SHORT REPORT

Multiple Aortic Aneurysms in a Steroid-Treated Patient with Rheumatoid Arthritis

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Introduction

Aortic aneurysm is a rare complication in patients with rheumatoid arthritis (RA). We present a case of multiple aortic aneurysms occurring heterochronically in a RA patient with long-term steroid therapy.

Case Report

A 60-year-old woman was admitted to our hospital for repair of a thoracoabdominal aortic aneurysm (TAAA). When she was 45 years old, she had undergone straight graft replacement for an infra-renal abdominal aortic aneurysm (AAA), in which the pathological findings were compatible with atherosclerotic change. Preoperative evaluation at the first operation detected no aneurysmal change in the remaining aorta (Fig. 1A). Ten years after the operation, computed tomography (CT) revealed a TAAA originating from the descending aorta down to the proximal anastomosis of the implanted graft, with a maximum diameter of 5 cm. Five years later, the diameter had increased to 8 cm (Fig. 1B). Laboratory data showed no active inflammation at this time.

She had been started on corticosteroid therapy at the age of 18 years, because of the diagnosis of systemic lupus erythematosus (SLE). Since her clinical features altered later, the diagnosis was changed to RA. All the while, she continued to take prednisolone, and the total dose was 220 g. She also had a history of hypertension which was well controlled, but had no other risk factors for atherosclerosis.

Discussion

The unique feature of the present case is the rare nature of TAAA recurrence after AAA repair. Plate et al. reported that 0.46% of patients developed TAAA in their follow-up study of 1087 patients who underwent AAA repair. The young onset of primary AAA and the absence of risk factors for atherosclerosis other than hypertension are also uncommon features in this case. We therefore speculated that other unknown factors also played a role in the aneurysmal development.

One possible factor is a history of RA. Gravallese et al. reported a prevalence of aortitis of 5.3% and of aneurysmal formation of 1.6% among 188 autopsy cases with RA. Pathological evaluation of the aortitis cases revealed a combination of several findings, such as inflammatory cell infiltration, medial necrosis, disruption of elastic fibers, intimal fibrosis and granulomas of the wall. In the present case, some of these findings were observed, though they are possibly detected in severe atherosclerosis.

Another possible factor in aneurysm development is long-term steroid therapy. It is known that corticosteroid downregulates the synthesis of extracellular matrix molecules, and destruction of connective tissues in the arterial wall possibly initiates aneurysms and dissection. Previous case reports of SLE patients with corticosteroid therapy showed aortic dissection and aneurysm
with multiple small foci of medial necrosis, and steroid therapy was suggested to initiate these lesions.\textsuperscript{2,5}

Interestingly, in the above autopsy report of RA cases, almost all aortitis patients had received corticosteroid therapy.\textsuperscript{1} In view of the above features, we propose the possibility that coexistence of both RA and steroid therapy indicates a high-risk situation for aortic aneurysm.

References


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