Chronic Atrial Fibrillation Spontaneously Reverted After Surgery.

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Citation

Abstract
A 75-year-old female with persistent long-lasting atrial fibrillation (AF) spontaneously reverted to sinus rhythm (SR). She had been suffering from mitral stenosis and secondary tricuspid insufficiency with AF since her 50’s. She underwent mitral valve replacement and tricuspid annuloplasty 3 years previously. Spontaneous defibrillation improved cardiac status and remained in SR for 3 years. Possible mechanisms of this uncommon phenomenon are discussed. Cilostazol was suggested to play a role on this case.

INTRODUCTION
Atrial fibrillation (AF) is one of common arrhythmia, and is usually classified as either paroxysmal or chronic. AF may cause hemodynamic deterioration and increased risk of thromboembolism, therefore every possible treatment is undertaken, such as medicine, cardioversion, catheter ablation, and surgery. A calcium channel blocker, namely bepridil, has been found potential, but usually it is quite difficult to convert long-standing chronic AF to sinus rhythm (SR). Even spontaneous termination is rare, but recognized in the literature[1]. We present a case of valvular heart disease with over 20 year history of chronic AF, that was spontaneously defibrillated, with brief review and discussion for this rare phenomenon.

CASE PRESENTATION
A 75-year-old female was diagnosed as mitral stenosis with secondary tricuspid insufficiency, and AF at 50 year of age. Her medical history includes hyperuricemia and cerebral infarction. There was no definite history of rheumatic fever. Preoperative echocardiography showed dilated both atria, mitral stenosis, and relatively impaired cardiac function(ejection fraction(EF), 57%). She underwent mitral valve replacement using prosthetic valve, and tricuspid annuloplasty, and no massive fibrosis of atria were found. Postoperatively her heart rate was rather low, therefore no digitalis were given but diuretics, and warfarin. As she subsequently developed peripheral artery disease (PAD) postoperatively, antiplatelet therapy using cilostazol was started. She

Figure 1
Figure 1. Electrocardiogram: a, before surgery
**DISCUSSION**

This is a case of valvular heart disease, of which chronic AF was spontaneously defibrillated after valve surgery. The mechanism of spontaneous conversion is still unknown, however some typical features were drawn from the cases in the literature.

One is predominant mitral valve disease, which leads to the changes in the left atrium (LA) volume and pressure overload, and declines to AF in most of the cases. After mitral valve surgery, possibly concomitant with tricuspid valve surgery like presented case, cardiac status improves, and some cases restore normal conduction. Another is use of digitalis. Gardner[2] reported 4 cases of spontaneous defibrillated AF, all of who received digitoxin. Particularly in one patient whose serum digitoxin level was elevated, rhythm subsequently reverted to AF when digitoxin level fell to normal. The other is fibrosis of the left atrium, which is thought to inhibit the electrophysiologic activities, and total fibrosis was suggested to allow reversion to sinus rhythm. Our patient underwent mitral valve surgery, which improved cardiac status, but no digitalis was given.

Cilostazol was also started for her PAD, postoperatively. Cilostazol is an antiplatelet agent, which inhibits phosphodiesterase III, and cardiac potentials, such as positive chronotropic effect have been reported. In addition, Kishida[3] reported improved sinus function and conductivity on the patients with AF, therefore there is no definite evidences, but cilostazol may have played a role. Defibrillation of AF generally provides of improved cardiac status, but it is not absolutely true on spontaneous reversion of long-standing AF. There have been reports of spontaneous conversion occurred at terminal stage of congestive heart failure, or no mechanical contraction of LA after defibrillation. This is related to the one of the typical features: fibrosis of the LA. Holzmann[4] described an autopsy case of spontaneous termination of AF with LA became into a fibrotic sac. Khan[5] hypothesized progressive fibrotic change in the atria may interrupt the re-entry pathway or abolish the triggering autonomic focus and thereby terminate long-standing AF. However, in the presented case, contraction of both atria and improved cardiac function after spontaneous conversion that was confirmed by echocardiography. A general spontaneous reversion of AF was favorably accepted, and a careful follow-up is required, because it may have potentials to change the treatment for AF.

**References**

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