THE RIGHT RETROPERITONEAL APPROACH IN OAR: WHEN & TECHNICAL TIPS

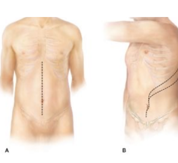
Ashraf Mansour, M.D., FACS
Grand Rapids, Michigan

Disclosures

- Nothing to disclose

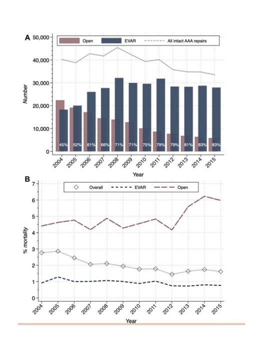
OUTLINE

- Open AAA repair
- Why consider the retro-peritoneal approach
- The right RP approach
- Tips and tricks
- Outcomes



Open AAA Repair

- Increasing?
- Graft explant
- Surgeon's experience
- In the U.S. >80% of AAA repair is EVAR



Dansey et al. JVS 2021;74:414

Open Aortic Repair

The 50th anniversary of abdominal aortic reconstruction

Steven G. Friedman, MD *Manhasset, NY*

- March 29,1951: Charles Dubost

73 years!

Fig 1. Charles Dubost.

Left Retroperitoneal Approach

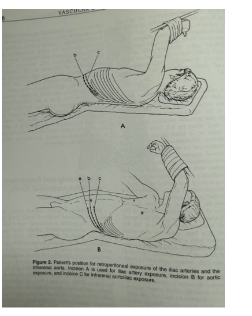
- Preferred approach
- Advantages:
  - Avoids viscera
  - Better suprarenal exp.
  - Less fluid shifts
  - Less painful
  - Respiratory comp
- Inflam AAA

DISADVANTAGES:

- Right iliac
- Hernia?
- Less familiar

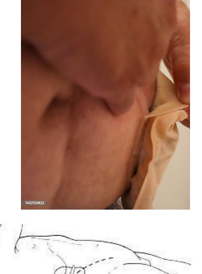
Left Retroperitoneal

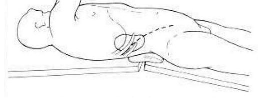
- Suprarenal clamp
- Visceral vessels
- Access to left renal
- Left Iliac



Right Retroperitoneal

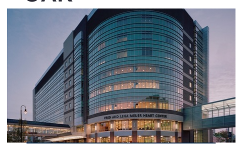
- Colostomy
- Situs inversus
- Large right iliac aneurysm
- Right renal reconst.

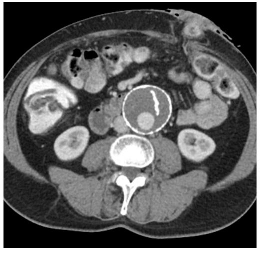




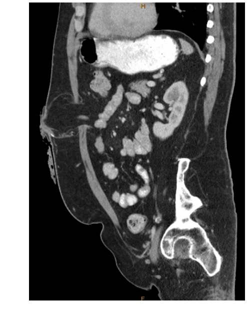
Our Experience

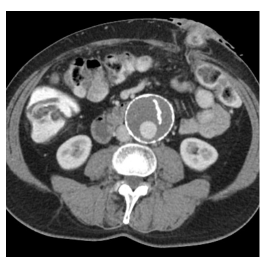
- AAA Patients
- LLQ colostomy
- Not candidates for EVAR
- Good candidates for OAR





