

Traumatic Papillary Muscle Rupture Mimicking Infective Endocarditis

Enfektif Endokarditi Taklit Eden Travmatik Papiller Kas Rüptürü

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Öz

Motorlu taşıt kazalarında künt travma, kalp kapakçıklarının ciddi bir şekilde yaralanmasına sebep olabilir. Sıklıkla mitral ve aort kapak etkilenir. Akut kalp kapakçığı hasarı, ciddi dispne ve kalp yetmezliğine yol açabilir. Triküspit kapağın etkilenmesi oldukça nadirdir. Klinik tablo çoğu vakada sessiz ilerleyebilir. Ekokardiyografi ile hastalar kolayca tanı alabilir. Olgu sunumumuzda, 46 yaşında erkek hastada triküspit kapak papiller kas rüptürü ve başarılı cerrahi tedavisi sunulmaktadır. Ateş ve kalp kapakçığı üzerindeki kitle görünümü enfektif endokarditi taklit edebilir.

Anahtar Kelimeler: Kalp Yaralanması, Rüptür, Triküspit Kapak

Abstract

Blunt trauma due to motor vehicle accident may result in severe cardiac valve injury. The most part of lesions are about aortic and mitral valves. Acute on-set cardiac valve insufficiency may cause severe dyspnea or cardiac failure. Tricuspid valve injury due to blunt trauma is extremely rare and clinical manifestation is silent in majority of all cases. In case of echocardiographic evaluation, patient can be diagnosed easily with cardiac valve injury. Here we introduce a 46 year-old male patient suffering tricuspid papillary muscle rupture and its successful surgical repair. Fever and a mass on the valve caused by multitrauma may mimic infective endocarditis.

Keywords: Heart Injury, Rupture, Tricuspid Valve

Introduction

Isolated tricuspid valve insufficiency due to the valve apparatus pathology is extremely rare and accounted for 0.13% in all injury-related patients in the United States (1,2). One of the causes is the blunt chest trauma due to the motor vehicle accidents. This leads aortic isthmus injury, aortic dissection or transection, mitral valve chordal rupture and tricuspid valve (TV) chordal or papillary muscle rupture. We introduce a 46 year-old male who was hospitalized for the femur fracture after motor vehicle accident and his unexpected tricuspid valve insufficiency with symptoms and signs of infective endocarditis.

Case

A 46 year-old male was admitted to the emergency service due to a motor vehicle accident. On arrival, he was asymptomatic and vital signs were in normal limits. Right tube thoracostomy was made due to pneumothorax and fracture left femur was detected. 3/6 pansystolic murmur was present at the left parasternal border. Clinical features of heart failure were not present. Blood tests parameters were in normal limits. Transthoracic echocardiogram revealed a moderate enlargement of right atrium and

right ventricle (RV) with a normal ejection fraction. The flail TV leaflet was detected. Additional vegetation was seen on TV. Avulsion of the anterior papillary muscle was suspected. Colored Doppler determined a severe TV regurgitation with a velocity of 2.16 m/sec. However, intermittent fever as 38 °C was noted during the follow up. Leucocyte value was 25.97x10³ / mm³, C reactive protein value was 140, procalcitonin was 0.164, and blood culture showed a staphylococcus epidermidis presence in preoperative period. Infective endocarditis was suspected and antibiotic treatment was given. After 2 weeks of antibiotic treatment and fever period, mass did not regress on transthoracic echocardiography and we decided to operate. We thought that visualization of the mass was adequate to diagnose of infective endocarditis and we did not prefer to perform a transesophageal echocardiography. Informed consent was taken from the patient.

Cardiopulmonary bypass (CPB) with bicaval cannulation was established in moderate hypothermia. Careful dissection to avoid any embolic event to the pulmonary arteries was performed. Via right atriotomy, anterior papillary muscle rupture was identified with a residual stump on the inner wall (Figure 1A). The anterior papillary muscle was reattached to its stump using 2 pledgeted 4-0 polypropylene sutures (Figure 1B). Modified De Vega annuloplasty was performed (Figure 1C, 1D). Saline test confirmed a good competency of TV (Figure 1C). Postoperative follow up was uneventful.

Discussion

Motor vehicle accidents are important causes of isolated TV damage (3). The probable mechanism is a rapid deceleration force with an increased

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pressure in intracardiac right chambers (4). TV injury can occur by rupture of papillary muscle of any cusp or any of its chorda, and TV annular tear (5). Clinical presentation remains silent in some of cases (6). In the literature it is strongly advised that routine echocardiography should be performed in blunt chest trauma cases to be aware of silent TV damage and 3-dimensional echocardiography has a superiority (4,7).

Literature brings limited information about longterm follow up of repair of traumatic TV rupture. Serial echocardiographic examination is strongly advised to be aware of impairment of TV function (3). In case of RV dysfunction, early TV repair should be performed to recover RV function. Moreover, in urgent service physicians should be attentive of cardiac complications in case of blunt chest trauma and echocardiography is an initial and essential evaluation.

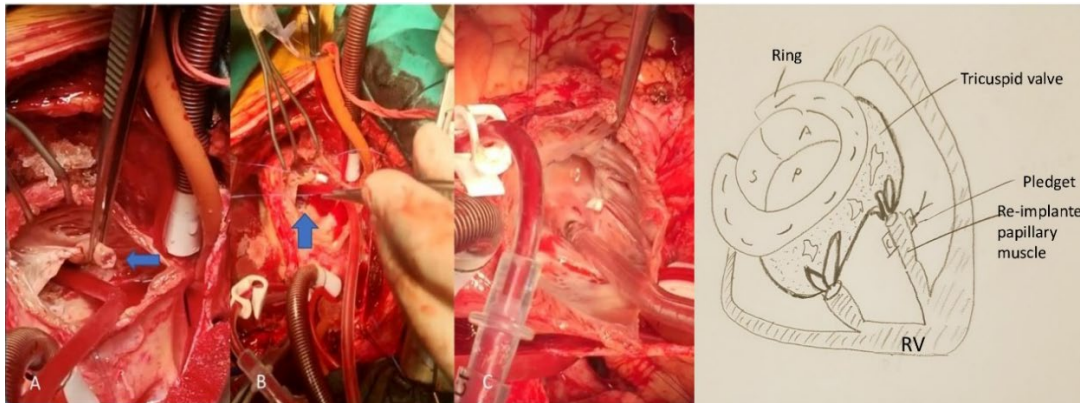


Figure 1A. The injured anterior papillary muscle, B: Re-implantation of ruptured anterior papillary muscle, C: Saline test after De-Vega annuloplasty, D: An illustration of complete tricuspid valve repair (illustrated by Hande İstar)

Conclusion

Our patient was diagnosed with infective endocarditis due to the fever, mass on tricuspid valve, multiple positive blood culture that indicated staphylococcus epidermidis infection, consecutive leucocyte value increases, C reactive protein and procalcitonin positivity previously. This issue should be examined also with transesophageal echocardiography, this approach might give more information about nature of the mass on TV even if it would not change the decision for surgery. Moreover, computed tomography can be also used for determination of the mass on tricuspid in emergency service conditions. In conclusion, a mass on the valve and fever caused by multitrauma may mimic infective endocarditis and even though TV regurgitation can be silent in times, the earlier diagnosis and surgical repair provide prevention of right ventricular deterioration.

Written consent: Written consents of the patients were obtained on 13.05.2022.

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