Totally Laparoscopic Aortobifemoral Bypass: A New and Simplified Approach

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Introduction

The two technical problems of laparoscopic infrarenal aortic surgery are the exposure of the aorta and the performance of the aorto-prosthetic anastomosis.1,2 We describe a simple and reproducible laparoscopic approach to the infrarenal abdominal aorta. This exposure allows a totally laparoscopic aorto-prosthetic anastomosis.

Technique

The patient is placed in a right lateral and rotated decubitus, with the abdomen rotated at 45° (Fig. 1a). The abdominal slope obtained with the maximal right rotation of the operating table (ALM, Orléans, France) reaches 65°.

The video monitor is viewed distally on the left side of the patient. The surgeon is facing the patient’s abdomen (Fig. 1b).

The 0° endoscope (Storz-France SA, Paris, France) is positioned through a 10 mm-trocar (Storz-France SA, Paris, France) introduced on the anterior axillary line 3 cm below the costal margin. Figure 1b shows the position of the other trocars. A left retrocolic dissection is conducted in line of the Toldt fascia, down to reach the left renal vein. Due to the right lateral decubitus, the small bowel and left mesocolon drop fall to

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the right part of the abdomen (Figs 2a and 2b). The infrarenal aorta is then exposed until the common iliac arteries with a complete dissection of the left and right sides of the aorta (Fig. 2c).

After achieving the dissection, the operating table is rotated on the left, which allows a conventional approach to the femoral arteries. The operating table is then taken back to its maximal right rotation. The vascular prosthesis is introduced in the abdomen through one of the trocars. The right tunnel is initiated right away from the groin and the right limb of the prosthesis is brought to the groin incision with the use of an aortic clamp.

The proximal and distal coelioscopic clamps (Storz-France SA, Paris, France) are positioned through 10 mm-trocars (Fig. 1b). The aorto-prosthetic anastomosis is performed with two polypropylene (Prolene® Ethicon, Johnson-Johnson Intl, Brussels, Belgium) hemicircumferential running sutures. The sutures are previously knotted on a prosthetic pledget. The left prosthetic limb is then brought down to the groin. When the two graft limbs are positioned, the operating table is rotated on the left and the prosthetic-femoral anastomoses are performed.

**Discussion**

Our laparoscopic technique is similar to the trans-abdominal paracolic approach (TAPA) described by Said et al. and presents a few similarities with the technique described by Dion. However, with our frontal approach, the right side of the aorta is more easily dissected in the inter-aortico-caval space. With this installation, the shifting of the intra-abdominal organs is facilitated and the operator, facing the patient’s abdomen, is not bothered by the orientation of the surgical instruments.

Our approach avoids the need for sophisticated techniques of retraction to pull the viscera aside. It allows a stable aortic exposure during the performance of the laparoscopic aorto-prosthetic anastomosis.

The drawbacks of this technique are related to the sloping position of the patient. The left kidney moves towards the median line and may hamper the exposure. The anatomic tunneling of the right prosthetic limb may be difficult, especially in obese patients. Our technique of anastomosis avoids intracorporeal knots when beginning the running sutures and then avoids a direct trauma to the suture material. The use of two short sutures allows to avoid the obstruction of the operative field.

**References**


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