

CASE REPORT

Late Disruption of a Polyethylene Terephthalate Aortic Graft 30 Years after Initial Graft Placement

Akihito Matsushita^{*}, Yu Tsunoda, Takashi Hattori, Wahei Mihara

Department of Cardiovascular Surgery, Seikeikai Chiba Medical Centre, Chiba, Japan

A 71 year old male who had undergone extra-anatomic bypass grafting between the ascending aorta and the thoraco-abdominal aorta at 41 years of age for aortic coarctation was admitted with back pain and dyspnea. A 16 mm Cooley double velour knitted polyethylene terephthalate (PET) graft was used in the initial operation in 1983. Computed tomography showed disruption of the initial PET graft perforating the right atrium, and a pseudoaneurysm at the distal anastomosis. The patient was in acute cardiac failure because of left to right shunting. A two stage operation was performed. The first stage comprised emergency re-grafting and right atrium repair, and the second stage re-grafting for the pseudoaneurysm. The patient is doing well 48 months post-operatively; however, monitoring of the patient will continue for potential PET graft rupture.

© 2017 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Article history: Received 12 October 2016, Revised 30 September 2017, Accepted 2 November 2017,

Keywords: Polyethylene terephthalate, Late graft failure, Aortic coarctation

INTRODUCTION

All polyethylene terephthalate (PET) grafts dilate because of the nature of the knitting or weaving process,¹ and the rate of dilatation in knitted grafts is higher than that in woven grafts.² However, despite this tendency to dilate, aneurysmal changes or failure of PET grafts are rare complications.^{3–7} In particular, spontaneous ruptures have rarely occurred in grafts performed using the Cooley double velour knitted PET graft manufactured from 1977 to 1987.^{5–7}

CASE REPORT

A 71 year old male was admitted to the study facility with back pain and dyspnea that had been present for 4 days. The patient had undergone extra-anatomic bypass between the ascending aorta and the thoraco-abdominal aorta plus brachiocephalic artery reconstruction at 41 years of age for aortic coarctation.

Computed tomography showed three problems at various sites: disruption of the PET graft perforating the right atrium, pseudoaneurysm at the abdominal aortic bypass distal anastomosis site, and distal aortic arch true aneurysm (Fig. 1). Echocardiography revealed an aneurysmal initial graft perforating to the right atrium, and pulmonary hypertension. The patient was diagnosed with acute cardiac failure caused by left to right shunting from disruption of the extra-

anatomic bypass graft. Emergency staged surgery was conducted. Cardiopulmonary bypass (CPB) was started using the femoral artery and vein as the cannulation site, and the patient was cooled down to 22°C for circulatory arrest before the re-median sternotomy. The ruptured PET graft was approached directly through the re-median sternotomy under hypothermic circulatory arrest with CPB (Fig. 2A). The initial PET graft had broken into pieces of up to 9 cm in length, although a partial structure remained. There was longitudinal rupture of the PET graft, some holes in the guide line, and a 7 mm perforation in the right atrium (Fig. 2A and C). The first stage involved re-grafting with a 10 cm woven shield graft (J Graft SHIELD NEO), and right atrium repair with mattress sutures using Teflon felt pledgets (Fig. 2B). First, the new graft was anastomosed with the initial graft at the proximal site, then at the distal site by clamping both the proximal site of the new graft and the distal site of the initial graft while the patient was rewarmed to 36°C. Operative findings revealed that the initial graft was partly dilated and ruptured, although it seemed that the structure had been retained in the proximal and distal parts. The initial graft was used to anastomose the sites because it was hard to perform adhesiolysis for all parts of the initial graft under circulatory arrest. Histological examination of the ruptured initial graft revealed a chronic, foreign body, inflammatory reaction without evidence of infection (Fig. 2D).

The second operation was performed 2 months after the first operation. Re-grafting for the pseudoaneurysm was done via both the re-median sternotomy approach and the trans-diaphragmatic approach under hypothermic circulatory arrest with CPB. Accurate investigation of degradation at the initial distal anastomosis site where the pseudoaneurysm

^{*} Corresponding author. Department of Cardiovascular Surgery, Seikeikai Chiba Medical Centre, 1-7-1 Minami-cho, Chuo-ku, Chiba 260-0842, Japan. E-mail address: akihito.matsu@gmail.com (Akihito Matsushita).

