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An anomalous right gastroepiploic artery graft arising from the superior mesenteric artery

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We report the case of a 72 year-old man with mild shortness of breath who was referred for computed tomography angiography (CTA). Eleven years before, he had undergone triple vessel coronary artery bypass grafting [left internal thoracic artery to the left anterior descending artery, a saphenous vein graft to the first obtuse marginal branch of the left circumflex artery, and right gastroepiploic artery (GEA) to the right coronary artery] in another hospital. The CTA proved the patency of three bypass grafts (Fig. 1). It is important to note that the right GEA aberrantly arose from the superior mesenteric artery (Fig. 2).

The right GEA is widely used as an *in situ* arterial graft for coronary artery bypass grafting. The GEA is supplied by the celiac arterial system in more than 95% of patients. However, anastomosis between the celiac arterial system and superior mesenteric arterial system by pancreaticoduodenal arcade has occasionally been found in post mortem surveys [1]. Such anastomosis protects the GEA graft from ischemic complications due to stenosis or occlusion of the celiac arterial system [2]. The exact prevalence of anomalous right GEA from the superior mesenteric artery is unknown. Although this variation should be considered, especially when right GEA has been utilized as a coronary bypass graft, it may be difficult to verify using catheter arteriography. Previous studies have reported that the rate of successful catheterization of GEA was 78% [3].

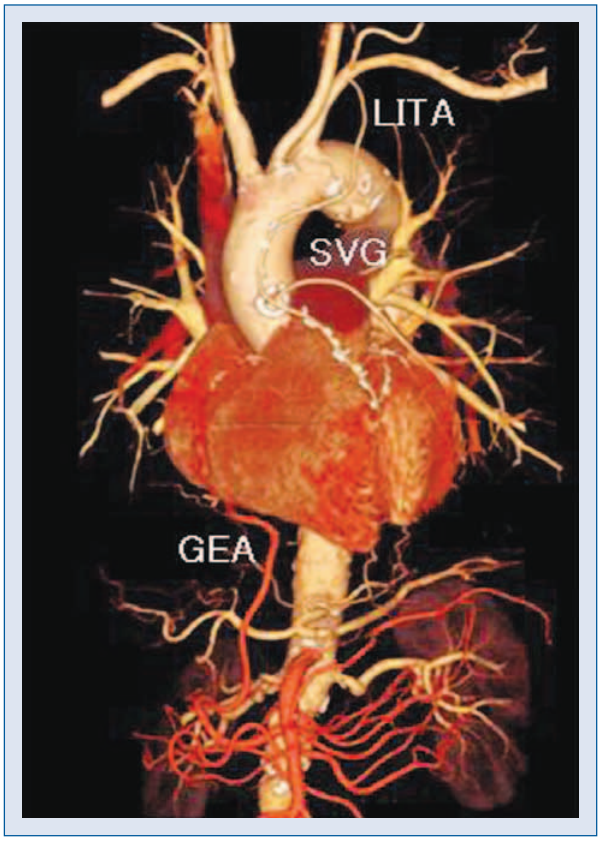

Figure 1. Volume-rendered image showing an overview of the bypass grafting; LITA — left internal thoracic artery; SVG — saphenous vein graft; GEA — gastroepiploic artery.

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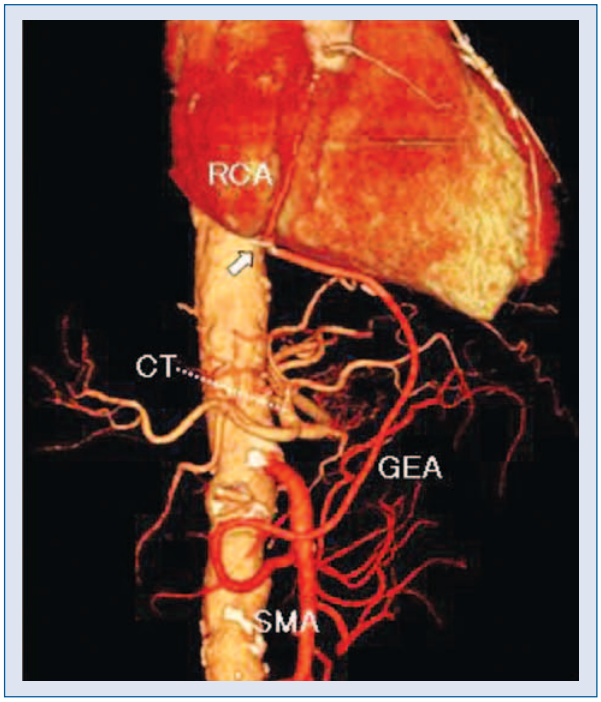

Figure 2. Volume-rendered image highlighting the anomalous right gastroepiploic artery (GEA) graft arising from the superior mesenteric artery (SMA). Arrow indicates the point of GEA anastomosis; CT — celiac trunk; RCA — right coronary artery.

Recent improvements in computed tomography technology, and the advent of multislice computed tomography, have enabled us to detect the cardiac structure noninvasively. In particular, the non-selective nature of the contrast injection of CTA allows the complete assessment of the overall anatomy in graft cases. To our knowledge, this is the first report of CTA clearly demonstrating this variation.

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