


Research Article

Double Aortic Arch of in the Adult Patient Treated by the Frozen Elephant Trunk Technique Using a Thoraflex Hybrid Prosthesis: A Case Report

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Abstract

Aortic arch anomalies encompass a wide range of malformations affecting the arch itself which can lead to the formation of a partial or complete vascular ring around the tracheo-oesophageal axis. Such complications can cause, compressions of the surrounding structures and therefore various symptoms. Most of these cases are reported in pediatric patients. We report the case of an adult patient successfully treated by the frozen elephant trunk technique.

Introduction

Aortic arch anomalies encompass a wide range of malformations affecting the arc itself, its branches or the pulmonary artery which can create partial or complete vascular rings around the tracheo-oesophageal axis. Most of these cases have been reported in pediatric patients with surgical treatments conducted through a lateral thoracotomy. In rare occasions, these conditions can occur in adult patients therefore needing a dedicated surgical strategy such as the Frozen Elephant trunk technique.

Case report

Bronchoscopy revealed an extrinsic compression of the distal part of the trachea. The CT scan showed a double aortic arch compressing the trachea and the oesophagus. A right subclavian and a right primitive carotid arteries rising from the right arch, and left carotid and left subclavian artery rising from the left arch.

The surgery was performed through a median sternotomy, under standard central cardiopulmonary bypass after general heparinization, and a moderate hypothermia with a peripheral temperature of 28°C, corresponding to and a central temperature of 27°C.

During a brief 7-minute circulatory arrest, the right arch was dissected and both the trachea and the oesophagus were isolated on lacs. The right arch was then slid posteriorly of the trachea and placed on its left side. A 26x28x100 Thoraflex prosthesis was deployed in the thoracic descending aorta and was sutured in the isthmic region, or Zone 3, using ten 2/0 Ticron U-stitches reinforced with Teflon pledgets. Selective antegrade cerebral perfusion was conducted via direct cannulation of both common carotid arteries while both subclavian arteries were clamped. Once the stent implanted, distal perfusion was reinstated through a direct cannulation of the prosthesis using an endotracheal intubation tube.

The supra-aortic vessels were then re-implanted on the prosthesis. First both left common carotid and left subclavian arteries were anastomosed as

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