

Simultaneous heart valve replacement surgery and abdominal subtotal hysterectomy: case report

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Summary

A middle-aged woman with rheumatic heart disease, mitral valve prolapse and incompletely closed mitral valve medium, patent foramen ovale, merge multiple uterine fibroids, and moderate blood loss anemia underwent mitral valve replacement surgery with total abdominal hysterectomy under general anesthesia and cardiopulmonary bypass condition. The surgery was successful, and postoperative bleeding, blood clots, heart failure, and other related complications did not occur. Heart valve replacement surgery with the surgical treatment of uterine fibroids effectively improves the safety of surgical treatment for patients as well as reduces the patient's medical expenses and risk of secondary surgery and trauma.

Key words: Heart valve replacement surgery; Uterine fibroids; Joint surgery.

Introduction

Patients suffering from valvular heart disease generally require cardiac valve replacement surgery. In cases wherein the patients also have uterine fibroids, determining the gynecological indications for surgery, surgical procedures, and the timing of surgery is a very important issue. However, only a few reports at home and abroad have focused on this issue.

Case Report

The patient, a female 42-years-old and married, was admitted to the cardiovascular surgery department of the present hospital because of chest tightness after certain activities and shortness of breath for four years with secondary aggravating conditions for one year. Body examination showed moderate anemia, no lip cyanosis, no jugular vein engorgement, clear lung breath, regular heart rate of 84 beats/min, abnormal heart border that expanded to the left, 2/6 systolic heart murmur at the apex, no enlargement of liver and spleen, and lower extremity edema. Echocardiography findings showed mitral valve prolapse and moderate to severe regurgitation, visible atrial septal central defect with a diameter of approximately four mm, patent foramen ovale, and pulmonary artery systolic pressure of 40 mmHg. The blood count showed $3.3 \times 1,012$ /l red blood cells, 81 g/l hemoglobin, and 0.3 erythrocyte hematocrit.

Supplementary information included the following: menstrual flow in the past five years increased significantly and was accompanied by a blood clot; each menstrual period required five sanitary napkin packages; and the menstrual cycle was regular without extensions. Pregnancy history is as follows: 2-0-0-2, eutocia 2. Gynecological check revealed normal vulva, no abnormality in vaginal patency, smooth cervix, uterine enlargement similar to pregnancy, surface irregularities, normal activity, no

tenderness, and hard texture. Gynecological ultrasound showed a full uterine shape with a diameter of 5.6 cm and a hypoechoic substance in the anterior wall of the uterus, protruding into the uterine cavity. Real hypoechoic with multiple diameters of 1.7, 2.0, 4.6, and 2.0 cm could be observed at the bottom, front, and rear walls of the uterus. Based on the ultrasound, the patient was diagnosed with multiple uterine fibroids. The medical history and laboratory examinations yielded the following admission diagnosis: 1) rheumatic heart disease, mitral valve prolapse, mitral valve with moderate regurgitation, and patent foramen ovale; 2) multiple uterine fibroids and moderate hemorrhagic anemia.

The patient resides in the poor mountainous area of Yunnan. Given the poor state of the economy in this area, special medical cases are referred to the present cardiovascular surgery, obstetrics and gynecology, anesthesiology, and related departments for consultation. For the patient under study, cardiopulmonary bypass, mitral valve replacement, patent foramen ovale repair, and abdominal subtotal hysterectomy were all carried out under general anesthesia. The surgery was performed under systemic compound anesthesia seven days after admission.

First, systemic heparin + auxiliary lower thoracic midline incision open-heart surgery for the cardiopulmonary bypass was completed. During this part of the surgery, doctors observed mitral valve prolapse, moderate mitral regurgitation, and patent foramen ovale. The doctors performed 27 mm ATS metal replacement for mitral a + foramen ovale sutured surgery. After surgery, doctors used an antagonist to balance the heparin. The chest cavity was closed immediately while the hysterectomy surgery was being performed under the abdominal incision.

During this part of the surgery, doctors observed that the anterior uterus was enlarged similar to pregnancy and irregularly shaped with a smooth surface, projecting approximately four cm to the right front wall and the bottom of the uterus. The specimens' cutaway showed intramural uterine fibroids protruding into the uterine cavity and surface. The total number of myomas was five, each with a maximum diameter of approximately five cm.

Postoperative pathology report showed rheumatoid-like lesions in the mitral valve and (hysterectomy) submucosal and intramural multiple leiomyoma. The patient was given routine antibiotics

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after surgery to prevent infection as well as symptomatic and supportive treatment. Thirteen days after the patient's condition stabilized with good wound healing, echocardiography was rechecked. The results showed normal artificial mitral mechanical valve function and the absence of atrial level shunt. Gynecological ultrasound showed no pelvic abnormality. The patient was thus sent home. A three-year follow-up showed secondary level heart function, no menstrual cramps, smooth cervix, and no abnormalities in the cervix and both ovaries.

