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RESEARCH ARTICLE

POST MYOCARDIAL INFARCTION SUB-TRICUSPID VALVE PSEUDOANEURYSM- A LESSON FOR NOVICE ECHOCARDIOGRAPHER

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Abstract

A case of post tricuspid valve pseudoaneurysmoccurring 10 days after inferior wall myocardial infarction and diagnosed on trans-thoracic echocardiography.To the best of our knowledge, this is the first reported case of such a complication at sub-tricuspid location.

Introduction:-

Cardiac pseudoaneurysms are a rupture of a blood vessel or myocardial wall that is contained by pericardiu,thrombus or adhesions (1). Pseudoaneurysmdiffer from true aneurysm as their wall do not contain myocardial tissue and they are connected to the ventricle by a narrow neck. Differentiation of the two is of paramount importance for management. Left untreated this serious complication is associated with a 40% incidence of rupture at 1 year(2).

Pseudoaneurysm generally occur as a complication of myocardial infarction and involve the left ventricle. Right ventricular pseudoaneurysm are still more uncommon and mainly occurring at right ventricular apex (3).

Here in we report a rare case of right ventricular pseudoaneurysm situated at sub-tricuspid level diagnosed on trans thoracic echocardiography (TTE) in a patient of recent inferior wall myocardial infarction.

Case Report:

A 65-year-old man presented with progressively increasing dyspnea and bilateral pedal edema, 10 days after having severe retrosternal chest pain with perspiration. ECG showed QScomplex with ST elevation in inferior leads(Figure 1) and diagnosed as inferior wall myocardial infarction that was not thrombolysed because late presentation.He was in Killip class 2 with raised jugular venous pressure. Cardiac auscultation revealed a grade3 harsh systolic murmur in the lower left parasternal area and a loud S2 with a prominent right ventricular S3. Trans thoracic echocardiography (TTE) demonstrated akinetic mid-basal inferior wall with severe hypokinesia of right ventricle. Some colour turbulence seen at sub-tricuspid level, further tilting the probe caudally there was a thin walled pseudoaneurysm at RV basal part and had a relatively narrow entrance,with a shelf like overhanging edge(Figure 2,3).

Colour flow signals demonstrated marked turbulence of blood flow from the RV cavity to pseudoaneurysm. Coronary angiography was done which showed triple vessel disease.Early cardiac surgery was advised but patient's relatives refused for the same and requested discharge ,against medical advise.

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Discussion:-

The rarity of right ventricular aneurysms in comparison to those of the left ventricle has been well documented in the literature (3-7).The reason for this difference in incidence uncertain but the frequent occurrence of myocardial infarction in the left ventricular wall and the hemodynamic difference between the greater and lesser circulation are significant factors(8).

On reviewing the literature ,published case reports of these right ventricular pseudoaneurysm have been demonstrated to develop from post cardiac surgery (9). following device lead extraction from RV(10). fromlipoma(11). afterendomyocardial biopsy(12). post infectious(13,14). after remote myocardial infarction(15). and subsequent to penetrating chest wall trauma(16). Differentiation of ventricular pseudoaneurysm from true aneurysms on cardiac imaging is difficult.Presence of certain features such as globular contour, narrow entrance and overhanging shelf like edges on echocardiography suggests the diagnosis of pseudoaneurysm.This differentiation is important since pseudoaneurysm have a high risk of spontaneous rupture. Two -diamensional echocardiography with color Doppler has been suggested to be the most accurate examination for the detection of a pseudoaneurysm.(17).

In a patient with late presentation of inferior wall myocardial infarction with severe hypokinesia of right ventricle, as in our case, one should always look for pseudoaneurysm at sub-tricuspid level in apical four chamber view because of its predisposition of rupture and these pseudoaneurysm may also serve as a nidus for thrombus formation leading to pulmonary embolism.

Early diagnosis and rapid surgical intervention are required for optimal outcome. Their true nature can be confirmed at the time of surgical inspection or autopsy.

