

Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction): developed in collaboration with the American College of Emergency Physicians, the Society for Cardiovascular

Angiography and Interventions, and the Society of Thoracic Surgeons; endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine. *Circulation* 2007;116:e148–e304.

CARDIOVASCULAR FLASHLIGHT

doi:10.1093/eurheartj/ehp531

Online publish-ahead-of-print 3 December 2009

Spontaneous regression of severe traumatic tricuspid valve regurgitation

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A 27-year-old male patient was hospitalized after a car accident. In-hospital work-up revealed a subdural haematoma, an unstable C7/Th1 distraction fracture, bilateral pulmonary contusions, and rib fractures with bilateral pneumothorax. On admission, central venous pressure was 25 mmHg with a prominent v-wave. Troponin, cardiac enzymes, and NT-proBNP were elevated. Echocardiography revealed severe tricuspid regurgitation due to partial rupture of the posterior and anterior papillary muscles leading to prolapse of the respective tricuspid valve leaflets. Vena contracta was 12 mm and there was prominent systolic backflow in the hepatic veins. The right-sided cardiac cavities were enlarged, and paradoxical motion of the interventricular septum was observed. No further cardiac injuries were identified.

Fifteen days later, tricuspid regurgitation remained severe (Vena contracta 12 mm, prominent systolic backflow in hepatic veins), and right-sided cardiac cavity size had increased compared with the initial study. Nevertheless, the patient could be dismissed to a rehabilitation clinic after a hospitalization period of 29 days.

Seventy days after the accident, tricuspid regurgitation was still severe (Vena contracta 8 mm, prominent systolic backflow in liver veins), and there was progressive enlargement of the right ventricle and right atrium. However, 165 days after the accident, fibrosis of the injured papillary muscles was evident, and tricuspid regurgitation had become moderate (Vena contracta 7 mm); moreover, the size of the right-sided cardiac cavities had decreased to almost the initial value, and the diameter of the inferior caval vein was normal. The patient was asymptomatic and worked full time as a brick layer, although he had been advised to change job. At 1-year follow-up, tricuspid regurgitation was mild (Vena contracta 3 mm) and cavity size had normalized.

Traumatic tricuspid valve regurgitation is rare and most often occurs in patients involved in car accidents. While excellent results were reported for tricuspid valve reconstruction or replacement, information on the clinical course under conservative treatment is sparse. This case illustrates that conservative management may be appropriate for severe tricuspid valve regurgitation due to partial rupture of papillary muscles, since remodelling and scarring of the latter can provoke a secondary decrease in regurgitation.

Panel A. Transgastric view of the partially ruptured posterior papillary muscle of the tricuspid valve (long arrow) leading to prolapse of the leaflet (short arrow).

Panel B. After 165 days, transthoracic long-axis view showed fibrotic scarring of the posterior tricuspid papillary muscle (arrow).

Panel C. Acute severe tricuspid regurgitation.

Panel D. Follow-up echocardiography showing moderate tricuspid regurgitation.

Panel E. Vena contracta width and presence of prominent systolic backflow in hepatic veins.

Panel F. Right ventricular dimensions.

Panel G. Right atrial dimensions.

Abbreviations: TR, tricuspid regurgitation; RA, right atrial; RV, right ventricular; EDD, end-diastolic diameter; ED, end-diastolic.

