DISSEÇÃO DA AORTA TIPO B COM HEMATOMA INTRAMURAL RETRÓGADO E EMBOLIA PULMONAR

Kisa Hyde Congo1*, António Tomás2, Álvaro Laranjeira2, Daniela Afonso2, José Fragata2
1Serviço de Cardiologia, Hospital Espírito Santo de Évora
2Serviço de Cirurgia Cardiotorácica, Hospital de Santa Marta – Centro Hospitalar Lisboa Central
*Contacto Autor: kisacongo@gmail.com

Resumo

Os autores descrevem o caso de um homem de 67 anos, admitido por dor torácica e dispneia, de agravamento progressivo, com 2 semanas de evolução. A investigação diagnóstica revelou dissecação aórtica tipo B com hemATOMA intramural retrógrado complicado com embolia pulmonar bilateral, o que constituiu um desafio na abordagem terapêutica deste doente. O doente iniciou terapêutica anticoagulante com resolução parcial da embolia pulmonar e foi submetido, posteriormente, a correção cirúrgica com a técnica Frozen Elephant Trunk modificada com implantação de um tubo Dacron com 3 ramos e substituição do arco aórtico com E-Vita Open Plus. O pós-operatório decorreu sem intercorrências e teve alta ao décimo dia de internamento. Os autores consideram este caso inovador no que diz respeito à combinação dos aspetos clínicos com difícil manejo terapêutico e à complexa abordagem cirúrgica realizada, com desfecho favorável.

Abstract

Type B Aortic Dissection with Retrograde Intramural Hematoma and Pulmonary Embolism

We report the case of 67-year-old male patient who was admitted with a 2-week history of progressively worsening chest pain and dyspnea. Diagnostic investigation showed a type B aortic dissection with a retrograde intramural hematoma and bilateral pulmonary embolism. These simultaneous findings highly complicated patient management. Patient was started on anticoagulation therapy with partial resolution of pulmonary embolism after which surgical correction was performed. The patient was successfully submitted to a modified Frozen Elephant Trunk technique with a 3-branched customized Dacron tube and aortic arch replacement with E-Vita Open Plus. Patient post-operative period was uneventful, and he was discharged at the tenth postoperative day. The authors consider this case to be highly unusual regarding the clinical aspects, the challenging decision-making process and the complex surgical approach performed with a favorable outcome.

INTRODUCTION

The simultaneous finding of Stanford type B subacute aortic dissection with retrograde intramural hematoma (IMH) of the arch and ascending aorta and pulmonary embolism (PE) is a rare and challenging occurrence, not contemplated in guidelines. Anticoagulation therapy of PE in this case is controversial considering the risk-benefit ratio. On the other hand, a conservative approach to type B aortic dissection with a retrograde IMH is not a reassuring option. The authors consider this case to be highly unusual regarding the clinical findings, the challenging decision-making process and the complex surgical approach performed.

CASE REPORT

A 67-year-old man, with history of hypertension and former smoker, presented at the emergency department with a progressively worsening dyspnea and mild to moderate anterior chest pain. Transthoracic and Transesophageal echocardiogram (TEE) showed a large IMH of ascending aorta, dissection flap of the thoracic descending aorta and moderate aortic regurgitation. Thoracic CT-scan confirmed type B aortic dissection with intimal flap immediately distal to the left subclavian artery (LSA) extending to abdominal aorta, and retrograde IMH involving anterior and lateral ascending aorta (maximum diameter 70mm) (Figures 1-2). CT-scan
also described a bilateral acute PE of the segmental branches. The patient was then transferred to our hospital.

Although there was a high risk of complications, the patient was started on anticoagulation for PE. After seven days, the follow-up CT-scan showed improvement of PE.

The high risk of disease progression and complications justified the decision to operate. The patient was submitted to a modified Frozen Elephant Trunk technique, consisting of replacement of ascending aorta with a 3-branched customized Dacron tube (Jotec Flow-weave® 28) and aortic arch replacement with an E-Vita Open Plus® 28-130mm, a hybrid prosthesis. The supra-aortic vessels were de-branched and re-implanted separately in the customized ascending aorta graft. The collar of the E-Vita was anchored at landing zone 2.

Surgery was done under deep hypothermic cardiopulmonary arrest (DHCA) with anterograde bi-hemispheric selective brain perfusion coupled with independent perfusion of the LSA. The customized conduit tube was built on a back-table according to vessels size with a 28mm for the aorta and 16, 8 and 10mm for the braqueocephalic trunk artery (BCT), left common carotid artery (LCCA) and LSA, respectively. Extracorporeal circulation (ECC) was started with right subclavian artery arterial cannula and right
atrium appendage venous cannula with cold blood retrograde cardioplegy. During the cooling period, de-branching and re-routing of the LCCA and LSA was performed anastomosing these vessels to a Dacron tube (Figure 2). The aorta was then clamped. The ascending aorta was resected, and the customized Dacron graft was implanted. A guide-wire was advanced from the femoral artery to aortic arch and its position was confirmed with TEE. After reaching target temperature of 24°C, DHCA was achieved. The BCT was clamped and aortic clamp was released.

E-Vita Open Plus prosthesis was deployed and anchored at landing zone 2. Distal perfusion and rewarming was initiated through a balloon cannula inserted in the graft. Anastomosis of the ascending aortic customized conduit to E-Vita Dacron segment was performed to re-establish aorta continuity. Body arterial perfusion was then swapped to the LSA (Figure 3).

Finally, independent anastomosis of the LCCA and BCT were completed. When the patient was fully rewarmed and weaned off ECC the LSA anastomosis was done.

Total ECC time was 248 minutes; aortic clamp period was 115 minutes and DHCA was 44 minutes. Patient post-operative period was uneventful. Total ventilation period was 12 hours. ICU and hospital stay were 3 and 7 days, respectively. Patient was discharged at 10th post-operative day. Follow-up CT showed no complications (Figure 4).

DISCUSSION

Type B aortic dissection is usually managed medically. Intervention (surgical or endovascular) is generally reserved for patients who develop complications. The treatment of IMH of the ascending aorta and aortic arch is controversial:
although some authors advocate medical management, increasingly more authors recommend surgery, but opinions are divided regarding conservative surgery (ascending aortic replacement only) or more complex surgical approach (ascending aortic and aortic arch replacement). A meta-analysis of 143 reported cases of IMH showed that mortality rate was significantly lower in patients who received surgical treatment.

In this case our decision to operate also showed a favorable outcome. The more complex surgical approach, on the one hand, treated the intramural hematoma and, on the other, still allows for eventual endovascular therapy of descending aorta if indication arises during follow-up. The simultaneous finding of aortic dissection and PE highly complicated patient management. Anticoagulation therapy is controversial considering the high risk of hematoma or dissection progression, rupture and bleeding. The risk-benefit ratio was considered favorable and at 7-day follow-up there was partial resolution of PE with no complications.

REFERENCES