

Intracranial hemorrhage in infective endocarditis: when to operate?

Endocardite infectieuse compliquée d'hémorragie intracrânienne: Quand opérer ?

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RÉSUMÉ

La nécessité d'une chirurgie précoce en cas d'endocardite infectieuse avec complications neurologiques hémorragiques est associée à un risque important. Nous rapportons le cas d'un patient de 65 ans atteint d'une endocardite infectieuse compliquée d'insuffisance cardiaque réfractaire due à une insuffisance mitrale et aortique sévères, d'infarctus splénique, d'insuffisance rénale due aux antibiotiques et d'une hémorragie intracrânienne. Un remplacement valvulaire mitro-aortique a été effectué à trois mois de l'admission, soldé d'un excellent résultat.

MOTS-CLÉS

Endocardite;
Hémorragie
intracrânienne;
Choc cardiogénique;
Chirurgie

SUMMARY

Required early surgery in infective endocarditis with hemorrhagic neurological complications is associated with a significant. This is a case report of a 65-year-old male with an infective endocarditis complicated of refractory heart failure, severe mitral and aortic regurgitation, splenic infarction, renal failure due to antibiotics and major intracranial hemorrhage. A mitral and aortic valve replacement was performed at three months of the admission, with an excellent immediate and long term outcome.

KEYWORDS

Endocarditis;
Intracranial
hemorrhage;
Cardiogenic shock;
Surger

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INTRODUCTION

Infective endocarditis (IE) is associated with a variety of neurological complications. Early surgical treatment is sometimes required, whether to avoid heart failure (HF), uncontrolled infection or systemic embolism. Unfortunately, early surgery is associated with significant risk, especially in the presence of hemorrhagic complications. This is a case report of a multiply complicated IE, with major intracranial hemorrhage (ICH).

CASE REPORT

65-year-old male with history of diabetes mellitus presented with intermittent fever for two months, weight loss of 40 pounds and arthralgia. There were no history of drug abuse, no recent signs of respiratory, cutaneous or urinary infection, nor symptoms suggesting of central nervous system involvement. On examination we noted fever of 39.2° C, tachycardia and orthopnea. Auscultation showed an absence of the vesicular murmur on the left lower lung, bilateral crackling sounds, muffled heart sounds, and diastolic murmur in aortic area with systolic murmur in the mitral and tricuspid area. Other findings were hepatojugular reflux, splenomegaly, petechiae on the neck and the forearms and a poor dental status. Electrocardiogram showed microvoltage. Chest X-ray showed cardiomegaly, a batwing pattern, and a large left pleural effusion. Workup revealed a biological inflammatory syndrome, microcytic hypochromic anemia and a moderately decreased renal function. Transthoracic echocardiography (TTE) revealed a vegetation on the atrial side of the mitral valve measuring 1.4x1cm, rupture of chordae tendineae with eversion and perforation of A2 segment, causing severe eccentric mitral regurgitation. On the aortic valve, a prolapse of the left coronary cusp was noted, with a vegetation measuring 5mm on the ventricular side, causing a severe regurgitation [Figure 1]. The left ventricle was mildly dilated with preserved ejection fraction, and high filling pressure. Severe pericardial effusion of 23 mm with no hemodynamic compromise was noted. The patient was started on empiric antibiotic therapy (Ampicillin – Oxacillin – Gentamycin), with intravenous diuretics (IVD). The serial blood cultures, urine analysis and bacteriological examination after the pleural tap came back normal. The CT-scan showed intraparenchymal hematoma in the left frontal

