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Double Mechanical Valve Replacement Complicated by Early Cerebral Haemorrhage: 117 Days Without Coumarols

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Introduction: Cerebral haemorrhage could complicate post operative course after cardiac surgery, especially after multiple mechanical valves replacement needing for anticoagulation. The interruption of vitamin K antagonists in this cases, to avoid the enhancement of the cerebral haemorrhage, can be performed with reasonable safety.

Case Presentation: We report the case of a patient who underwent mitro-aortic valve replacement with mechanical valves. Postoperative course was uneventful until the 6th day when he developed paresthesias on the left side and left arm paresis; CT scan showed a sub-cortical cerebral haemorrhage. in the right temporo-parietal area. At that time, he was receiving Enoxaparin (4000 IU/day) and Acenocoumarol (1 mg/day) which were started on the 2nd postoperative day without a loading dose. The patient was then transferred to another hospital where neurosurgery intensive care unit was available; he was conservatively treated without surgery. During his stay at this hospital he did not receive vitamin K antagonists until February, 7th for a total of 117 days receiving only 4000 IU Enoxaparin daily. He was then re-evaluated at our hospital on April 2nd 2008 with transthoracic echocardiography and fluoroscopy: both valves were well functioning with no major problems.

Discussion: Withholding anticoagulant therapy after mechanical heart valve replacement due to the severe haemorrhage is a complex problem that can occur after heart valve surgery. Although it has been shown that interruption of vitamin K antagonists can be performed in patients with mechanical valves with reasonable safety for a short-term period. As the patient transferred to another hospital after the occurrence of cerebral haemorrhage, he was treated only with low doses of enoxaparin for 117 days. In less than two months after the coumarols resumption, the subsequent reassessment of the valves performed using echocardiography and fluoroscopy confirmed the normal performance of both mitral and aortic valves. In this case, a very long suspension of standard anticoagulant therapy did not affect the performance of mechanical bi-leaflet mitral-aortic prostheses.

Keywords: Heart Valve Prosthesis; Anticoagulants; Cardiovascular Surgical Procedures

1. Introduction

We report and discuss the case of a 50-year-old man with a previous history of alcohol and cocaine abuse who underwent the mitro-aortic valve replacement for MSSA endocarditis. He developed a sub-cortical cerebral haemorrhage (35 × 26 mm) in the right temporo-parietal area on the 6th postoperative day. In spite of anticoagulant therapy, the coagulation tests were not yet in normal range (INR = 1.6) that were treated medically. He did not receive vitamin K antagonists for a total of 117 days, receiving only 4000 IU Enoxaparin daily. After neurological recovery, he was reassessed with postoperative transthoracic echocardiography and fluoroscopy. Both valves were well functioning.

2. Case Presentation

On October 6th 2007, a 50-year-old Caucasian man with a previous history of alcohol and cocaine abuse was transferred to our hospital with the diagnosis of MSSA endocarditis; two weeks before transferring to our hospital, he was suffering from a single episode of cerebral embolization that was misdiagnosed without neurological reliquates. An echocardiogram performed the same day of the admission showed large (> 2 cm) vegetations involving the non-coronary aortic cusp and the anterior mitral leaflet; the vegetation on the aortic valve was markedly mobile. On the same day, in the emergency, the patient underwent mitro-aortic valve replacement with mechanical valves (St. Jude Regent mechanical valves n°21 and n°27 in aortic and mitral positions, respectively, St. Jude Medical Inc., St. Paul, MN). Postoperative course was uneventful until the 6th day when he developed paresthesias on the left side and left arm paresis; CT scan showed a sub-cortical cerebral haemorrhage (35 × 26 mm) in the right temporo-parietal area. At that time, he

Implication for health policy/practice/research/medical education:
A very long suspension of standard anticoagulant therapy did not affect the performance of mechanical bileaflet mitro-aortic prostheses which continued to regularly work in spite of very low levels of anticoagulation. This suggests that, in dramatic situations such as severe cerebral haemorrhage, withholding anticoagulant therapy for long times can be considered as a last resort option.

was receiving Enoxaparin (4000 IU/day) and Acenocoumarol (1 mg/day) which were started on the 2nd postoperative day without a loading dose. Interestingly, the INR value was not yet on the therapeutic range on the day cerebral haemorrhage occurred (INR: 1.6). The patient was then transferred to another hospital where neurosurgery intensive care unit was available; he was conservatively treated without surgery and passed a tough course, but finally recovery occurred and he was discharged home on February, 15th, 2008. During his stay at this hospital (first ICU, then neurology ward and finally in rehabilitation unit), he did not receive vitamin K antagonists until February, 7th for a total of 117 days receiving only 4000 IU Enoxaparin daily. Of note, during that time serial echocardiograms that were periodically taken, did not show any problem concerning both mechanical valves and the patient, and always remained in stable sinus rhythm; finally, a six week- antibiotic profilaxis for MSSA endocarditis was completed after the surgery, and the patient did not show any recurrence of the infection.

