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Repair of visceral aortic patch aneurysm after open thoracoabdominal aortic aneurysm repair

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HE UNIVERSITY F BIRMINGHAM — Centenary 2000

Faculty Disclosure



Donald Adam

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Aneurysm of visceral / renal patch after open TAAA repair using the inclusion technique

Intervention for VAP aneurysm \geq 60mm

Traditional open surgery

Refashion a smaller patch Replace with side-branch graft (STAG/Coselli graft)

Endovascular repair Visceral debranching and EVAR Fenestrated / branch EVAR



Visceral aortic patch aneurysm after thoracoabdominal aortic repair: Conventional vs hybrid treatment

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Objective: Visceral aortic patch (VAP) aneurysm repair following thoracoabdominal aortic aneurysm (TAAA) open treatment carries high morbidity and mortality rates. The aim of this study is to compare the outcomes of our series of patients who underwent redo VAP aneurysm open surgery (conventional group) with a selected group of high-risk patients who underwent, in the same time period from 2001-2007, an alternative hybrid surgical and endovascular approach (bybrid group).

Methods: Conventional group: Twelve patients (11 males, median age 71.5 years, range, 65 to 77 years) underwent VAP aneurysm (median maximum diameter 62 mm, range, 52 to 75 mm) repair with re-inclusion technique via redo thoracophrenolaparotomy or bilateral subcostal laparotomy. Reimplantation of a single undersized VAP or separate revascularization of one or more visceral arteries was performed. *Hybrid group*: Seven patients (5 males, median age 70 years, range, 63 to 78 years) defined as at high risk for conventional surgery having American Society of Anesthesiology (ASA) class 3 or 4 associated with a preoperative forced expiratory volume in 1 second (FEV1) <50% or an ejection fraction <40%, underwent VAP aneurysm (median maximum diameter 73 mm, range, 62 to 84 mm) repair via median laparotomy, visceral arteries rerouting, and VAP aneurysm exclusion using commercially available thoracic aortic endografts.

Results: Conventional group: Perioperative mortality was 16.7% and major morbidity 33.3%. One perioperative anuria was successfully treated with bilateral renal artery stenting. No paraplegia or paraparesis were observed. At a median follow-up of 2.3 years (range, 1.6-7 years), we observed one case of peri-graft fluid collection with sepsis at postoperative day 46 requiring surgical drainage and prolonged antibiotic therapy and one case of renal failure at day 68 requiring permanent hemodialysis. *Hybrid group*: perioperative mortality was 14.3% and major morbidity 28.6% with one case of transient delayed paraplegia. At a median follow-up of 1.9 years (range, 0.3-6.8 years), we observed one case of late pancreatitis (46 days postoperatively) resolved with pharmacologic treatment and one death due to an acute visceral grafts thrombosis (78 days postoperatively). We did not observe other procedure-related deaths or complications, VAP aneurysm growth, endoleak, and endograft migration.

Conclusion: Hybrid repair is clearly a feasible alternative to simple observation for patients unfit for redo VAP aneurysm open surgery. However, despite our promising early results, new mid-term specific procedure-related complications have been observed and a widespread use of this technique should be currently limited until longer-term follow-up is available. (J Vasc Surg 2008;48:1083-91.)





Tshomba et al. JVS 2008;48:1083-91





Tshomba et al. JVS 2008;48:1083-91





Traditional open surgery 33 cases with 5 deaths (15%) 1 spinal cord ischaemia

Visceral debranching and EVAR 10 cases with 1 death (10%) 1 spinal cord ischaemia

Major morbidity in 30%

Tshomba et al. JVS 2008;48:1083-91



Repair of recurrent visceral aortic patch aneurysm after thoracoabdominal aortic aneurysm repair with a branched endovascular stent graft

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Aneurysmal degeneration of the visceral aortic patch is an uncommon late complication of surgical replacement of the thoracoabdominal aorta. We report on a 70-year-old woman who had undergone previous open thoracoabdominal aortic aneurysm repair and subsequent revision surgery for a visceral aortic patch aneurysm. The patient presented with a recurrent asymptomatic 60-mm-diameter visceral aortic patch aneurysm involving the celiac axis and superior mesenteric artery. The lesion was successfully treated with a custom-designed Zenith branched endovascular stent graft. The patient remains well at 12 months. (J Vasc Surg 2007;45:183-5.)





1982 (age 46) Open repair of extent III TAAA

1991 (age 55) Open repair of asymptomatic VAP aneurysm fashioning a smaller patch

2006 (age 70) Asymptomatic 60mm recurrent VAP aneurysm



Patient RJ



1993 (age 51) Open repair of infrarenal AAA

2002 (age 60) Open repair for post-dissection extent II TAAA

2009 (age 69) Asymptomatic 72mm VAP aneurysm







1992 (age 27) **Open repair of ascending aorta with AVR** 2003 (age 38) **Open repair for thoracic aortic aneurysm** 2005 (age 40) **Open repair of TAAA** 2006 (age 41) **Open repair of infrarenal AAA** 2010 (age 45) Asymptomatic 64mm VAP aneurysm









Fenestrated / branch EVAR

7 cases (DA, EV, TR, KI, SH, TC)

1 death from UGI haemorrhage No spinal cord ischaemia





Open repair is challenging and associated with high morbidity and mortality

Endovascular repair is an attractive alternative but experience is limited

Open repair with the side-branch graft (STAG) should prevent future VAP aneurysm formation