lobe, subarachnoid hemorrhage with no evidence of infectious aneurysm and a splenic infarction. Cerebral MRI showed multiple microbleeds, right frontal ischemic injury, and left subcortical parietal microabscess. The patient became afebrile with a rapid decrease in CRP levels and WBC count. However, we failed to withdraw him from IVD. Facing HF and severe regurgitation despite treatment, a surgical intervention was planned. Neurosurgeons recommended repeating cerebral MRI in three weeks before heading to surgery. Two weeks after, the patient had a febrile peak of 38.7° C with an acute renal failure and reappearance of a biological inflammatory syndrome with no obvious infectious gateway, nor signs of uncontrolled infection on TTE. Serial blood cultures were negative. A reaction to the antibiotics was suspected, the patient was started on vancomycin - rifamycin, and nephrotoxic agents were discontinued. Creatinine levels returned to normal and patient stayed afebrile since. Control cerebral MRI showed persistence of microbleeds and subarachnoid hemorrhage with a regression of the microabscess, and a relatively stable aspect of the intraparenchymal hematoma. Surgery was postponed another month, until the cerebral MRI showed no significant interval change of the hematoma. The patient had a replacement of the mitral and aortic valve by mechanical prosthetic valves three months after the admission. Operative findings showed retraction of the non-coronary cusp of the aortic valve, a destroyed mitral valve, with a rupture of chordae tendineae. During the postoperative period, the vital signs remained stable with no fever spikes, no HF nor neurologic symptoms. Predischarge TTE showed no abnormalities, and the patient remained asymptomatic for three years of follow-up.

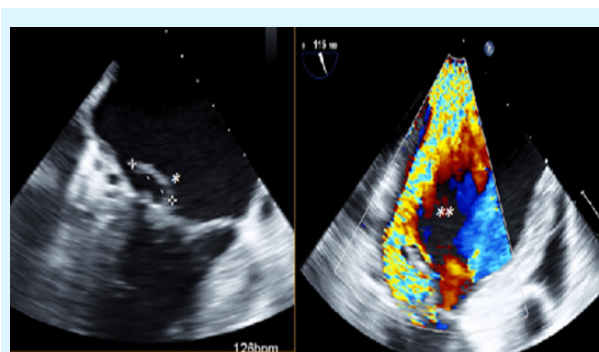


Figure 1. Transesophageal echocardiogram showing a mitral valve eversion (*), and mitral regurgitation (**)

DISCUSSION

ICH is a delicate complication in terms of management. It has variable presentations, from asymptomatic events to coma. It can be caused by hemorrhagic conversion of a prior ischemic infarct, microbleeds due to vascular friability, or rupture of an infectious aneurysm [1]. It is correlated with a higher risk of surgical mortality. [2;3;4] In the absence of parenchymal hemorrhage, successful management of IE frequently requires a combined medical and surgical approach. The challenge remains to find the balance between perioperative risk and postoperative prognosis. The main concern is that relative hypotension and full anticoagulation during cardiopulmonary bypass may worsen neurologic injury by infarction extension. Managing anticoagulant treatments after valve replacement also requires delicate manipulation. Evidence regarding the optimal time interval between ICH and cardiac surgery is controversial, but several data endorse postponing surgery. While emergency surgery for refractory HF should be performed with no delay, determining the appropriate timing if urgent cardiac surgery is needed should be patient-tailored. Current guidelines suggest postponing surgery three weeks to one month after ICH onset if possible, in cases of HF. [5;6] Our patient was diagnosed with multiply complicated left-side IE complicated of HF due to severe aortic and mitral regurgitation, with rupture of chordae tendinea and failure to withdraw from IVD. As embolic complications, he had a splenic infarction and a silent cerebral ischemia. Surgery was delayed until stabilization of an asymptomatic ICH assessed by serial MRIs and was performed without worsening of the neurological injury. Several series have shown that it is safer for patients to postpone after silent ICH onset. García-Cabrera et al. [7] reported on 60 patients with IE complicated by ICH, 12 of which underwent valve surgery. A high mortality and neurologic deterioration were associated to early surgery, since 50%, 33% and 20% patients presented worsening ICH when surgery was undertaken at <2, 2–3 and >3 weeks respectively. Optimal patient selection and timing of surgery remain open questions and may depend on the characteristics of the hemorrhagic lesions. Developing comprehensive scores [8] may help sorting the patients, and deciding who can safely undergo early surgery.

CONCLUSION

IF is frequently complicated by both occult and overt neurologic complications. In such a context, ICH remains a major therapeutic challenge. Although guidelines favor some form of surgical delay due to the risk of perioperative ICH, the optimal timing of surgical treatment should always be guided by the clinical presentation. Further evidence is needed to select of the patients who can benefit of early cardiac surgery.

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