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*Fatal intracranial hemorrhage after double valve replacement
in infective endocarditis*

Endocarditis is a life-threatening disease, although it is relatively uncommon. It usually develops in individuals with underlying structural cardiac defects who develop bacteremia with organisms likely to cause endocarditis. Bacteremia may occur spontaneously or may complicate a focal infection, eg., urinary tract infection, pneumonia, some dental procedures (1). This case report presents a patient with infective endocarditis on mitral and aortic valves with few most dangerous complications after double valves replacement.

CASE REPORT

A thirty-one years old smoker male was admitted to our department because of circulatory failure (NYHA IV). The patient had 20 years of post-rheumatic combined mitro-aortic valve defect history and symptoms of bacterial endocarditis for 5 weeks. He had been treated with Vancomycin combined with Metronidasole and Fluconazole because of *Abiothropia adiacens bacteriaemia* for 3 weeks before admission. Physical examination revealed lower limbs edema, hepatomegaly, sinus rhythm 80-90 beats/min, tachypnoe 30/min and blood pressure 90/50 mmHg. The insufficiency with moderate stenosis (max. gradient 57 mmHg) of the aortic and moderate mitral valve insufficiency (II°) with bacterial vegetations on the anterior mitral leaflet were found in TEE. In spite of medical treatment the patient's condition was deteriorating, so the decision of urgent operation was taken. The operation was performed next day after clinic admission. There were found aortic valve calcification with the stenosis and perforation in free leaflet as well as mitral valve insufficiency with bacterial vegetations on the anterior leaflet. Aortic valve prosthesis (Medtronic A 27) with mattress sutures and mitral valve prosthesis (Medtronic M 31) with continuous suture were implanted. After the operation the patient needed

electrostimulation and inotropic support (Dopamine, Adrenaline and Noradrenaline in high doses, and Vincoram from the next day) because of low output syndrome. Because of the bacterial infection Vancomycin, Amikin and Diflucan were administered.

Six days after the procedure a veno-venous haemofiltration was introduced because of renal failure (urea 300 mg%, creatinine 3.5 mg%, K^+ 5.7 – 6.48 mEq/l) with oliguria (not more than 10 ml/h) in spite of diuretic treatment (Furosemid in continuous infusion and Mannitol). Amikin treatment was stopped and Vankomycin dose was decreased. The patient was extubated on 14th postoperative day but 3 days later mechanical ventilation and higher doses of inotropic drugs were started again because of acute pulmonary oedema. A small periprosthetic leakage in posteromedial part of the mitral ring was found in TEE. According to blood culture (*Pseudomonas aeruginosa* bacteraemia) and antibiogram, Ciprofloxacin and Gentamycine therapy was started.

Despite intensive therapy the patient's general condition became worse. The patient's temperature was about 39° C, and right ventricular insufficiency increased. The third TEE examination revealed increase in mitral prosthesis insufficiency (III°) with a ball-shaped thrombus just under the valve. Based on this, a decision of operation was made. The reoperation was performed on 25th day after the first one. A 6-mm long rupture in the mitral annulus was found, and mitral valve prosthesis (St. Jude M-31) with mattress sutures with a felt band was implanted. The aortic valve prosthesis was controlled and no pathology was found. After prolonged reperfusion ECC was successfully removed with inotropes and the operation was finished. During the next 3 days improvement in the patient's general condition was achieved, the patient was conscious and hemodynamically stabilized on a low doses of inotropes. Laboratory tests showed increased urea level to 187 mg%.



Fig. 1. Pericerebral hematoma with intensive cerebral oedema

On 6th day after reoperation (31st day after the first operation) the patient suddenly lost consciousness and deteriorated hemodynamically. After intensive antishock therapy the patient's hemodynamic condition did not improve. After a few hours pupils became wide and stiff. An urgent made CT showed large pericerebral hematoma with intensive cerebral oedema (Fig. 1). Because of multiorgan insufficiency neurosurgeons decided to disqualify the patients from the operation. Patient died 9 days after reoperation and 34 days after first mitral and aortic valves replacement.

During autopsy a subdural hematoma, subarachnoid hemorrhage with acute cerebral oedema, encephalomalatia and marks of a recent myocardial infarction in posterior heart wall were found.

DISCUSSION

The complications of infective endocarditis may involve any organ system. Cardiac complications are frequently present, and heart failure remains a leading cause of death. Extracardiac complications, including neurologic, vascular, and renal diseases, are also common and are usually caused by either embolization of vegetation or immune complexes. Despite many advancements in the detection and treatment of complications of infective endocarditis, management of these problems remains a challenging endeavour (2). Neurologic syndromes often complicate the management of infective endocarditis. Kanter and Hart (3) reviewed 166 episodes of native valve endocarditis and neurologic complications found in 35% (58/166) of patients. Mahaffey et al. (4) demonstrated that intracranial hemorrhage is uncommon after thrombolysis for acute myocardial infarction, but 87% of patients die or have disabling stroke. Pruitt et al. (5) showed that of 218 patients with bacterial endocarditis, 84 (39%) had neurologic complication and 58% of these patients died. It means, that while many clinical aspects of infective endocarditis have changed in recent years, the frequency and gravity of neurologic complications have not.

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SUMMARY

Endocarditis is a life-threatening disease, although it is relatively uncommon. The complications of infective endocarditis may involve any organ system. Cardiac and extracardiac complications including neurologic, vascular and renal diseases are common and are usually caused by either embolization of vegetation or immune complexes. This case report presents a 31-year-old male with combined mitro-aortic valves defect and infective endocarditis on mitral valve. The replacement of mitral and aortic valves prosthesis were performed. During postoperative period low output heart failure, renal failure and respiratory failure developed. 25 days after the first operation the reoperation was performed because of mitral prosthesis insufficiency and thrombus just under the valve. On 31st day after the first operation patient died because of subdural hematoma and acute cerebral oedema and encephalomalatia.

Zgon spowodowany krwakiem śródczaszkowym po wymianie dwóch zastawek serca z powodu zapalenia wsierdzia

Zapalenie wsierdzia jest jednostką chorobową występującą rzadko, lecz obarczoną dużym ryzykiem powikłań ze zgonem włącznie. Powikłania zapalenia wsierdzia mogą dotyczyć różnych narządów. Powikłania najczęściej dotyczą serca, ale także pozostałych narządów – układu moczowego, nerwowego, naczyniowego. W pracy przedstawiono przypadek 31-letniego mężczyzny z dwudziestoletnim wywiadem kombinowanej wady mitro-aortalnej, z trwającymi trzy tygodnie objawami zapalenia wsierdzia. Mimo intensywnego leczenia zachowawczego stan pacjenta ulegał stałemu pogorszeniu. Pacjent poddany został zabiegowi operacyjnemu wszczęcia protezy zastawki mitralnej i aortalnej. W przebiegu pooperacyjnym u pacjenta rozwinął się zespół małego rzutu, niewydolność nerek z koniecznością hemofiltracji, niewydolność oddechowa. W dwudziestej piątej dobie po zabiegu operacyjnym pacjent był reoperowany z powodu narastającej niewydolności serca związanej z narastającym przeciekiem okołozastawkowym w obrębie zastawki mitralnej w przebiegu zapalenia wsierdzia (wymiana protezy zastawki mitralnej z pozostawieniem protezy zastawki aortalnej). Pacjent zmarł w dziewiątej dobie po reoperacji wśród objawów niewydolności krążenia i krwaka śródczaszkowego z obrzękiem mózgu.