



Ex Situ Liver Resection and Autotransplantation with Retrohepatic Inferior Vena Cava Reconstruction and Atrial Thrombectomy Under Extracorporeal Circulation for Inferior Vena Cava Leiomyosarcoma

Maxime Foguene, MD^{1,2} , Lancelot Marique, MD¹, and Laurent Coubeau, MD^{1,3}

¹Abdominal Surgery and Transplantation Department, Cliniques Universitaires Saint-Luc, Brussels, Belgium;

²Experimental Surgery and Transplantation Laboratory, Institut de Recherche Expérimentale et Clinique, UCLouvain, Brussels, Belgium; ³Hepato-Gastro-Enterology Laboratory, Institut de Recherche Expérimentale et Clinique, UCLouvain, Brussels, Belgium

ABSTRACT

Background. Surgery is the only curative treatment for retrohepatic inferior vena cava (r-IVC) leiomyosarcoma.¹ Cavo-hepatic confluence invasion is a poor prognostic situation, requiring extreme liver surgery for selected patients to achieve R₀ margins (a crucial prognostic factor). Ex situ liver resection and autotransplantation (ELRA), developed by Pichlmayr et al., permits to achieve such R₀ margin.^{2,3}

Methods. An 84-year-old patient in excellent condition (ECOG 0), without relevant past medical history, was referred for abdominal mass, bilateral lower limbs edema, and dyspnea. Workup revealed a large r-IVC leiomyosarcoma invading cavo-hepatic confluence and protruding in right atrium without any metastasis. After multidisciplinary consultation, surgical treatment was retained. Preoperative transoesophageal echocardiography confirmed a 4-cm protruding tumoral thrombus in right atrium without abdominalisation possibility.

Results. A sterno-laparotomy was performed, consisting of a right nephrectomy for exposure and en bloc total hepatectomy comprising r-IVC after atriectomy for intracardiac thrombectomy under extracorporeal circulation. Tumorectomy (rIVC + segment I and IX) was performed on back

table followed by a r-IVC reconstruction through a tubulized homologous venous patch. Native IVC was reconstructed as well, permitting a side-to-side cavo-caval anastomosis for liver reimplantation. Postoperative evolution was eventless except for an early bile leak that required surgical exploration. The patient was discharged on postoperative day 32. Pathological examination confirmed r-IVC-leiomyosarcoma T₄N₀M₀ R₀, FNCLCC grade 2. Eight months after surgery, general status was conserved with disappearance of symptoms, and IVC was permeable without leiomyosarcoma recurrence.

Conclusion. Ex situ liver resection and autotransplantation with atrial thrombectomy is a surgical possibility for R₀ r-IVC leiomyosarcoma invading cavo-hepatic confluence in selected patients.

SUPPLEMENTARY INFORMATION The online version contains supplementary material available at <https://doi.org/10.1245/s10434-024-15622-0>.

REFERENCES

1. Kieffer E, Alaoui M, Piette JC, et al. Leiomyosarcoma of inferior vena cava: experience in 22 cases. *Ann Surg.* 2006;244(2):289–95.
2. Pichlmayr R, Bretschneider HJ, Kirchner E, et al. Ex situ operation on the liver. A new possibility in liver surgery. *Langenbecks Arch Chir.* 1988;373(2):122–6.

© Society of Surgical Oncology 2024

First Received: 22 April 2024

Accepted: 5 June 2024

M. Foguene, MD
e-mail: maxime.foguene@student.uclouvain.be

Published online: 26 June 2024

3. Serrablo A, Gimenez-Maurel T, UtrillaFornals A, et al. Current indications of ex situ liver resection: a systematic review. *Surgery*. 2022;172(3):933–42.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.