Late presentation of inferior wall myocardial infarction involving right ventricle with a systolic murmur should always look for development of pseudoaneurysm at sub-tricuspid level at lateral free wall of RV.

Conclusion:-

Cardiac pseudoaneurysms are a potentially fatal condition that require appropriate identification. Right ventricular pseudoaneurysm are uncommon but always had a high suspicion while doing echocardiography of a inferior wall myocardial infarction with right ventricular involvement.

Figures:-

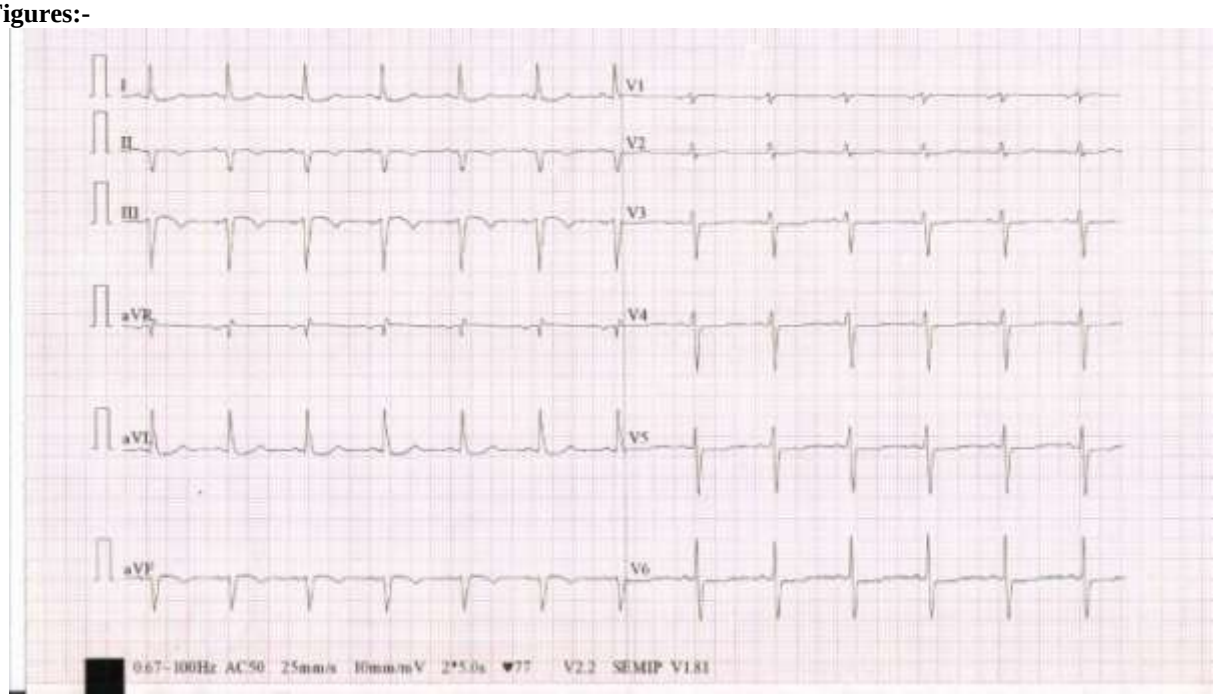

Fig 1:- Electrocardiogram at presentation showing QS complex with ST elevation in inferior leads (II, III, aVf).

