

Laparoscopic Repair May Be the Best Less Invasive Way to Treat Abdominal Aortic Aneurysms

NOTES

Olivier A. Goëau-Brissonnière, MD, PhD, Boulogne-Billancourt, France; Marc Coggia, MD; Isabelle Javerliat, MD

Taking advantage of our previous experience in laparoscopic surgery for aortoiliac occlusive disease (AIOD), we used this new total laparoscopic technique for abdominal aortic aneurysm (AAA) repair. Between February 2002 and May 2005, we performed 79 total laparoscopic AAA repairs in 74 men and 5 women. The patients' median age was 72 years (range 46 to 85 years), and the median aneurysm size was 52.3 mm (range 30 to 79 mm). American Society of Anesthesiologists class of patients was II, III, and IV in 34, 44, and 1 cases, respectively. We performed total laparoscopic endoaneurysmorrhaphy and aneurysm exclusion in 76 and 3 patients, respectively.

We implanted tube grafts and bifurcated grafts in 32 and 47 patients. Three minilaparotomies were performed. In two cases, exposure via a retroperitoneal approach was difficult, and in another case, distal aorta was extremely calcified. The median operative time was 280 minutes (range 160 to 420 minutes), the median aortic clamping time was 80 minutes (range 35 to 230 minutes), and the median blood loss was 1,535 cc (range 300 to 6,900 cc). Three patients died in the postoperative period (30 days). Two of them, operated during our early experience, died of myocardial infarction. Sixteen systemic postoperative complications were observed, but only 5 of them were severe. Twelve local complications were also observed: 6 vascular and 6 nonvascular. Overall, most patients had an excellent recovery with a rapid return to general diet and ambulation. The median hospital stay was 9 days (range 8 to 37 days). With a median follow-up of 14 months (range 0.5 to 40 months), all surviving patients had a complete recovery and all grafts were patent.

These results definitely compare with those obtained with conventional surgery in terms of morbidity and mortality. When looking at endovascular aneurysm repair (EVAR), global mortality appears lower after EVAR, but local vascular and nonvascular complications are less frequent after laparoscopic surgery. In fact, in our series, the benefit of laparoscopic surgery appears clearly in good-surgical-risk patients compared with high-surgical-risk patients. All good-risk patients ($n = 65$) survived the operation, with 9% moderate systemic, 5.1% local vascular, and 5.1% nonvascular local complications. In high-surgical-risk patients ($n = 14$), mortality was 61.4%, with 9 systemic (4 moderate and 5 severe), 3 vascular local, and 3 nonvascular local complications.

The results are also influenced by the expertise of the surgical team. When comparing the results observed with our first 40 patients with those obtained with the following 39 patients, postoperative mortality rates were 7.5% and 0%, respectively. The same trend was observed regarding postoperative complications. Systemic complications were observed in 27.5% of the first 40 patients (moderate 15%, severe 12.5%) and in only 13.1% of the following 39 patients (all moderate).

These results confirm that total laparoscopic AAA repair is feasible and worthwhile for patients, especially in good-surgical-risk patients, once the learning curve is overcome. More than competitors, EVAR and laparoscopy appear to be complementary techniques, and with available devices, we still think that EVAR is the technique of choice for high-risk patients. There is probably also a place for hybrid techniques combining EVAR and laparoscopy. Once again, we need to underline the importance of prior training and experience in laparoscopic aortic surgery to perform total laparoscopic AAA repair.

References

1. Coggia M, Javerliat I, Di Centa I, et al. Total laparoscopic infrarenal aortic aneurysm repair: preliminary results. *J Vasc Surg* 2004;40:448–54.
2. Dardik A, Lin JW, Gordon TA, et al. Results of elective abdominal aortic aneurysm repair in the 1990s: a population-based analysis of 2335 cases. *J Vasc Surg* 1999;30:985–95.
3. Hallin A, Bergqvist D, Holmberg L. Literature review of surgical management of abdominal aortic aneurysm. *Eur J Vasc Endovasc Surg* 2001;22:197–204.