Case Report

A Case of Popliteal Artery Entrapment Syndrome with Chronic Total Occlusion

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Popliteal artery entrapment syndrome (PAES) is rare congenital anomaly that occurs due to compression of the popliteal artery by adjacent musculotendinous structures. We report a 54-year-old woman with PAES of total popliteal arterial occlusion was successfully treated by release of the muscle bundle and reconstruction of the popliteal artery. Pathologic examination revealed that the extracted portion of the popliteal artery had chronic total occlusion with fibrosis and destruction of internal elastic membrane. We should deliberate whether we reconstruct the popliteal artery in addition to release of the aberrant muscle bundle due to the preoperative examination to prevent the reoperation.

Key words: popliteal artery entrapment syndrome, chronic total occlusion, CT angiography

INTRODUCTION

Popliteal artery entrapment syndrome (PAES) is a rare congenital anomaly that occurs due to compression of the popliteal artery by adjacent musculotendinous structures, which was first described by Stuart. The diagnosis is usually made by computed tomography (CT) or magnetic resonance imaging (MRI), and, in particular, computed tomographic angiography (CTA) can express the precise anatomical relations of muscle, bone and artery as well as the degree of stenosis or occlusion of the popliteal artery. CTA is helpful when we bypass the popliteal artery in addition to releasing the aberrant muscle bundle.
continue mountaineering without any claudication.

**DISCUSSION**

PAES is an uncommon cause of intermittent claudication in young adults. Suspected cases of PAES have to undergo bilateral extremity examination because of the high frequency of contralateral popliteal artery disease. According to the most commonly accepted 6-type classification discussed by Rich et al.\(^2\), the present case was classified as type II from the horizontal image of CT, in which an anomalous slip of muscle originates from the midline of the posterior cortex of the distal femur and compresses the popliteal artery. Recently, a new variant of PAES, in which an anomalous slip of muscle from the gastrocnemius muscle causes compression of the popliteal artery was reported by Rochier et al.\(^3\)

As patients with PAES are exposed to acute thrombotic occlusion of the popliteal artery, surgical treatment to release the compressing aberrant muscle is the standard treatment in cases of compressive pathology, while in complicated pathology with arterial stenosis or chronic occlusion, vascular reconstruction is added as in the present case.

CTA examination was helpful when we reconstructed the popliteal artery in addition to releasing of the aberrant muscle bundle. In the present case, we pathologically confirmed that the removed portion of the popliteal artery was severely occluded, accompanied by fibrosis and destruction of the internal elastic membrane without any findings of aneurysm or thrombus. Therefore, we considered that occlusion of the popliteal artery was brought by repetitive mechanical stimulation of aberrant muscle bundle. There is only one case in which not only the successful surgical reconstruction but the similar pathological finding also been reported on the paper.\(^4\) In that case, the pathological finding showed acute occlusion of popliteal artery by thrombotic material. However, in the present case, the popliteal artery was occluded chronically with distal reconstruction via collateral artery judging from the clinical symptom and the finding of the CTA and pathological findings. We should deliberate whether we reconstruct the popliteal artery in addition to release of the aberrant muscle bundle due to the preoperative examination to circumvent the reoperation.

**ACKNOWLEDGEMENT**

The authors are indebted to Roderick J. Turner and
Prof. J. Patrick Barron of the International Medical Communications of Tokyo Medical University for their review of this article.

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