TRICUSPID INSUFFICIENCY AFTER BLUNT CHEST IN A PATIENT WHO PREVIOUSLY UNDERWENT CABG

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SUMMARY
A 67-year-old man sustained traumatic rupture of the tricuspid valve in an automobile accident. Four years later, progressive fatigue and cardiac enlargement developed. He has undergone CABG 7 years ago. Angiography revealed the trombosis of the saphenous graft anastomosed to the RCA. For these reasons tricuspid valve replacement and re-do CABG was performed. The patient died of multiorgan failure on the second postoperative day.

Traumatic tricuspid regurgitation is relatively uncommon. In this article we report our experience with surgical treatment of traumatic tricuspid valve insufficiency accompanied by re-do CABG in a patient previously underwent CABG.

Key Words: Trauma, Tricuspid Valve, Tricuspid Insufficiency, Open Heart Surgery.

Case Report
A 67-year-old man who underwent CABG 7 years ago and sustained blunt chest trauma in a car accident 4 years ago was admitted to hospital with peripheral edema, hepatic congestion and ascites. He was previously diagnosed as traumatic portal venous thrombosis. As he conducted repeating symptoms, he was admitted to our hospital.

On examination there was a prominent V wave in the jugular venous pulse and there was a Grade 3/6 murmur of tricuspid regurgitation.

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Peripheral edema was present. A chest film showed enlargement of the right atrium, right ventricle, and vena cavae. An echocardiogram showed marked dilatation of the right atrium, right ventricle and inferior vena cava. A contrast echocardiographic study indicated severe tricuspid regurgitation and no evidence of a right-to-left shunt. A repeat angiogram revealed the total stenosis of the RCA-saphen bypass, but the patency of the LIMA to LAD anastomosis performed 7 years ago.

Surgery was performed with cardiopulmonary bypass using aortic and bicaval cannulation. After cardioplegic arrest, distal anastomosis of saphen venous graft to RCA was performed first, and after, a right atriotomy was performed to visualize the tricuspid valve. The septal leaflet was retracted and adherent to the ventricular septum. Tricuspid annuloplasty was performed with Carpentier-Edwards ring (Baxter Healthcare Corp., Edwards Div., Irvine, Calif). The valve was then competent with saline distending the ventricle. IABP was used to wean from CPB. The patient died of multiorgan failure on the first postoperative day.

Discussion

Valve rupture is a widely recognised result of nonpenetrating trauma to the heart (1). Traumatic tricuspid incompetence may be well tolerated for a long time (1) or may cause symptoms necessitating early surgical treatment. Rupture of the papillary muscle typically becomes symptomatic rapidly, whereas ruptured chordae or torn leaflets may have a more insidious onset of symptoms. Exertional dyspnea and fatigue are the most common early symptoms.

The most common mechanisms involved associate an antero-posterior compression of the chest with a sudden increase in the right ventricular pressure during the end diastolic phase, when the main pulmonary vessels are compressed. This generates a marked traction on both the valvular and subvalvular apparatus (2). Sub-valvular lesions are responsible for the incompetence in 75% of the cases, the leading cause being the rupture of one of the two papillary muscles, most often the anterior one (2).

Conversely, although it is much less frequent, the leaflets themselves can be damaged either by laceration (2) or by an abrupt rupture near the annulus. Indeed, in the mid 1980s, it was common practice to postpone the intervention until the patient became really symptomatic. Delays could sometimes be very long, with an average of 16 years according to Van Son et al (3), causing deterioration of the valve, necrosis of the papillary muscles and retraction of the chordae, making valvuloplasty an illusive treatment option. Also when operative intervention is unduly delayed irreversible right ventricular myocardial dysfunction may develop, as in our case. Long term results will likely be better if operation is performed before right ventricular function deteriorates, rather than the onset of progressive right heart failure. Although the literature contains little information concerning the late results of tricuspid valve repair, we believe results should be better with repair than with valve replacement because the geometry and function of the right ventricle are better preserved and complications inherent in prosthetic heart valves are avoided. The operative technique will be dictated primarily by the specific injury encountered at the time of operation. If the injury is limited to the chordae tendinae, papillary muscle, or a leaflet, repair can usually be effected. The recent use of artificial chordae may facilitate salvage of some valves (4). This case supports our thesis that early repair would limit right heart failure and lead to a better prognosis in the postoperative period, because even obtaining the patency of the graft to the right coronary artery again was not enough to survive the patient.
REFERENCES


TRICUSPID INSUFFICIENCY AFTER BLUNT CHEST IN A PATIENT WHO PREVIOUSLY Underwent CABG