Arteriovenous graft complicated with perigraft seroma

Ching-Wei Tsai¹, Chin-Chi Kuo¹, Shin-Yi Chen¹, Vin-Cent Wu² and Yung-Ming Chen²

¹Department of Internal Medicine, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan and ²Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

Correspondence and offprint requests to: Yung-Ming Chen; E-mail: chenym@ntuh.gov.tw

Keywords: arteriovenous graft; perigraft seroma; PTFE

A 63-year-old man with a history of end-stage renal disease, who had been receiving haemodialysis for 2 years, was diagnosed with paroxysmal nocturnal haemoglobinuria at age 40, with presentation of intravascular haemolysis and haemoglobinuria. His baseline haemoglobin was around 6.0 g/dl, and he received a blood transfusion every 2 weeks for refractory anaemia, although erythropoietin was being administered. After a thrombectomy for acute occlusion of the arteriovenous graft (AVG), a pseudoaneurysm developed and was excised and replaced with polytetrafluoroethylene (PTFE) graft. However, a bulging mass developed near the graft, gradually increasing in size (Figure 1A). Vascular Doppler sonography disclosed fluid accumulating around the PTFE graft (Figure 1B). A perigraft seroma was diagnosed. Therefore, the seroma was evacuated followed by repair with a graft–graft anastomosis. However, the perigraft seroma recurred immediately after evacuation. The seroma enlarged gradually during the following 3 weeks and eventually ruptured (Figure 2). Next, the patient underwent total graft excision, and another AVG was created on the opposite upper arm.

Perigraft seroma is defined as a sterile collection of fluid confined within a nonsecretory fibrous pseudomembrane surrounding a vascular graft. Perigraft seromas are rare complications of PTFE grafts which are difficult to treat with frequent recurrences [1]. Twenty-five percent of perigraft seromas occurred within the first month postoperatively. The primary suggested cause of seroma is failure of the surrounding connective tissue to incorporate the graft. “Graft wetting”, or “graft weeping”, is one of the contributing factors. In addition, some humoral fibroblast inhibitors may prevent the maturation and proliferation of perigraft fibroblasts, resulting in poor graft incorporation [2]. Several predisposing factors of perigraft seromas have been identified, including high pressure flow rate, low hematocrit, decreased oncotic pressure in malnourished patients, and extensive manipulation of the graft. Surgery is generally indicated for expanding seromas before pressure necrosis and erosion through the skin occurs.

Conflict of interest statement. None declared.

References


Received for publication: 26.10.09; Accepted in revised form: 5.11.09
Fig. 1. (A) A bulging mass developed over the graft with a clear serum leaking out from the suture lines (red arrowhead). (B) Vascular Doppler scan revealed fluid accumulation over the graft–graft anastomosis (white arrowhead).

Fig. 2. Expanding seromas caused pressure necrosis and erosion through the skin and the perigraft seroma ultimately ruptured.