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Accessory renal arteries during aneurysm repair in a patient with end-stage renal failure

Fabien Lareyre ^{1,2}, Mathieu Carlier ³, Juliette Raffort ^{2,4}

¹ Department of Vascular Surgery, University Hospital of Nice, France

² Université Côte d'Azur, CHU, Inserm U1065, C3M, Nice, France

³ Department of Urology, University Hospital of Nice, Nice, France

⁴ Clinical Chemistry Laboratory, University Hospital of Nice, France

Corresponding author: Fabien Lareyre, MD, PhD

Department of Vascular Surgery, University Hospital of Nice, France

30 Avenue de la Voie Romaine CS 51069

06002 Nice Cedex 1

Telephone number: +33- 0492033835

E-mail : fabien.lareyre@gmail.com

Accessory renal arteries during aneurysm repair in a patient with end-stage renal failure

The prevalence of accessory renal arteries has been estimated between 12% to 25% of patients (1). This anatomic variation can challenge the management of abdominal aortic aneurysm (AAA) repair and its coverage can impact on renal function (1, 2). Here, we report the case of an 80-year old man who was admitted for an asymptomatic aortic aneurysm. His past medical history included an end-stage renal failure. CT-scan revealed a maximal aneurysm diameter of 55 mm and the aneurysm included multiple accessory renal arteries (Figure 1). The presence of accessory renal arteries within the AAA arose the question whether it should be preserved or not during aneurysm surgical repair. The Society of Vascular Surgery Consensus statement for the treatment of accessory renal artery currently recommends preservation and re-implantation of accessory renal artery of 3 mm or greater or those that supply one-third or more of the renal parenchyma (3). The results of a systematic literature review on the post-operative outcomes after accessory renal artery coverage also revealed that accessory renal arteries less than 3 – 4 mm can be excluded safely during aneurysm repair (1). In case of accessory renal arteries superior to 3 – 4 mm or supplying one-third or more of the renal parenchyma, the balance between the risk and the benefits of accessory renal artery coverage versus preservation should be evaluated taking into account the patients clinical and anatomic characteristics (1). After pluridisciplinary concertation and given the context of end-stage renal failure, the decision was taken to create hemodialysis access and to plan an endovascular aneurysm repair (EVAR) with exclusion of the polar renal arteries located within the aneurysm (yellow arrows) and a preservation of renal arteries located above the aneurysm (orange arrows).

The post-operative period after EVAR was associated with a worsening of the renal function. The creatinine concentration was 335 $\mu\text{mol/L}$ the day before the intervention and increased to 399 $\mu\text{mol/L}$ the day after and was 704 $\mu\text{mol/L}$ at day 14. The estimated glomerular filtration rate calculated according to the CKD-EPI formula was 14 mL/mn/1.73 m² before the intervention and decreased to 11 and 6 mL/mn/1.73 m² at day 1 and day 14 post-operatively. The patient then required hemodialysis.

References:

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