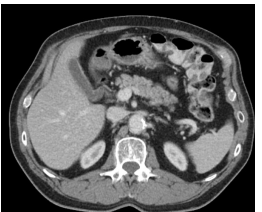
Imaging





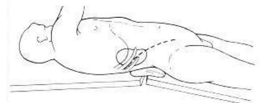
Imaging

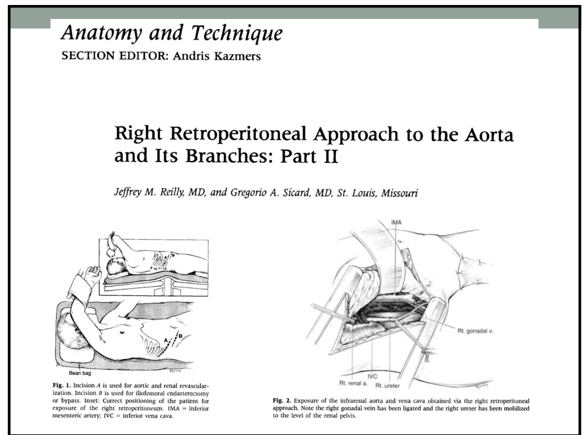
- No proximal neck
- Not suitable for EVAR



Surgical Approach

- Positioning
- Mirror image
- IVC in the way
- Kidney down
- Liver





Anatomy and Technique

SECTION EDITOR: Andris Kazmers

Right Retroperitoneal Approach to the Aorta and Its Branches: Part II

Jeffrey M. Reilly, MD, and Gregorio A. Sicard, MD, St. Louis, Missouri

Fig. 1. Incision *A* is used for aortic and renal revascularization. Incision *B* is used for iliofemoral endarterectomy or bypass. Inset: Correct positioning of the patient for exposure of the right retroperitoneum. IMA = inferior mesenteric artery; IVC = inferior vena cava.

Fig. 2. Exposure of the infrarenal aorta and vena cava obtained via the right retroperitoneal approach. Note the right gonadal vein has been ligated and the right ureter has been mobilized to the level of the renal pelvis.

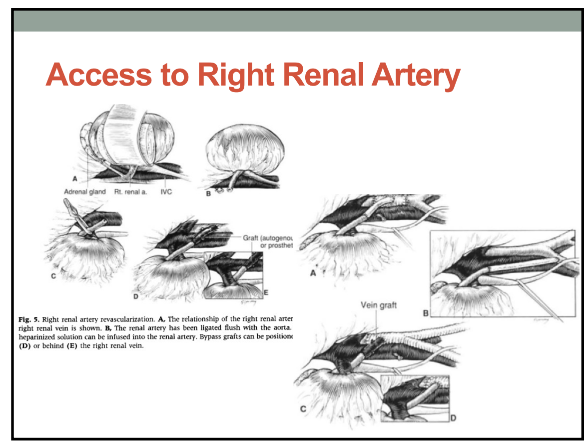


Fig. 5. Right renal artery revascularization. **A,** The relationship of the right renal arter right renal vein is shown. **B,** The renal artery has been ligated flush with the aorta. heparinized solution can be infused into the renal artery. Bypass grafts can be positione **(D)** or behind **(E)** the right renal vein.

Editors' Choice

From the New England Society for Vascular Surgery

Use of the right retroperitoneum as an alternative approach to the abdominal aorta

Owen S. Glotzer, MD,[a] Gabrielle Rieth, MD,[b] Amanda Kistler, MD,[b] Jeffrey Hnath, MD,[b] Edward Gifford, MD,[a] *and* R. Clement Darling III, MD,[b] *Hartford, CT; and Albany, NY*

ABSTRACT

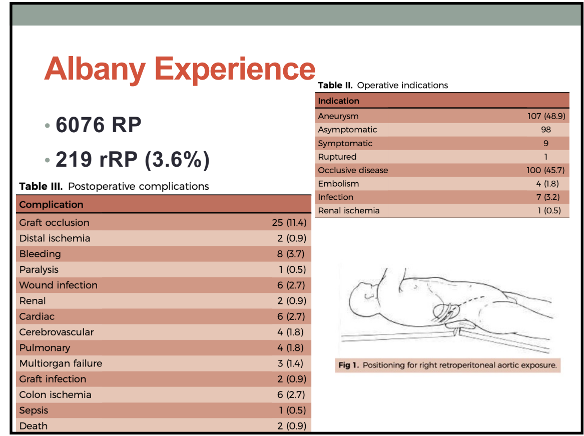
Objective: The left retroperitoneal approach to the aorta is a well-established technique for aortic exposure. The right retroperitoneal approach to the aorta is performed less commonly, and the outcomes remain unknown. This study aimed to evaluate the outcomes of right retroperitoneal aortic-based procedures and to determine its utility in aortic reconstruction when faced with hostile anatomy or infection in the abdomen or left flank.

