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Management of accessory renal arteries during aneurysm repair in a patient with end-stage renal failure



Prise en charge des artères rénales accessoires au cours du traitement d'anévrisme de l'aorte abdominale chez un patient en insuffisance rénale terminale

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KEYWORDS

Accessory renal artery;
Polar renal artery;
Aortic aneurysm;
Abdominal aortic aneurysm;
Aneurysm repair;
Renal failure

Abstract The presence of accessory renal artery is a frequent anatomic variation that can challenge abdominal aortic aneurysm (AAA) repair. Here, we show an image of an abdominal aortic aneurysm extended to multiple accessory renal arteries in a patient known for an end-stage renal failure. This case raises the questions of the criteria that should be taken in consideration for an optimal management of accessory renal artery during AAA repair.

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MOTS CLÉS

Artère rénale accessoire ;

Résumé La présence d'artères rénales accessoires est une variation anatomique fréquente qui peut impacter sur la technique chirurgicale au cours du traitement des anévrismes de l'aorte abdominale (AAA). Nous rapportons l'image d'un scanner abdominal montrant un AAA

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Artère rénale
polaire ;
Anévrisme aortique ;
Anévrisme de l'aorte
abdominale ;
Insuffisance rénale

incluant plusieurs artères rénales accessoires chez un patient connu pour une insuffisance rénale chronique terminale. Ce cas soulève la question des critères à prendre en considération afin de décider de l'attitude chirurgicale pour une prise en charge optimale de l'anévrisme et de la fonction rénale.

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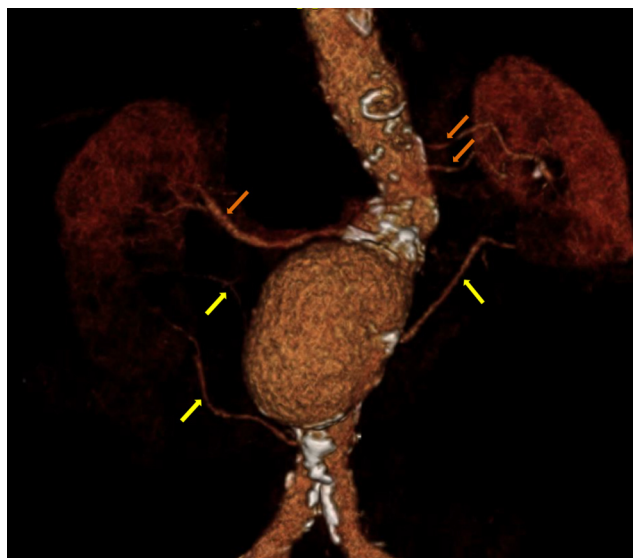


Figure 1. 3D-reconstruction from CT-scan showing AAA with multiple accessory renal arteries

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 (Fig. 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 postoperative 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/min/1.73 m² before the intervention and decreased to 11 and 6 mL/min/1.73 m² at day 1 and day 14 postoperatively. The patient then required hemodialysis.

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Disclosure of interest

The authors declare that they have no competing interest.

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