
Introduction

Takayasu arteritis (TA) is a medium- and large artery vasculitis of unknown aetiology affecting mainly aorta and its major branches, usually in young female patients. Hematopathology reveals adventitial thickening, focal lymphocytic infiltration of tunica media and internal hyperplasia leading to arterial stenosis/occlusion. Extra cardiac medica degeneration presents as a systemic disturbance (1). Clinical symptoms arise from systemic inflammation and local vascular complications. Neurological manifestations include headache, dizziness, visual disturbances, TIA and stroke (2). Takayasu arteritis may be associated with previous morbidity among young women. The disease is not rare in Jadak and Asian countries and its prevalence is significant in (3,4) and vary on geographical location and management strategy. Most cause of death include stroke, myocardial infarction, cognitive cardiac failure, pen, and postoperative complications. Majority of patients (23%) are unable to work, and about 60% are limited in everyday activities (3,4).

Case report

We report a case of 33 y.o. lady being diagnosed on rheumatology ward in Jan 2014 due to unexplained weight loss, anemia and highly elevated systemic inflammation markers (ESR: 201, CRP: 67.13). Physical examination revealed a 1 cm palpable mass on right posterior neck. Doppler ultrason and computed tomography angiography (anastomotic stenosis assessed by Doppler ultrason; Figure 1A) showed stenosis of the right common carotid artery (CCA) with significant narrowing of internal carotid artery (ICA). There was no evidence of aneurysm or pseudoaneurysm. The patient was started on oral prednisolone (20 mg/day) and azathioprine (50 mg/day) which was followed by a steady improvement in the patient's health. The patient was discharged after 4 days of hospitalization on dual antplatelet therapy and was advised to continue with this treatment. She was followed up in the clinic every 3 months and was found to be in good health with no evidence of disease activity.

Figure 1. A 33 y.o. severely symptomatic female patient diagnosed with Takayasu arteritis. A: Computed tomography angiography showing subtotal right CCA (white arrow) and right ICA (arrow) stenosis. B: Network of collateral circulation vessels, contrast injection in one of LVV shows a net of collateral vessels extending from the left subclavian (LC) to the right CCA (arrow) and right subclavian (RSA) arteries. C: Ultrasound showing right CCA stenosis (arrow). D: Ultrasound showing right CCA dissection (arrow). E: Ultrasound of right common carotid artery with >50% plaque burden (arrow). F: Ultrasound of right CCA with >50% plaque burden (arrow). G: Ultrasound of right CCA with >50% plaque burden (arrow). H: Ultrasound of right CCA with >50% plaque burden (arrow). I: Ultrasound of right CCA with >50% plaque burden (arrow).

Discussion

Surgical bypass arteries reconstruction has been shown to be superior to endovascular treatment [5]. However, this relates usually to lower limb atherosclerotic lesions. The higher risk of serious early and post-surgical complications should be also considered [3,6,7]. With intensive technological development, endovascular treatment has been introduced as an alternative to surgical revascularization in many vascular territories. In 1996, endovascular treatment has been found to be safe and very effective with acceptable 30-day complications rate of 7.1% in our cohort [8]. However, it has been shown that in-stent stenosis remains the main issue in both surgical and endovascular approach. [7,9]. Different mechanisms of arteritis development in non-atherosclerotic vasculitides, such as TA, including chronic inflammatory inflammation suggest that the use of drug-eluting systems might be an optimal way to deal with severe intimal hyperplasia leading to early and late restenosis affecting >30% of treated vessels [7,9,10]. Besides typical in-stent restenosis, external stent compression by progressive vessel wall fibrosis and calcification has been described [10]. However, it has been shown that in-stent stenosis remains the main issue in both surgical and endovascular approach. [7,9]. Different mechanisms of arteritis development in non-atherosclerotic vasculitides, such as TA, including chronic inflammatory inflammation suggest that the use of drug-eluting systems might be an optimal way to deal with severe intimal hyperplasia leading to early and late restenosis affecting >30% of treated vessels [7,9,10]. Besides typical in-stent restenosis, external stent compression by progressive vessel wall fibrosis and calcification has been described [10]. In fact, we still miss the optimal endovascular treatment of TA, especially concerning drug-eluting devices in supraaortic territory. Our case shows that such therapy may be safe and effective, also in middle-term observation. We used DES before stent implantation in RCA because there has been drug-eluting stent, which eluting stents avoid main drawback, which is the risk of restenosis.

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FilterWire EZ (Boston Scientific, Natick, MA, USA), a distal neuroprotection device was introduced and opened in right ICA. Two infusions at 60mL/60sec using 5.0x6.0mm IN PACT Admiral Drug Eluting Balloon (DEB; Medtronic, Minneapolis, MN, USA) were performed on right CCA covering the whole atherosclerotic segment (Figure 1C). In spite of long-time infusions the patient complained only for temporary infusion-related right-side of neck pain. After filter placement no dissection was recorded. FilterWire EZ was removed in right ICA. Then, using 2.0x20mm balloon catheter, Coronary, drug eluting stent (DES, Xience Pro 4.0x23mm; Abbott Vascular, Santa Clara, CA, USA) was implanted at 18atm/30sec and postulated with 5.0x20mm balloon catheter at 14atm/40sec (Figure 1G). A filter from RICA has been retrieved very easily. In control angiography correct location of stents with no residual stenosis and significant blood flow improvement to both hemispheres were recorded (Figure 1H). Within 6 weeks, Doppler ultrasound examination showed no evidence of any neurological symptoms were observed. The patient was discharged after 4 days of hospitalization on dual antplatelet therapy (aspirin 75 mg/day; clopidogrel 75 mg/day for each 4 hours). Control DUS performed 4 weeks later demonstrated good flow through stents with no signs of restenosis. Three and eight months after the procedure, control angiography revealed a good patency and no new stenotic lesions of treated vessels (Figure 2). Up to now, patient has remained in good clinical status without any neurological symptoms.

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Figure 2. Control angiography of the patient performed 7 months after procedure. A: 3D reconstruction showing all stents patency and no new stenotic lesions of treated vessels. B: 2D cross-section demonstrating unreleased right CCA (white arrow) and RSA (gray arrow) stents structure.

References