



COMPLICATIONS AFTER MITRAL VALVE REPLACEMENT

**Abdusalomov Mukhammadyusufkhuja Abdujabbor ugli
Turaev Feruz Fatkhullaevich**

Republican Specialized Scientific and Practical Medical Center for
Surgery named after Academician V. Vahidov, Uzbekistan, Tashkent1
<https://doi.org/10.5281/zenodo.17430571>

ARTICLE INFO

Received: 21st October 2025

Accepted: 22nd October 2025

Online: 23rd October 2025

KEYWORDS

mitral valve, plastics, prosthetics, pastprophiliic mechanical valves, dispensary monitoring, thromboembolic complications, prosthetic dysfunction, infectious endocarditis, rehabilitation, quality of life.

ABSTRACT

Despite significant advances in cardiac surgery and the introduction of modern low-profile mechanical prostheses, the problem of postoperative complications in mitral valve replacement remains a key issue. To determine the frequency and structure of complications after mitral valve replacement and to assess the role of dispensary monitoring in their prevention. The study included 60 patients who underwent mitral valve replacement with low-profile mechanical prostheses. Thromboembolic complications were recorded in 7 patients (11.7%). The data obtained confirm that thromboembolism, prosthetic dysfunction, and infectious endocarditis remain the main adverse factors in patients after mitral valve replacement. Thromboembolism (11.7%), prosthetic dysfunction (6.7%), and infective endocarditis (5.0%) are the most common complications after mitral valve replacement.

Relevance. Despite the significant advances in cardiac surgery and the introduction of modern low-profile mechanical prostheses, the problem of postoperative complications in mitral prosthetics remains one of the key issues. These complications determine not only immediate surgical outcomes, but also long-term survival, quality of life, the need for repeated surgeries, and social rehabilitation of patients. Of particular importance is infectious endocarditis, which is characterized by high mortality and severe course, as well as thromboembolic events and prosthetic dysfunction, often associated with impaired anticoagulant therapy.

The aim of study. To determine the frequency and structure of complications after mitral valve replacement and to assess the role of dispensary supervision in their prevention.

Material and methods. The study included 60 patients who underwent mitral valve replacement with low-profile mechanical prostheses (St. Jude Medical, On-X, ATS). The average age of the patients was 45.7 ± 4.3 years (range: 24 to 65 years), with 53.3% male and 46.7% female participants. The follow-up period ranged from 1 to 12 years (average: 3.6 ± 1.2 years).

The patients were divided into two subgroups:

- **group I** - 32 patients who were under regular dispensary supervision (international normalized ratio monitoring, echocardiography, and cardiologist consultations every 3–6 months);

- **group II** - 28 patients who were observed irregularly or sporadically.

The frequency of thromboembolic events, prosthetic dysfunction, infectious endocarditis, paraprosthetic leaks, hemolysis, as well as hospitalizations and repeated surgeries, was evaluated.

Results

- **Thromboembolic complications** were recorded in 7 patients (11.7%). In the group of regular monitoring, their frequency was 6.6%, whereas in case of irregular control it reached 18.7% ($p < 0.05$). The most frequent predictors were the violation of the anticoagulant therapy regimen and the presence of a permanent form of atrial fibrillation.

- **Prosthetic dysfunction** was diagnosed in 4 patients (6.7%), including 3 cases of valve thrombosis and 1 case of structural damage to the prosthesis. All episodes were associated with irregular monitoring of the international normalized ratio.

- **Infectious endocarditis** developed in 3 patients (5.0%), mainly in the mitral position. The mortality rate for endocarditis was 33.3%. Clinically, there was fever, signs of heart failure, and vegetations and paraprosthetic abscesses on ECHO-CG.

- **Paraprosthetic leaks and hemolysis** were observed in 5% of patients. The main causes were technical features of implantation and chronic inflammatory processes. In two cases, moderate hemolytic anemia was observed, which was confirmed by laboratory tests (decreased hemoglobin levels and increased lactate dehydrogenase levels).

- **The impact of dispensary supervision.** In group I, the number of hospitalizations for complications was 28% lower, and the need for repeated surgical interventions was 15% lower than in group II.

- **Long-term outcomes.** According to Kaplan–Meier curves, the 5-year survival rate was 88.2% in the regular follow-up group versus 74.5% in the irregular follow-up group ($p < 0.05$).

Discussion.

The data obtained confirm that thromboembolism, prosthetic dysfunction, and infectious endocarditis remain the main adverse factors in patients after mitral valve replacement. Their development is largely due to low adherence to anticoagulant therapy and lack of systematic follow-up. Paraprosthetic endocarditis is particularly dangerous, as it is associated with high mortality rates and requires early diagnosis, including transesophageal echocardiography. Regular monitoring allows for timely adjustment of anticoagulant doses, monitoring of the international normalized ratio, detection of early signs of complications, and reduction of the frequency of reoperations.

Conclusions.

1. Thromboembolism (11.7%), prosthetic valve dysfunction (6.7%), and infective endocarditis (5.0%) are the most common complications after mitral valve replacement.
2. The most severe complication is paraprosthetic infectious endocarditis, which is associated with high mortality rates.
3. Regular dispensary monitoring and strict control of anticoagulant therapy significantly reduce the frequency of complications, decrease the risk of repeated hospitalizations, and increase the long-term survival rate of patients.