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CASE REPORT

# A case of constrictive pericarditis and thoracic aortic aneurysm: A hybrid therapeutic approach☆

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**KEYWORDS**
Constrictive pericarditis;
Aortic aneurysm;
Aortic debranching

**Abstract** The authors describe the case of a 59-year-old man, a former smoker, with hypertension, chronic renal failure undergoing hemodialysis, and a history of stent grafting for repair of an abdominal aortic aneurysm and miliary tuberculosis, who was diagnosed with constrictive pericarditis and a thoracic aortic aneurysm. In a patient with such a complex medical history, there were several etiologies to consider. The treatment consisted of pericardiectomy and a hybrid technique of supra-aortic debranching and subsequent endovascular stent-graft repair.


**PALAVRAS-CHAVE**
Pericardite constritiva;
Aneurisma aórtico;
*Debranching* aórtico

**Um caso de pericardite constritiva e aneurisma da aorta torácica: abordagem terapêutica híbrida**

**Resumo** Os autores descrevem o caso de um doente do sexo masculino, de 59 anos, hipertenso, ex-fumador, insuficiente renal crónico em hemodiálise, com antecedentes de endoprótese por aneurisma da aorta abdominal e história de tuberculose miliar no passado, a quem é diagnosticado pericardite constritiva e aneurisma da aorta torácica. Num doente com antecedentes patológicos tão diversos, são várias as etiologias a considerar. O tratamento consistiu numa pericardiectomia e numa técnica híbrida de debranching dos ramos supra-aórticos com posterior implantação de endoprótese aórtica.


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## Introduction

Constrictive pericarditis is a rare and disabling consequence of pericardial thickening secondary to chronic inflammation, which may be due to infection (particularly tuberculosis, which has a high prevalence in Portugal), or a late complication of mediastinal irradiation, or following cardiac surgery.

Less common causes are connective tissue disease, end-stage renal failure and cancer, although in the latter, the pathophysiology is different since the thickening results not only from the inflammatory process but also from tumor invasion of the pericardium. Treatment consists of pericardiectomy, except in completely asymptomatic cases or in patients contraindicated for this surgical procedure, in whom diuretic therapy may be an option.[1–4]

Aortic aneurysms, defined as pathological dilatation of ≥1.5 times normal diameter, are usually asymptomatic and are incidental findings on routine exams performed for other reasons. Various risk factors have been suggested, including hypertension, smoking and chronic obstructive pulmonary disease, and a variety of causes have been identified: cystic medial degeneration, atherosclerosis, trauma, inflammation or infection, post-stenotic or post-surgical dilatation, and familial syndromes such as Marfan and Ehlers-Danlos type IV.

The therapeutic approach is often conservative, with medical therapy and vigilance in cases of asymptomatic aneurysms and/or those considered too small for surgical intervention. In symptomatic aneurysms and those of sufficient size, treatment is invasive, with surgical or percutaneous implantation of an endovascular prosthesis.[5–7]

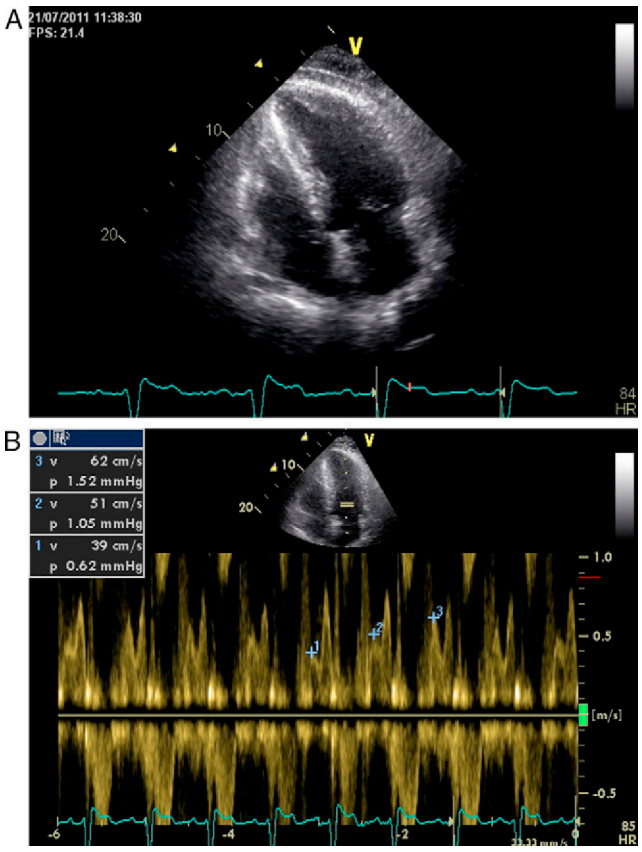


**Figure 1** Transthoracic echocardiogram, showing (A) thickened and echogenic pericardium, and (B) respiratory variation of E-wave amplitude.

## Case report

A 59-year-old man, a former smoker, with hypertension, chronic renal failure undergoing hemodialysis and a history of miliary tuberculosis in 2002 (under therapy for 12 months), had an abdominal aortic aneurysm diagnosed and treated by implantation of an aortic endoprosthesis in 2005. He had also had ulcerative colitis, treated by total colectomy and ileostomy. He was under medication with atenolol 50 mg, amlodipine 10 mg, indapamide 20 mg, an intestinal anti-inflammatory drug (mesalazine 500 mg), a phosphorus-binding agent and a multivitamin supplement.

He was referred for cardiology consultation in July 2011, complaining of fatigue (New York Heart Association [NYHA] class III). Physical examination revealed no alterations except mild bilateral pretibial edema. The electrocardiogram showed sinus rhythm, heart rate 92 bpm, with left anterior hemiblock, but no other changes.

Other diagnostic exams were requested, including transthoracic echocardiography, which showed characteristics compatible with constrictive pericarditis – pericardial thickening with increased echogenicity and significant respiratory variation of the E wave in transmitral flow (Figure 1A and B), together with mildly impaired ejection fraction.

Right and left cardiac catheterization excluded angiographically significant coronary artery lesions; the diagnosis of constrictive pericarditis was confirmed through hemodynamic study, which showed typical dip-and-plateau ventricular pressure curves and equalization of end-diastolic pressures.

Aortography documented dilatation of the descending thoracic aorta. Chest computed tomography (CT) angiography to better characterize the aorta revealed a large, partially thrombosed, saccular aneurysm originating in the descending thoracic aorta, immediately distal to the emergence of the left subclavian artery, 87 mm × 61 mm in diameter (Figure 2). No pericardial calcification was observed.

Following joint medical and surgical evaluation, it was decided to adopt a hybrid surgical and percutaneous approach. Surgery consisted of pericardiectomy with total debranching of the supra-aortic branches (left brachiocephalic trunk and carotid and subclavian arteries) with termino-lateral anastomosis of a previously constructed three-branch Dacron graft (Uni-Graft® KUV, B. Braun) (Figure 3A) to the aortic arch, obviating the need for extracorporeal circulation and deep hypothermia (Figure 3B).

Percutaneous implantation of an endoprosthesis in the thoracic aorta (Figure 4) was then performed, taking care not to compromise the emergence of the above vessels.

Anatomopathological study of the pericardium showed non-specific pericarditis. The postoperative period was uneventful and the patient was discharged after nine days.

CT angiography three months after the interventions confirmed a good result (Figure 5).