

# Five-Year Follow-Up in Over 400 Patients after Endoluminal Abdominal Aortic Aneurysm Repair: Problems We Did Not Expect

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## Background

Endovascular repair of abdominal aortic aneurysms (AAA) has offered promising results when compared to the traditional open surgical approach. Despite favorable outcomes regarding endovascular stent-graft placement, late sequelae including, material failure, device migration, modular component separation, and AAA rupture continue to rise.

## Objective

To examine the long-term durability and incidence of stent-graft complications in a series of patients who underwent endovascular aneurysm repair for AAA who had 3- to 5-year follow-ups.

## Methods

A total of 440 consecutive patients with infrarenal AAA were treated with the AneuRx stent graft from November 1998 through November 2003. Follow-up evaluation included serial duplex ultrasonography and CT imaging.

## Results

Of the 440 patients, 387 (88%) were male with a mean age of  $71 \pm 8$  years. On follow-up (mean  $48 \pm 11$  months), 108 (24.5%) had died secondary to non-aneurysm-related causes. Of the remaining 332 patients, follow-up at 2 years illustrated AAA reduction from  $54 \pm 11$  mm to  $45 \pm 12$  mm ( $p < .001$ ). At 3-, 4-, and 5-year follow-up, stent graft migration ( $> 1.5$  cm) occurred in 55 patients (16.5%). Of these 55 patients, 17 (37%) suffered modular component separation, 6 (35%) of those had a history of recent traumatic accidents. Treatment for migration and separation included: device removal with surgical AAA repair in 13 patients, suprarenal aortic endograft placement in 9, infrarenal aortic endograft placement in 22 and aorto-uni-iliac endograft placement in 3 patients. The other 8 patients remain stable without evidence of endoleak. Migration occurred more often in larger aneurysms ( $p < .001$ ) with shorter necks ( $p < .05$ ) and in patients with larger body indices ( $p < .001$ ).

## Conclusions

Endovascular repair for AAA is an attractive alternative to an open surgical approach. Late complications, however, continue to plague patients and physicians. Endograft migration is not an unknown occurrence after stent-graft procedures. Predictors of stent-graft migration include recent trauma, larger diameter aneurysms ( $> 6.0$  cm), and short infrarenal neck ( $< 2.0$  cm). Further understanding of aortic morphology may provide insight into the relationship between stent-graft design and performance.