Methods: A retrospective query of a vascular surgery database from a tertiary referral center was performed for all retroperitoneal aortic procedures. Individual patient charts were reviewed, and data were collected. Demographics, indications, intraoperative details, and outcomes were tabulated.

Results: From 1984 through 2020, there have been 7454 open aortic procedures; 6076 were retroperitoneal-based, and 219 of which were performed from the right retroperitoneal approach (Rrp). Aneurysmal disease was the most common indication (48.9%), and graft occlusion was the most common postoperative complication (11.4%). The average aneurysm size was 5.5 cm, and the most common reconstruction was with a bifurcated graft (77.6%). Average intraoperative blood loss was 923.8 mL (range, 50-6800 mL; median, 600 mL). Perioperative complications occurred in 56 patients (25.6%) for a total of 70 complications. Perioperative mortality occurred in two patients (0.91%). The 219 patients treated with Rrp required 66 subsequent procedures in 31 patients. These included 29 extra-anatomic bypasses, 19 thrombectomies/embolectomies, 10 bypass revisions, 5 infected graft excisions, and 3 aneurysm revisions. Eight Rrp eventually underwent a left retroperitoneal approach for aortic reconstruction. Fourteen patients with a left-sided aortic procedure required a Rrp.

Conclusions: The right retroperitoneal approach to the aorta is a useful technique in the setting of prior surgery, anatomic abnormality, or infection that complicates the use of other more frequently employed approaches. This review demonstrates comparable outcomes and the technical feasibility of this approach. The right retroperitoneal approach to aortic surgery should be considered a viable alternative to left retroperitoneal and transperitoneal access in patients with complex anatomy or prohibitive pathology for more traditional exposure. (J Vasc Surg 2023;78:71-6.)

Keywords: Aorta; Aneurysm; Retroperitoneum; Occlusive disease



Albany Experience

- 6076 RP
- 219 rRP (3.6%)

Table III. Postoperative complications

Complication	
Graft occlusion	25 (11.4)
Distal ischemia	2 (0.9)
Bleeding	8 (3.7)
Paralysis	1 (0.5)
Wound infection	6 (2.7)
Renal	2 (0.9)
Cardiac	6 (2.7)
Cerebrovascular	4 (1.8)
Pulmonary	4 (1.8)
Multiorgan failure	3 (1.4)
Graft infection	2 (0.9)
Colon ischemia	6 (2.7)
Sepsis	1 (0.5)
Death	2 (0.9)

Table II. Operative indications

Indication	
Aneurysm	107 (48.9)
Asymptomatic	98
Symptomatic	9
Ruptured	1
Occlusive disease	100 (45.7)
Embolism	4 (1.8)
Infection	7 (3.2)
Renal ischemia	1 (0.5)

Fig 1. Positioning for right retroperitoneal aortic exposure.

CASE REPORT

Pararenal aortic aneurysm in situs inversus totalis: open repair with right retroperitoneal approach

Emanuele Gatta*, Sara Schiavon, Gabriele Pagliariccio, Perla Persechini, and Luciano Carbonari

Department of Vascular Surgery, Azienda Ospedali Riuniti Ancona, 60127 Ancona, Italy

*Correspondence author: Department of Vascular Surgery Azienda Ospedali Riuniti Ancona Via Conca, 71 – 60127, Ancona, Italy. Fax: +0039 0715964670; E-mail: gattaemanuele@libero.it

SUMMARY

- Right retroperitoneal approach is useful
- Surgeons should be familiar with it
- In a busy practice, ~3% of open repair is done through the right retroperitoneal approach