CASE REPORT

Successful Angioplasty of Radiation-induced Iliofemoral Artery Stenosis: a Case Report

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Introduction

Arterial injury secondary to radiotherapy is uncommon but well documented in the medical literature. It is generally accepted that surgery is the primary mode of treatment and there are very few documented cases of successful balloon angioplasty of the iliofemoral vessels in the medical literature. We report this case with the longest documented interval of 25 years between exposure to radiation and presentation.

Case History

A 26-year-old man presented with a 6 month history of left sided calf claudication and no palpable pulses in that limb. He had previous pelvic radiotherapy at age 16 months for an embryonic bladder sarcoma and had a subsequent cystectomy. An angiogram revealed marked attenuation of the left external iliac with occlusion of the distal end of this vessel that extended down to the level of the origin of the profunda femoris. Collateral vessels reconstituted the superficial femoral artery and on the right side all the vessels appeared normal.

He underwent a successful open balloon angioplasty of the left external iliac and femoral arteries and the femoral artery was closed with a dacron patch. Eight months after the balloon angioplasty, he presented with left calf claudication. An angiogram confirmed patency of the previously angioplastied segment but revealed stenosis of the proximal superficial femoral artery. He had a dacron patch angioplasty and surgical endarterectomy but his symptoms did not improve and had a left femoral-popliteal bypass using a reverse saphenous vein graft 6 months later, with a good result.

Discussion

The age of patients presenting with radiation induced iliofemoral lesions ranges from 50 to 56 years and these lesions cannot be histologically or biochemically distinguished from normal atherosclerosis. It is quite probable that the incidence is underestimated because when such patients present symptoms may be attributed to atherosclerotic disease rather than radiation. Our patient was only 26 years old with no family history of early onset atherosclerotic disease and his lesion was focal. He smokes approximately 10 cigarettes per day, and hypertension, cigarette smoking and hyperlipidaemia act synergistically with radiation. It was also interesting that the accompanying veins did not show any damage and veins are known to be more radioresistant than arteries.

Radiation delays wound healing and causes perivascular fibrosis which makes surgery more difficult. In our case our patient responded well to the initial angioplasty but returned with stenosis of the proximal superficial femoral artery, which was most likely a fibrotic reaction to the patch. This was treated with a reverse saphenous vein femoral-popliteal bypass with good result.

Angioplasty in our case avoided an aorto-bifemoral bypass, which has a significantly higher morbidity. It was quite unexpected for the patient to respond so well to angioplasty 25 years after the initial insult. We believe that in cases like this, angioplasty should be considered as the primary mode of treatment.
References