INTRODUCTION

Left atrial reduction has been proposed by Sankar as an alternative for eliminating chronic atrial fibrillation associated with mitral valve disease. A potential complication of the technique is the unnoticed rotation of the heart while the left atrium is anastomosed. Such an event makes it impossible to reconstruct the superior vena cava, leading to superior vena cava syndrome due to the rotation of that vessel. We report our experience with a case of left atrial reduction and rotation of the superior vena cava while it was being anastomosed. The complication was successfully resolved by placing an autologous pericardial tube between the two ends of the superior vena cava.

Key words: Atrial fibrillation. Mitral valve. Atrium. Surgery.

CLINICAL CASE

A 47-year-old woman was diagnosed with a double mitral valve lesion and chronic AF, and was categorized as New York Heart Association (NYHA) functional capacity III. She underwent surgery in February of 2001. A Carbomedics Inc. 29 mm mechanical mitral valve prosthesis (Austin, Tex., USA) was implanted. A left atrial reduction was performed to eliminate the chronic AF. The SVC could not be anastomosed directly due to inadvertent displacement of the heart to the right. A superior neocava was constructed at the base of the patient’s pericardium, using a Hegar dilator as a mold (Figure 1). The superior and inferior ends of the pericardium were anastomosed to the ends of sectioned SVC, re-establishing normal cardiopulmonary flow to the right atrium (Figure 2). Cardiopulmonary bypass was utilized for 140 minutes, and aortic clamping for 110 minutes during the left atrial reduction procedure. The

Errores en la reducción auricular izquierda. Neo-cava superior con pericardio

La reducción auricular izquierda es una técnica quirúrgica que ha sido propuesta para eliminar la fibrilación auricular crónica asociada a la enfermedad valvular mitral. Una de las potenciales complicaciones del uso de esta técnica es la rotación inadvertida del corazón durante la anastomosis de la aurícula izquierda. Esto imposibilita la correcta reconstitución de la vena cava superior, resultando en un síndrome de vena cava superior debido a la torsión de la misma. Se presenta aquí la experiencia de un caso de reducción auricular izquierda con torsión de la vena cava superior en el momento de su anastomosis, problema que se solventó con éxito mediante el uso de un tubo de pericardio autólogo interpuesto entre ambos extremos de la vena cava superior.

construction and anastomosis of the superior neocava was performed with the aorta unclamped and the heart beating. Normal sinus rhythm resumed as soon as the aorta was unclamped. The patient’s post-operative course was uneventful and there was no sign of SVC syndrome. Radioisotope superior venocavography was performed using sulfur-99mTc colloid 5 days after surgery (Figure 3) and was repeated 3 months post-surgery—these studies showed graft permeability. A transmitral flow Doppler echocardiograph showed post-operative recovery of left atrial functional capacity upon reappearance of the atrial «a» wave, which had been absent previously. The study also revealed a significant reduction in LA size.

DISCUSSION

Mitral valve disease is one of the most common causes of chronic AF, especially when the LA is large. Nevertheless, valve surgery per se does not eliminate this arrhythmia in the majority of cases. Various surgical techniques have been proposed. We have successfully used the atrial reduction technique described by Sankar in 17 patients who underwent mitral valve surgery with concomitant chronic AF; eliminating chronic AF with this technique is highly effective. Experimental studies by Chorro et al have shown that when the atria are distended, they can cause both atrial flutter patterns and complete re-entries. This can be eradicated by the formation of obstacles secondary to surgical suture lines, which can also eradicate complete areas of arrhythmia, such as in the base of the left atrial appendage. The technique also incorporates 2 principles cited by Cox: isolation of the AF reentrant microcircuits in the LA and reduction of the LA critical mass. This procedure consists of isolating the pulmonary vein heads and extirpation of a circumferential band of LA tissue that

<table>
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<th>TABLA 1. Left atrium values on transthoracic echocardiography</th>
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<tr>
<td><strong>Values</strong></td>
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<tr>
<td>Anteroposterior diameter, mm</td>
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<tr>
<td>Superoinferior diameter, mm</td>
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<tr>
<td>Transverse diameter, mm</td>
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<td>Area, cm²</td>
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*Area calculated by planimetry.
Incluye la base del ápice y la anastomosis del LA. La SVC se resecó transversalmente para exponer el techo del LA.

La función de transporte del LA se puede determinar mediante un estudio ecocardiográfico. La reanudación de la función de transporte del LA se puede establecer mediante electrocardiografía cuando se aprecia el «a» después de la realización del procedimiento. Sin embargo, este nuevo procedimiento no se libre de complicaciones. Habíamos encontrado una posible complicación de este procedimiento, la inversión accidental del corazón durante la reconstrucción del LA. Este problema se resolvió mediante el uso de un tubo de pericardio autólogo para garantizar la permeabilidad de la SVC. La interposición de la neocava superior del pericardio se realizó con clampaje aórtico, con el corazón latiendo, sin aumentar la duración del bypass cardiopulmonar más de 25 minutos.

En conclusión,我们认为使用自体心包管来防止意外的SVC扭转是进行左心房减容术的一个良好的手术选择。

CONCLUSIONES

We would like to thank Miss Maria del Carmen Colomer for her valuable assistance in preparing this manuscript.