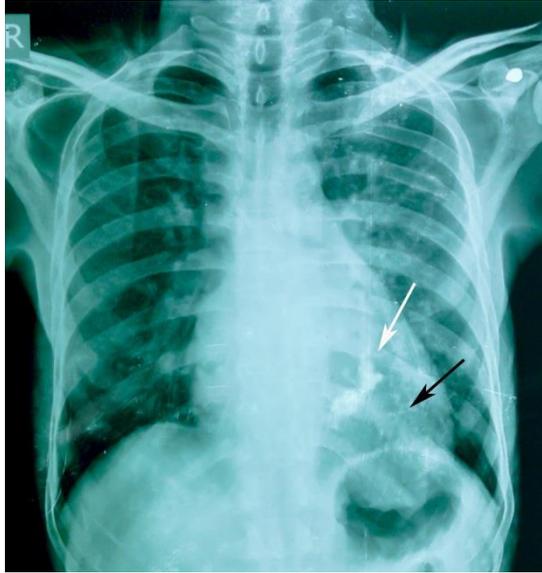
### CASE REPORT

A 24 years old male, with previous history of rheumatic fever and its manifestations at the age of 10, presented with NYHA III dyspnea with echocardiographic findings of severe mitral stenosis. The roentgenogram showed calcification of papillary muscles (White arrow) extending into the left ventricular trabeculae (Black arrow), straightening of left heart border, pulmonary venous hypertension. Mitral valve area of 0.8 cm<sup>2</sup> and peak gradient of 25 mmHg across the mitral valve. Right ventricular systolic pressure was estimated as 36 mmHg by Tricuspid Regurgitation jet.

Intra-operatively, the leaflets were not severely affected as it was expected; they were mildly thick and devoid of calcium. The mitral annulus was also devoid of any calcification and was normal. Chordae were calcified and shortened significantly pulling the papillary muscles up to the sub-annular level. The calcification also extended up to the papillary muscle and left ventricular trabeculae.

A white layer of the calcium was evident on the surface of the left ventricular trabeculae adjacent to the papillary muscle insertion.

Total valve excision with resection of all the chordae was done to prevent entrapment of the chordae in the prosthetic valve leaflets.



**Figure 1: The roentgenogram showed calcification of papillary muscles (White arrow) extending into the left ventricular trabeculae (Black arrow), straightening of left heart border, pulmonary venous hypertension.**

## DISCUSSION

It is well known fact that the immune responses against cardiac myosin lead to valvular heart disease and infiltration of the heart by Streptococcal M protein reactive T lymphocytes. Recent studies have shown that calcification is not merely an inactive, "dystrophic" process but involves a regulated inflammatory process associated with expression of osteoblast markers and neo-angiogenesis. Increased plasma osteopontin levels correlated with severity of mitral valve calcification.<sup>1</sup>

The immune response targets various tissues in the natural history of rheumatic heart disease. Leaflet thickening, retraction, nodularity, annular calcification, chordal shortening and fused subvalvar apparatus, frequently noted intraoperative findings, usually correlate with the severity of the valvar deformation. It was a rare instance that isolated papillary and endocardial calcification was observed without significant disease in the valve leaflets and the annulus.

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## REFERENCES

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