He was then re-evaluated at our hospital on April 2nd 2008 with transthoracic echocardiography and fluoroscopy: both valves were well functioning with no major problems (Figures 1 and 2, mitral and aortic prosthesis, respectively). We also recently performed a transthoracic echocardiography control, six years after the surgery that showed evidence of properly working valves.

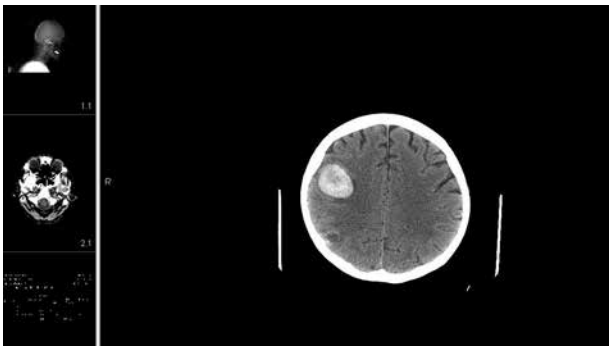

Figure 1. CT Scan Image Showing a Sub-Cortical Cerebral Hemorrhage (35 × 26 mm) in the Right Temporo-Parietal Area

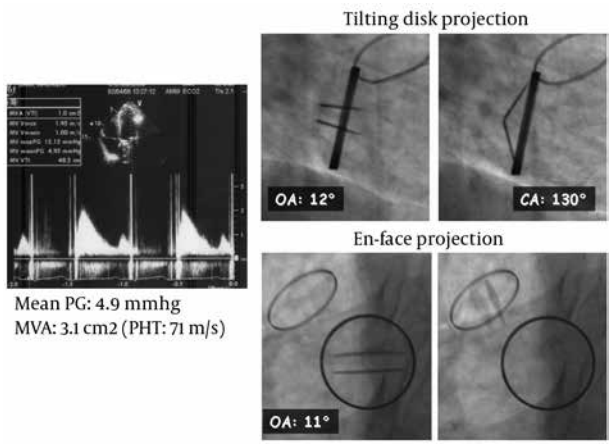

Figure 2. Cinefluoroscopic Images and Echocardiogram Parameters of the Normally Functioning St Jude Regent Mechanical Valves

3. Discussion

Withholding anticoagulant therapy after mechanical heart valve replacement due to the severe haemorrhage is a complex problem that can occur after heart valve surgery. Although it has been shown that interruption of vitamin K antagonists can be performed in patients with mechanical valves with reasonable safety for a short-term period (1, 2), the effect of longer withdrawal periods of time is still in doubt. In addition, the management of this case was particularly complex since it was at high risk for both thromboembolism and haemorrhage. On one side, this patient had an increased thromboembolic risk as he was in the very early period after a double valve mechanical replacement. It is well known that double valve replacement is associated with an increased thromboembolic risk in comparison to single valve one. Moreover, the haemorrhage occurred very soon after the surgery, the period of time that the risk of increased thrombophilic milieu is much more consistent (3, 4). On the other hand, the history of drug addiction and alcohol abuse posed this patient at an increased risk of haemorrhage and potential rebleeding (5). As the patient transferred to another hospital after the occurrence of cerebral haemorrhage, withdrawal of anticoagulant therapy was protracted until clearance from neurology and neurological surgery services of that hospital was obtained, and he was treated only with low doses (4000 IU/day for a patient weighing 80 kg) of enoxaparin for 117 days. In less than two months after the coumarols resumption, the subsequent reassessment of the valves performed using echocardiography and fluoroscopy which is currently the most commonly used non-invasive technique for detecting prosthesis dysfunction (6), confirmed the normal performance of both mitral and aortic valves. In this case, a very long suspension of standard anticoagulant therapy did not affect the performance of mechanical bi-leaflet mitral-aortic prostheses which continued to work regularly in spite of the very low levels of anticoagulation. This suggests that in dramatic situations such as severe cerebral haemorrhage, withholding anticoagulant therapy for long time can be considered as a last resort option.

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Authors' Contribution

All authors have participated both in surgical activity and the drafting of case reports.

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