

**Case report / Olgu sunusu****Acute Aortic Bioprosthetic Valve Thrombosis In An Elderly Patient****Yaşlı Bir Hastada Akut Aortik Bioprostetik Kapak Trombozu**

Ahmet Baris Durukan<sup>1</sup>, Hasan Alper Gürbüz<sup>1</sup>, Fatih Tanzer Serter<sup>1</sup>, Nevriye Salman<sup>2</sup>, Halil Ibrahim Ucar<sup>1</sup>, Cem Yorgancioglu<sup>1</sup>

<sup>1</sup>Department of  
Cardiovascular Surgery

<sup>2</sup>Department of  
Anesthesiology

Medicana International  
Ankara Hospital,  
Sogutozu, 06520  
Ankara, TURKEY

İletişim / Corresponding  
Author:  
Ahmet Baris  
DURUKAN, MD

Umit Mahallesi  
2463.sokak 4/18, 06810,  
Yenimahalle/Ankara,  
Turkey  
Telephone: 90-532-  
2273814  
Fax: 90-312-2203170  
e-mail:  
barisdurukan@yahoo.com

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**Özet**

Biyoprotez kapaklar sıklıkla kapak replasmanında tercih edilmektedir. Biyoprotez kapakların mekanik kapaklara oranla daha düşük antikogülasyon ihtiyacı vardır. Biz biyoprotez aort kapağında akut tromboz gelişmiş 77 yaşında bir hastayı bildiriyoruz. Hasta bilinçli olarak warfarin kullanmamıştır. Hastaya trombektomi yapılmıştır. Postoperatif dönemde, hastada varolan kronik obstruktif akciğer hastalığına bağlı akciğer komplikasyonları gelişmiş ve postoperatif ikinci haftada ölmüştür. Trombozla ilişkili bu tür ciddi komplikasyonlardan kaçınmak için biz ilk üç ayda warfarin ve asetilsalisilik asit ve sonrasında ömür boyu astilsalisilik asit kullanımını öneriyoruz.

**Anahtar Kelimeler:** Aort Kapağı Replasmanı, Biyoprotez Kapak, Tromboz

**Abstract**

Bioprosthetic valves are preferred frequently for valve replacement. Bioprosthetic valves have lower requirement for anticoagulation compared to mechanical valves, but still valve related thrombotic complications occur. We report a 77 year old patient with acute thrombus formation on the bioprosthetic aortic valve. He did not use warfarin intentionally. The patient was operated for thrombectomy. During the postoperative period, the patient developed pulmonary complications related to prior chronic obstructive pulmonary disease and died on postoperative second week. We routinely recommend warfarin and acetylsalicylic acid use in the first three months and soon acetylsalicylic acid lifelong in order not to face with catastrophic thrombosis related complications.

**Keywords:** Aortic Valve Replacement, Bioprosthetic Valve, Thrombosis

## Introduction

The development of bioprosthetic heart valves is a cornerstone in era of heart surgery particularly the valve surgery. The low requirement of antithrombotic therapy is one of the most preferred characteristics of bioprosthetic heart valves, but controversial since there is still risk of valve thrombosis and systemic thromboembolism. During the first postoperative year, chronic thrombosis occur in at least 1% of bioprosthetic aortic valves (1).

## Case Report

A 77-year old man was referred to our hospital with dyspnea and chest pain. Coronary angiography revealed multivessel coronary artery disease and aortic stenosis. Echocardiography revealed aortic stenosis with 93/50 mm Hg gradient. He had moderate to severe chronic obstructive pulmonary disease and had been on bronchodilator treatment for 3 years. Bioprosthetic aortic valve replacement with 21 mm St. Jude Medical porcine bioprosthesis and concurrent triple vessel bypass was performed. The patient was discharged on the postoperative 7<sup>th</sup> day. Warfarin and acetylsalicylic acid was given for the first three months . He was admitted to our hospital on first postoperative month with dyspnea and palpitation. He did not use warfarin intentionally, but acetylsalicylic acid. Echocardiography revealed thrombosis on the bioprosthetic valve, limited cusp movement was noted and there was 129/90 mm Hg gradient formation. The patient was taken to operation room urgently. Under general anesthesia median sternotomy was performed after femoral arterial and venous cannulation and establishment of cardiopulmonary bypass. Following cardioplegic arrest, vertical aortotomy was performed. Thrombus formation was seen on the bioprosthetic valve. Thrombus was removed. The patient was taken to intensive care unit with high dose inotropic support. The inotropic support was tapered

slowly, but respiratory problems arose due to preexisting chronic obstructive pulmonary disease. The patient developed ventilator-dependent pneumonia and died due to respiratory problems on the postoperative second week.

## Discussion

Prosthetic valve thrombosis in either mechanical or bioprosthetic devices is a complex process involving patient related and device related factors. The process begins immediately after the valve is put in place. Intrinsic valvular disease itself, presence of arrhythmias and incomplete endothelial proliferation on raw intracardiac surfaces, sewing ring and suture knots are initial pathogenetic factors (2). Despite published guidelines, there are varying protocols in different medical centers. In a multicentric survey, it was reported that after bioprosthetic aortic valve replacement without CABG in absence of other thromboembolic risk factors, 43% of patients were prescribed only Vitamin K antagonists, 33% only acetylsalicylic acid, 20% both and 4% none until 3 months. After 3 months Vitamin K antagonists were stopped, 61% of patients were prescribed lifelong acetylsalicylic acid and 39% were prescribed nothing. After bioprosthetic aortic valve replacement with concurrent CABG, 39% of patients were given Vitamin K antagonists with acetylsalicylic acid, 37% only Vitamin K antagonists and 24% only acetylsalicylic acid. After 3 months 90% were prescribed only acetylsalicylic acid, 8% Vitamin K antagonists together with acetylsalicylic acid, and 2% none (3). In another study concerning antiplatelet therapy after bioprosthetic aortic valve replacement, all patients were given Vitamin K antagonist in first three months. In absence of thromboembolic risk factors 45,8% of patients were given acetylsalicylic acid, and others not. Acetylsalicylic acid administration did not confer any advantage. Survival, functional

status and thromboembolic events were not adversely affected (4).

There is lower anticoagulation requirement for bioprosthetic valves compared to mechanical prostheses, but still valvular thrombosis and valve related thromboembolic events can occur. These complications lead to major morbidity and mortality. There is controversy in the literature about the anticoagulation and anti-aggregant regimens. We routinely recommend warfarin and acetylsalicylic acid use in the first three months and soon acetylsalicylic acid lifelong in order not to face with catastrophic thrombosis related complications.

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