Discussion

Young women suffering from rheumatic heart valvular disease and uterine fibroids are not uncommon in China. According to literature at home and abroad, heart valve replacement surgery is performed first, followed by uterine fibroid elective surgery. However, no study has reported on a case wherein two surgeries are performed simultaneously. With the development of medical science, heart valve replacement surgery has become an effective method for the treatment of severe valvular heart disease. Approximately 200,000 patients all over the world undergo this surgery every year [1]. Heart valve replacement surgery is prevalent in China, with the most popular one being that for mechanical valve. Postoperative patients need warfarin for life-long anticoagulant therapy to prevent embolisms caused by thrombosis, which will result in mechanical valve failure [2]. The ideal intensity of anticoagulant therapy is one in which the level of anticoagulation can keep the rates of thromboembolism and bleeding at the lowest [3]. Anticoagulant therapy after heart valve replacement would likely harm patients when they undergo subsequent surgery because of the hemorrhage and embolism attributed to improper anticoagulant therapy, which accounts for 75% of complications after mechanical heart valve replacement [4, 5].

Hysteromyoma (uterine leiomyoma) is the most common benign tumor in female genital mutilation. Hysteromyoma is composed of smooth muscles and connective tissue, and it occurs in 30% to 50% of women of childbearing age [6]. Uterine fibroids are benign tumors, with a malignant transformation rate of only 0.4% to 0.8% [7]. Therapy is divided into surgical and non-surgical. To date, a safe and effective non-surgical treatment with low recurrence rate is still lacking. Surgical treatment is still the best treatment for patients with symptomatic fibroids [8]. The chance of recurrence after a pure resection of hysteromyoma is 50%, and dysfunctional uterine bleeding and endometrial lesions are still possible [9]. Anticoagulant therapy definitely aggravates the condition of patients who suffer from both uterine fibroids and blood loss anemia and increases the risk of hemorrhage for the elective surgical procedures. However, stopping anticoagulants will easily cause cardiac thrombosis and increase associated complications. Moreover, heart damage and decline in cardiac function because of the heart valve replacement will bring greater risk for hysteromyoma resectioning. In this

case, excessive menstrual blood volume leads to moderate hemorrhagic anemia, increased uterine size similar to pregnancy, and sub-mucous myoma for patients over 40 years old regardless of fertility. These conditions constitute the surgical indications of abdominal total hysterectomy or subtotal hysterectomy.

The risk of heart disease is higher than that of gynecological disease for the patient under study. However, as mentioned earlier, patients who undergo gynecologic surgery after heart valve replacement will face special risks, such as intraoperative and postoperative hemorrhage, infection, and complications such as thrombosis and heart function failure. This patient in this study, for example, had already suffered from moderate hemorrhagic anemia. Heart valve replacement requires long-term anticoagulation drug therapy. Anticoagulation can influence patients' menstrual quantity and increase the severity of anemia. The patient in this study is from an impoverished mountainous area characterized by poor economic conditions. Therefore, the department of cardiovascular surgery, anesthesia, obstetrics and gynecology, through multidisciplinary joint consultation under general compound anesthesia and extracorporeal circulation auxiliary, recommended that warfarin be discontinued for two days before line mitral valve replacement and abdominal total hysterectomy, with the interim alternative use of low molecular heparin anticoagulation. PT is switched to 2.5 times normal before surgery [10]. The operative method of the joint line (simultaneous for different organs for heart and uterine surgery) effectively prevents the risks associated with complications during and after surgery, thereby maximizing the safety of surgical treatment for patients. This method also reduces the medical expense and the patients' pain in secondary surgery. It is regarded as an emergency option for patients from poor mountainous areas who do not have immediate access to hospital services. Thus, this method requires further research to facilitate further popularization and application.

Conclusions

Through interdisciplinary multidisciplinary joint consultation, patients with both rheumatic heart disease, multiple uterine fibroids, and hemorrhagic anemia can undergo heart valve replacement and surgical treatment of uterine fibroids simultaneously under extracorporeal circulation during anesthesia to effectively prevent the risks associated with complications during and after surgery as well as to maximize the safety of the surgical treatment. This method also reduces medical expenses and patients' pain in secondary surgery. It is regarded as an emergency option for patients from poor mountainous areas who do not have immediate access to hospital services. Thus, this method requires further research to facilitate further popularization and application.

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