Emergent surgery for ruptured aortic arch aneurysm in an octogenarian patient: quo vadis?

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Abstract

Aortic arch aneurysms induce great morbidity and mortality especially when clinical signs of rupture are present. Surgical indications for repair in the high-risk octogenarian population are controversial. We present the case of an 87-year-old man with a ruptured aortic arch aneurysm with a good surgical outcome. We discuss the clinical impact of the surgical treatment in this group of patients.

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1. Case Report

We report the case of an 87-year-old male with a good physical condition and an active and self-sufficient life prior to surgery, who was admitted to the emergency room with dysphonia and an intense thoracic pain spreading to the left scapula. He had a medical history of hypertension, former smoking, benign prostatic syndrome and atrial fibrillation under oral anticoagulation. The chest X-ray demonstrated significant mediastinal widening with moderate left pleural effusion. Imaging tests (CT-scanning and TEE) demonstrated a 6-cm diameter sacular aortic arch aneurysm with signs of impending wall rupture, aortic intramural hematoma and left hemothorax. Patient consent was obtained and emergent aortic arch replacement surgery was then indicated.

After a standard median sternotomy and left axillary artery and two-stage caval cannulation, deep (18 °C) hypothermia and circulatory arrest under bilateral antegrade cerebral perfusion was performed. The aortic arch was replaced by a 20-mm Dacron woven prosthetic graft, with supraaortic arteries reimplantation. Total circulatory arrest time was 55 min. The patient was extubated 63 h after surgery with no evidence of neurological adverse events. The postoperative course was complicated with a Klebsiella pneumoniae and Haemophilus influenzae pneumonia treated with antibiotics, mucolytics and bronchodilator therapy, and a left neumothorax with massive subcutaneous emphysema treated with a chest drainage. He progressively improved with additional intensive physical and respiratory physiotherapy and was discharged on the 19th postoperative day. After six months of follow-up he remains self-sufficient in NYHA functional class II.

2. Discussion

Hospital mortality is very high in octogenarian patients who have undergone emergent surgery for ruptured aortic arch aneurysms [1]. This mortality increases between 2 and 20 times when compared with patients operated electively [1, 2]. The results reported by the most experienced Japanese group on this surgical technique are similar. The oldest patient operated on for this pathology was a 93-year-old [3].

Currently, indications for surgery in this disease are extremely controversial in the octogenarian patient. In fact, there are no published large series about this specific topic and we must extrapolate the results obtained in reports about octogenarian patients who underwent elective or urgent thoracic aortic operations under circulatory hypothermia [4].

A negative impact on survival and postoperative quality of life is more frequent in this patient population. Similarly, postoperative morbidity, especially neurological complications, are increased. However, these procedures offer reasonable short- and mid-term survival rates and postoperative quality of life in selected patients with a 100% fatal disease. The progressive increasing expectancy of life and improvements in quality of life in developed countries induces to a more aggressive surgical management of these patients [5]. Our conclusion is that age should never be considered an absolute contraindication for these procedures in selected patients with good physical and functional preoperative conditions and no significant comorbidities. We think that every patient must be independently analyzed in regard to survival and functional recovery in every institution and surgical team. We are sure that the medical, social and economical impact of the surgical management of this group of very-sick old patients will increase progressively in the near future.
References


