

How we do a mini-retroperitoneal approach for infrarenal aortoiliac aneurysm

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In recent decades, endovascular repair for intact abdominal aortic aneurysms (AAAs) has increased from 45% of all repairs in 2004 to 83% in 2015.¹ However, open surgical repair (OSR) remains an attractive solution for certain patients, including young patients with a long life expectancy due to the lower risk of aneurysm-related interventions, hostile neck anatomy (short, angulated, or wide necks), multiple large accessory renal arteries, or compromised access secondary to iliac occlusive disease.² The Society for Vascular Surgery AAA guidelines recommend a retroperitoneal approach over a transperitoneal approach for patients requiring OSR of an inflammatory AAA, patients with a horseshoe kidney, and patients with an aortic aneurysm in the presence of hostile abdominal anatomy.² They also suggest retroperitoneal exposure or a transverse abdominal incision for patients with significant pulmonary disease requiring OSR. We present a "How I Do It" video ([Supplementary Video](#)) explaining the different steps to achieve a mini-retroperitoneal OSR for an AAA.

The patient is placed in a gentle right lateral position (hip and shoulder rotation of 30° and 60°, respectively) and stabilized with the help of a bean bag. The table is flexed to increase the distance between the costal margin and iliac crest and widen the retroperitoneal space. A 10- to 14-cm incision is performed at the edge of the 11th rib. The incision can be extended distally, toward the midline, to improve distal iliac control. It can

also be extended proximally and laterally in the 10th inter-rib space to obtain suprarenal aortic cross-control. Once the lateral abdominal muscular wall is transected, the retroperitoneal space is entered laterally, and blunt finger dissection is performed medially to mobilize and preserve the integrity of the peritoneal sac. The left ureter is identified and gently mobilized. The Thompson Surgical OneFrame fixed retractor (Thompson Surgical) is positioned on the left side of the patient. A Balfour blade is first placed on the left arm of the retractor to retract the abdominal wall laterally. Depending on the body mass index of the patient and the extent of the cutdown, two to three malleable blades are placed on the right arm to retract the peritoneal sac. Extra angulation of the blade on each handle can help increase the volume of the retroperitoneal exposure, despite the small cutdown. Once heparin is given, to limit congestion of the operative field, a Satinsky clamp is used to cross-clamp the aorta. If the operative field is too crowded, a flexible Cosgrove clamp can be used instead. After completion of the aortic anastomosis, the right iliac anastomosis is performed before the left to allow for better visualization. Depending on the extent of the retroperitoneal dissection and the amount of bleeding, a drain can be placed in the retroperitoneal space. The muscle layers and the skin are sutured, and a transverse abdominis plane block is performed by the anesthetist at the end of the surgery.

All the patients provided written informed consent for the use of their anonymized intraoperative images and videos for educational purposes.

In conclusion, although retroperitoneal exposure has not been recommended by a recent consensus statement by the Enhanced Recovery After Surgery Society and the Society for Vascular Surgery, the use of a mini-retroperitoneal approach, facilitated by a dedicated fixed retractor, has helped us to improve our perioperative care in open aortic surgery.³

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Additional material for this article may be found online at www.jvscit.org.

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