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THREE PREGNANCIES WITH MECHANICAL HEART VALVE AND NO FOLLOW-UP IN 10 YEARS

Raja Parvez Akhtar, Abdul Rehman Abid* and Hasnain Zafar

ABSTRACT

Anticoagulation and proper INR (International Normalized Ratio) monitoring is essential for patients having mechanical heart valves; it is vital in these patients in order to prevent lethal complications such as valve thrombosis and systemic embolism. In pregnancy, it becomes even more important as pregnancy itself is a hypercoagulable state. This report describes a female patient having undergone mitral valve replacement with a Starr Edward metallic prosthesis. She came back to the operating surgeon after 10 years of valve replacement with a history of three uneventful healthy deliveries and no follow-up and INR monitoring during this period.

KEY WORDS: *Pregnancy. Prosthetic heart valves. Anticoagulation. Rheumatic heart disease.*

INTRODUCTION

Females are significantly more likely to be affected by Rheumatic heart disease (RHD), which is a leading cause of premature morbidity and mortality in Pakistan with a prevalence of 5.7 in 1000.[1] There is no ideal prosthetic valve. All have some advantages and disadvantages. Whenever possible, is repaired or replaced with a metallic prosthesis. A bioprosthetic valve in young age deteriorates rapidly and the patient will need a re-operation. The metallic prosthesis has the hazards of anticoagulation but the valve lasts longer avoiding a second operation. Women having a mechanical heart valve implanted are at a high risk of thrombo-embolism.[2,3] Furthermore, pregnancy is a hypercoagulable state, characterized by increased levels of clotting factors and of fibrinogen and platelet adhesiveness.[4] Anticoagulation is necessary for mechanical heart valves in order to prevent lethal complications such as valve thrombosis and systemic embolism. Even with anticoagulation 7.5-23% of pregnant patients with mechanical prostheses can have thromboembolic events.[5] which requires follow-up.

This case report describes a young woman with metallic valve prosthesis and having three uneventful pregnancies, without any cardiac follow-up.

CASE REPORT

A 26 years old female patient underwent emergency mitral valve replacement secondary to severe mitral stenosis and regurgitation postpercutaneous transvenous mitral commissurotomy (PTMC) in 1996. She had a history of rheumatic fever for 7 years and was taking rheumatic fever prophylaxis since then. Patient underwent valve replacement with 28 mm Starr-Edward's Prosthetic heart valve Model 6120 Edwards Life Sciences (Baxter Healthcare, Edwards CVS Division, Santa Ana, CA, USA). She had an uncomplicated hospital stay and was discharged on 7th post operative day with an advice to follow-up in the outpatient clinic for anticoagulation management. On discharge, she was placed on 5 mg of Wafarin daily. The patient never showed up for follow-up or INR monitoring to the hospital. She belonged to a far flung area and was repeatedly contacted by mail sent to her home address. She never replied and was considered lost to follow-up and presumed dead in the surgical database of the surgeon.

After 10 years of the operation, one day she came to the author's outpatient clinic with a complaint of pain in abdomen, which was bothering her for few days. On systemic inquiry, she told the surgeon of three deliveries which were conducted at her home by a lady health visitor uneventfully. She had continued with the same warfarin dose i.e. 5mg per day during her pregnancies and never had a bleeding episode as thromboembolic complication. She gave birth to one son and two daughters. The children were examined by a consultant paediatrician who confirmed that they were healthy and had no signs of coumadin embryopathy on detailed examination.

Complete work-up was done for her pain in abdomen and it turned out to be non-specific abdominal colic. The international normalized ratio (INR) was surprisingly still within the therapeutic range. A transthoracic echocardiogram was done, which revealed a normally functioning metallic prosthesis at mitral position with no evidence of thrombosis or prosthetic or periprosthetic leak with normal other valves. Transesophageal echocardiogram confirmed the findings of transthoracic examination and also revealed normally functioning prosthetic valve at mitral position (Figure 1). She was continued on the same dose of warfarin and was counseled for regular follow-up.

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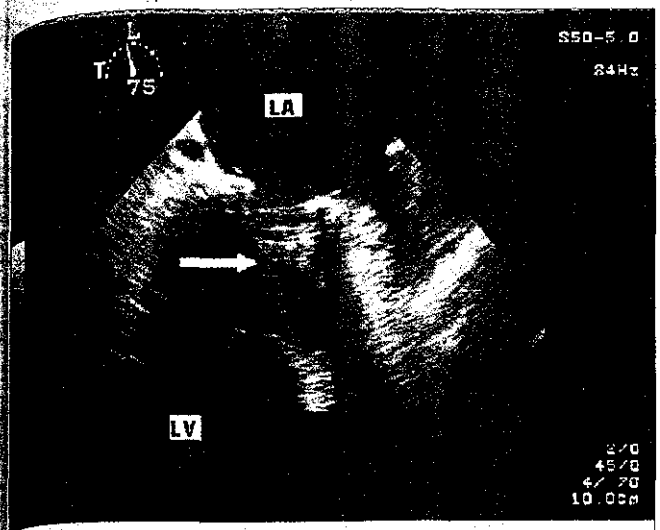

Figure 1: Transesophageal echocardiographic image of adequately functioning prosthetic valve.
LA: Left atrium; LV: Left ventricle, Arrow: Starr Edwards prosthetic valve at mitral position.

DISCUSSION

Rheumatic heart disease is one of the leading causes of premature morbidity and mortality.[1] Females of child-bearing age are significantly more likely to be affected.[1] The ideal type of heart valve replacement for young women is unresolved.[2] Women with mechanical prosthetic valves are at a high risk of thromboembolism. Warfarin use in pregnancy is associated with a low risk of maternal thromboembolic complications but high fetal losses.[2] Unfractionated heparin therapy significantly improves fetal outcome, but upto a third of pregnant women with mechanical valves have thromboembolic complications, including fatal events.[5]

This patient continued the initially prescribed dose of warfarin during her pregnancies without any monitoring of INR and luckily no untoward event occurred. We have not come across any other such case in the literature. Inspite of all the counseling, we still have patients who do not come for follow-up or are irregular. The follow-up of more than 500 patients is 87%. This is the only case in which the patient was not seen after discharge and she did not see a doctor also. Sharma *et al.*[6] have reported two pregnant patients, one having prosthetic valve at the mitral position while undergoing delivery succumbed because of thrombosed valve. The oral anticoagulant was discontinued and she was put on adequate doses of Intravenous heparin therapy. The second patient had uneventful delivery.[6]

Yildiz *et al.* have reported a patient of prosthetic heart valve who did not take oral anticoagulation for 20 years and still had normally functional metallic aortic prosthesis. Although for prosthetic heart valves, it seems impossible to function without any medication, a few examples on the contrary to this widely known fact have been reported in the literature.[7] Three cases have been reported with a long survival without anticoagulation therapy after metallic valve replacement.[8]

For these non-compliant patients, a promising solution could be self-management technique suggested by Koertke *et al.*[9] in the ESCAT (Early Self-Controlled Anticoagulation Trial) 1 and 2 trials. Both these trials showed the benefit of this technique with lower INR values.[9] Christensen *et al.*[10] have also advocated for self-management of anticoagulant therapy in patients with mechanical heart valves. It is hoped that patients' compliance can be improved if they are adequately trained for self-management of their INR values. However, in a country like Pakistan, with problem of poverty and illiteracy, the option of self-management is less feasible.

For adequate management of patients with mechanical heart valves, the key factor is compliance to follow-up, which requires counseling for the prevention of untoward complications of anticoagulation .

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