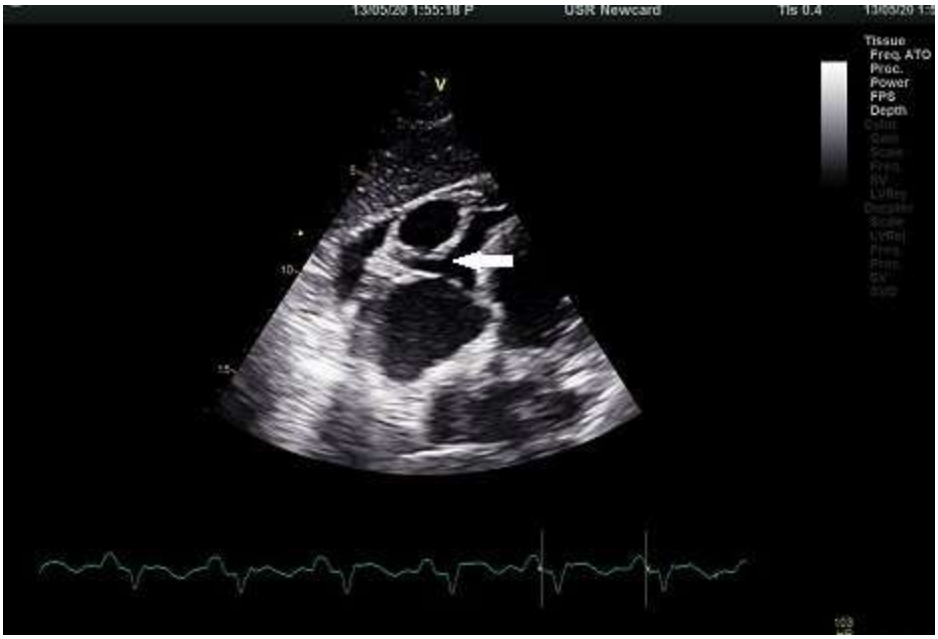

Fig 2:- Trans-thoracic echocardiography (TTE) showing pseudo-aneurysm at sub-tricuspid level in apical 4 chamber view.

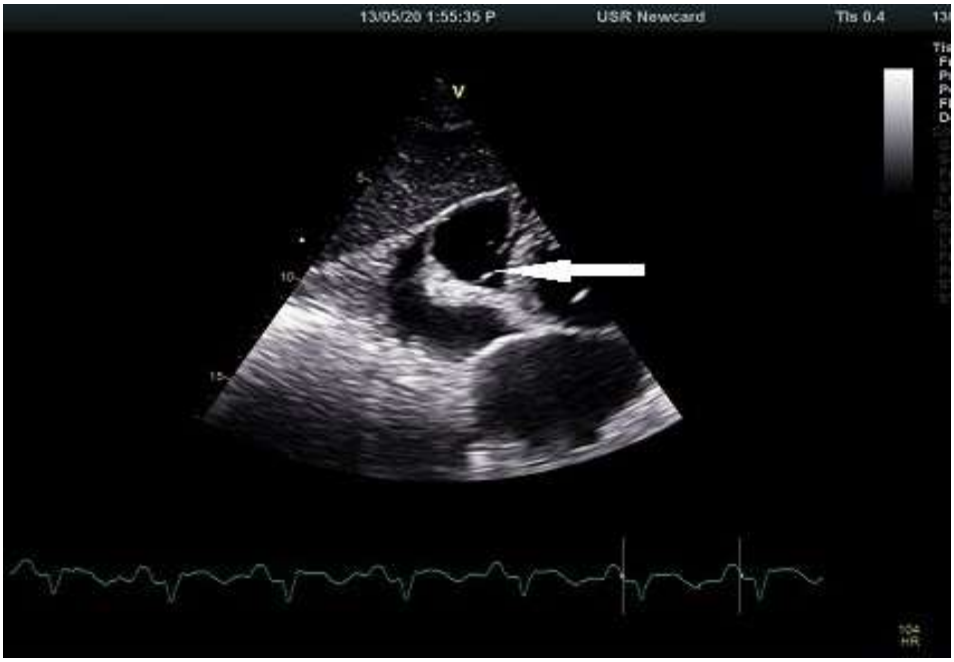

Fig 3:- Trans-thoracic echocardiography (TTE) showing narrow neck of right ventricle pseudo-aneurysm in apical 4 chamber view.

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