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CASE REPORT

Cleavage of the Arcuate Ligament for Unstable Angina Pectoris Symptoms

M.A.P. Ligthart [a,*], G.G. Koning [a], H.R. Gehlmann [b], M.W.A. Verkroost [c], M.C. Warlé [a]

[a] Department of Vascular- and Transplant Surgery, Radboud University Medical Center, Nijmegen, The Netherlands
[b] Department of Cardiology, Radboud University Medical Center, Nijmegen, The Netherlands
[c] Department of Cardio-Thoracic Surgery, Radboud University Medical Center, Nijmegen, The Netherlands

Introduction: One reason for recurrent angina after coronary artery bypass graft (CABG) surgery is failure of the bypass graft.
Report: In this report a case of angina pectoris after CABG using the right gastroepiploic artery (GEA) as an inflow artery is described. The symptoms were due to compression of the celiac trunk by the median arcuate ligament. After division of the ligament, the patient was immediately relieved of his symptoms.
Conclusion: For unexplained recurrent angina symptoms after CABG using the GEA, median arcuate ligament syndrome should be considered.

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INTRODUCTION

Recurrent chest pain in the post-operative period following coronary artery bypass graft (CABG) is usually due to technical problems with the graft or early graft failure. At a later stage the pain can be caused by the development of bypass graft stenosis or by progression of atherosclerosis in either bypassed or non-bypassed vessels.[1]

In this report a case of recurrent angina pectoris following CABG, due to compression of the celiac trunk by the median arcuate ligament is described.

REPORT

A 50 year old man underwent CABG in August 2011 for three vessel coronary artery disease. Because of his age a total arterial revascularization was preferred. To achieve this, the right internal mammary artery was used to bypass the left anterior descending artery, the free left internal mammary artery was used as a bypass graft from the ascending aorta to the obtuse marginal, and, finally, the right gastroepiploic artery was anastomosed to the posterior descending artery (Fig. 1).

After the bypass the patient complained of recurrent chest pain, without changes on electrocardiography or increased troponins. From July 2012 the patient also complained of abdominal pain, mostly increasing after meals, without weight loss.

Angiography of the celiac trunk was performed. A significant stenosis of the origin of the trunk during expiration was seen which decreased during inspiration. This indicates compression of the trunk by the median arcuate ligament (Fig. 2). After multidisciplinary consultation with radiologists, cardiologists, vascular, and thoracic surgeons it was decided to divide the median arcuate ligament in order to restore unrestricted blood flow in the celiac trunk and the right gastroepiploic artery (GEA).

The trunk was explored through a midline laparotomy and the GEA was carefully exposed. Pulsations were palpable over the GEA, which runs from the greater curve past the liver to the diaphragm. Cranial to the celiac trunk, the crus of the diaphragm was split longitudinally, exposing the aorta. The aorta was then exposed up to the origin of the celiac trunk. After dividing the rigid fibrous tissue around the origin of the celiac trunk, its caliber increased significantly.

Post-operatively, the patient was immediately free of his typical pre-operative complaints of both thoracic and abdominal pain.

DISCUSSION

Compression of the celiac trunk by the median arcuate ligament was found in autopsy studies to be present in one third of patients. However, the incidence of symptoms is much lower.[3] When symptomatic, the median arcuate ligament syndrome normally causes (postprandial) abdominal pain, weight loss, and an epigastric bruit.[2,3] Because of the non-specific symptoms, the diagnosis of median arcuate ligament syndrome is often one made by exclusion. The syndrome is mostly diagnosed in middle aged women.[3] In

* Corresponding author.
E-mail address: m.ligthart@live.nl (M.A.P. Ligthart).

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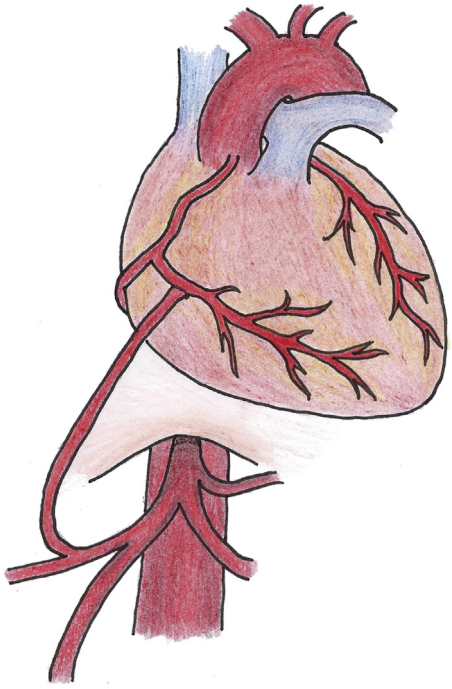

Figure 1. Compression of the celiac trunk by the median arcuate ligament. The right gastroepiploic artery originates from the common hepatic artery via the celiac trunk. In the coronary artery bypass graft surgery it was used as a bypass to the posterior descending artery.

the current literature, surgery is the first choice treatment.[2,3]

The right GEA originates via the common hepatic artery from the celiac trunk. After using the right gastroepiploic artery for the CABG, compression of the celiac trunk by the median arcuate ligament caused the angina pectoris symptoms in this patient. The compression of the trunk was also the cause of his postprandial abdominal pain.

CONCLUSION

The median arcuate ligament syndrome has not been described before as the cause of recurrent angina pectoris after CABG. Nevertheless, it should be considered in patients with a GEA bypass graft with atypical chest pain.

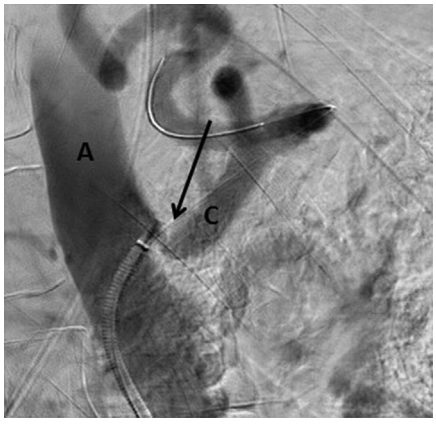

Figure 2. Angiography of the celiac trunk during expiration. The compression of the celiac trunk (C) by the median arcuate ligament (arrow) immediately beyond its origin from the aorta (A) is shown.

CONFLICT OF INTEREST

None.

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