2405-6553/© 2017 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.ejvssr.2017.11.001>

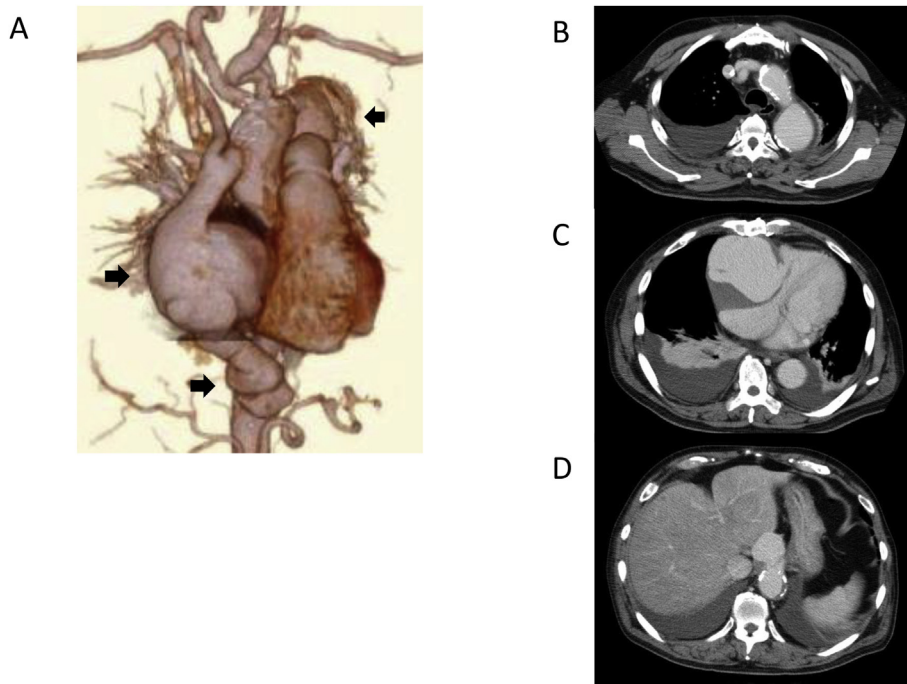


Figure 1. Computed tomography showed (A) three problems at different sites (arrows): (B) distal aortic arch true aneurysm, (C) disruption of the original polyethylene terephthalate graft perforating the right atrium, and (D) pseudoaneurysm at the distal anastomosis site of abdominal aortic bypass grafting.

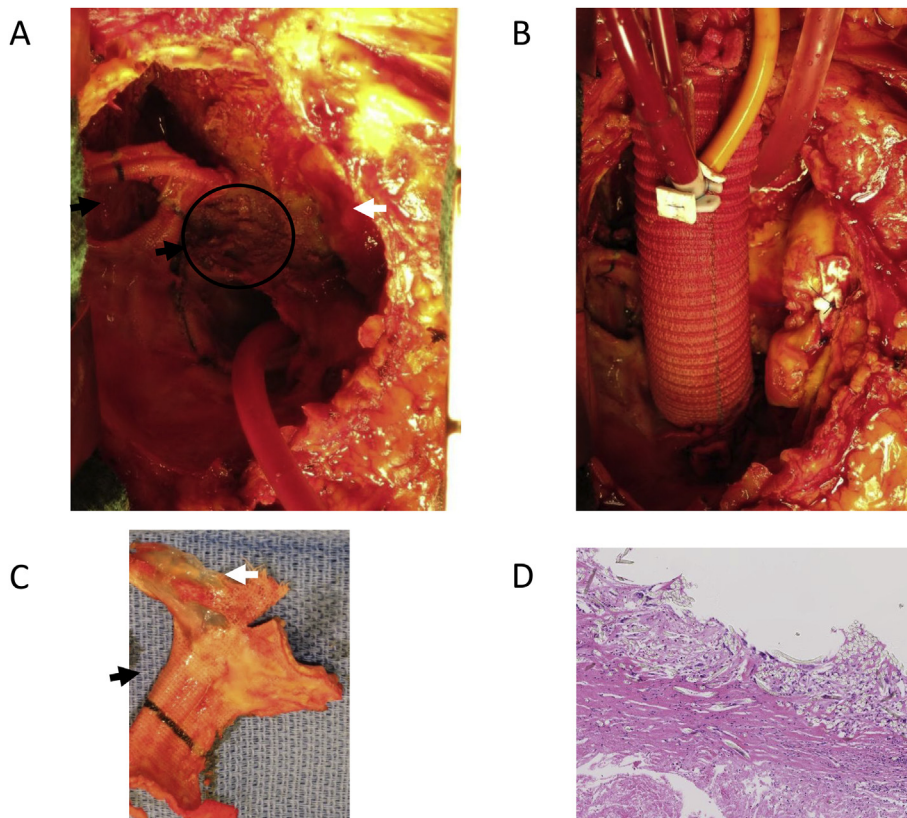


Figure 2. Operative findings. (A) Perforation site in the right atrium (white arrow), and holes in the guide line (black arrows). (B) Re-grafting and right atrium repair, (C) longitudinal rupture of the initial polyethylene terephthalate graft, the hole in the guide line (black arrow), and (D) histological examination were performed. An initial graft specimen (C) was taken from the centre of the degradation site, which was just a few cm to the side of the perforation site in the right atrium (circle in A), and histological examination of the graft specimen was performed.

Download English Version:

<https://daneshyari.com/en/article/8659209>

Download Persian Version:

<https://daneshyari.com/article/8659209>

[Daneshyari.com](https://daneshyari.com)