



## A Mysterious Tricuspid Regurgitation: A Case Report

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ARTICLE INFO	ABSTRACT
Published Online: 24 April 2023	Tricuspid regurgitation (TR) is a frequent echocardiographic finding in general population with a prevalence of almost 80% to 90%. It is usually associated to other valvular heart disease. Isolated TR although rare, is possible and can be either organic or functional. The clinical signs aren't specific, and the cardiac US plays an important role in diagnosis and evaluation of TR from mild to torrential among other imaging modalities like MRI and MDCT. The etiology of TR are numerous and most be known in order to offer the adequate treatment.
Corresponding Author <b>Dr. I.S. Azday</b>	We present a Case of a 62 years old woman with an isolated (moderate to severe) TR of an unknown etiology, occurring after a SARS -COV 2 infection.

### INTRODUCTION

Tricuspid regurgitation (TR) is a frequent pathology with a prevalence of 82% in men and 85,7% in women according to the framingham heart study.

This valvular disease is rarely isolated and usually secondary to another left heart valvulopathy.

Despite the high prevalence of TR, it has been neglected for so long and considered as a benign pathology. Recent studies showed that it has an important impact on the long term rate of survival.

This clinical case describes an isolated case of moderate to severe TR with a variable flow at the color doppler and a dilated right atrium revealed after a Sars-Cov 2 infection.

### CASE PRESENTATION

A 62 year old woman presented to our cardiology department for blockpnea, abdominal pain, asthenia and episodes of diarrhea 7 months after a non-complicated coronavirus infection, with no previous vaccination against Sars-Cov 2. Physical examination was normal and didn't show any cardiac murmur. The blood count exam, electrolytes were normal. D-dimer levels were low. A chest X ray showed a difference of perfusion between the two lungs with a better perfusion of the right lung without any other abnormalities.

The EKG showed a sinus rhythm with heart rate at 70. It didn't show any auricular or ventricular hypertrophy and no other abnormalities. The transthoracic echocardiogram revealed TR with an effective regurgitant orifice area (EROA) at 31 mm<sup>2</sup>, a PISA radius at 0,6mm, TR velocity was at 2,5m/s, with a variation in the TR color flow between moderate and severe. The valve morphology was normal. The right atrium was dilated at 23 cm<sup>2</sup>. The tricuspid annulus wasn't dilated with a diameter at 37 mm. The right ventricle wasn't dilated with a basal diameter at 27 mm and a good systolic function.

The pulmonary artery measured 14 mm.

The chest CT angiography showed a dilated right atrium without any signs of pulmonary embolism, but the pulmonary scintigraphy showed an intermediate probability of pulmonary embolism.

The abdomino – pelvic scan was normal.

Our patient was treated with anticoagulation therapy for 3 months. She reported a clinical improvement although the probability of pulmonary embolism was intermediate and no transthoracic echocardiography was done after the therapy to evaluate the evolution of the TR.



**Figure 1: Transthoracic echocardiogram showing TR with an effective regurgitant orifice area (EROA) at 31 mm<sup>2</sup>, a PISA radius at 0,6mm, TR velocity at 2,5m/s with a normal valve morphology.**

## DISCUSSION

The causes of primary TR are numerous such as chest wall trauma, congenital heart disease (Ebstein's anomaly, tricuspid valve dysplasia ...), connective tissue diseases, ischemic heart disease (causing a dysfunction or rupture of the papillary muscle), secondary to medication (dopamine agonists, ergot alkaloids ...), iatrogenic injury in endomyocardial biopsy, pacemaker and ICD leads, or tumoral disease (RA myxoma or Carcinoid syndrome). (1) In those cases, there is a thickening and immobility of the tricuspid valve unlike our case where the tricuspid anatomy of the valve is normal.

The secondary TR can be due to left sided heart disease, right ventricular dysfunction, AF or pulmonary hypertension that can be secondary to pulmonary embolism especially after a Sars-cov 2 infection which increases the risk of thromboembolism by creating a prothrombotic state.

So far, there have been several reports of accelerated coagulation in patients with COVID 19.

It has been suggested that vascular endothelitis due to an activated immune response or an infection of the vascular endothelium in cases of SARS COV 2 may lead to blood clotting. Nevertheless, the pathophysiology of activated coagulation associated with coronavirus is not yet well understood. (2)

The symptomatology is mainly exertional dyspnea, asthenia, hepatalgia.

A soft cardiac murmur and signs of right congestive heart failure may be present.

The transthoracic echocardiogram plays an important role to diagnose, evaluate and identify the etiology in cases of primary TR, contrary to secondary TR where it shows only indirect signs of TR such as dilatation of the RV or RA. It can also show a left heart dysfunction or an associated valvular

heart disease or a thrombus in the pulmonary artery that can explain the TR.

The cardiac MRI is the gold standard imaging modality for the assessment of tricuspid valve and RV anatomy owing to the excellent spatial resolution of this technique. (3)

The MDCT enables accurate measurement and assessment of the RV and surrounding structures which is indispensable for selecting the right patient and the right device tailored to the requirement.

When congestive signs are found, the use of mineralocorticoid receptor antagonists or other diuretics can help but shouldn't replace or delay an interventional treatment if indicated.

## CONCLUSION

The TR is frequently discovered during the transthoracic echocardiogram examination and is no longer considered as a benign pathology.

Thereby our case highlights the importance of defining the etiology of tricuspid regurgitation. It is the best way to offer an adequate treatment.

## REFERENCES

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