

An Endoluminal Approach to the Ruptured Abdominal Aortic Aneurysm

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Abstract

Abdominal aortic aneurysms (AAA) are not uncommon entities; Bernstein et al reported their incidence to be 6% in the sixth decade of life, 10% in the seventh decade, and 12% in the eighth decade.⁽¹⁾ The natural history of aneurysms is to grow and expand though the rate of growth is variable between individuals. In general, a five centimeter aneurysm has up to a 50% chance of rupturing within five years. Given this ever-present risk to life, aortic aneurysms are resected in surgical candidates. Operative mortality for an elective AAA repair is less than 5 % in most centers, while the rate for ruptured AAA repair ranges from 24 - 95 %.⁽²⁾ Despite this dramatic difference, up to 50 % of all abdominal aortic aneurysm repairs are performed emergently for rupture.⁽³⁾ With the evolution of endoluminal grafts from endovascular stents, new techniques of aneurysm exclusion are currently being developed. Since the original introduction of this technique in 1991, acute aortic rupture has been "automatically excluded" from trial protocols. Given this, we herein present the successful management of a ruptured abdominal aortic aneurysm with an endoluminal graft.

INTRODUCTION

Abdominal aortic aneurysms (AAA) are not uncommon entities; Bernstein et al reported their incidence to be 6% in the sixth decade of life, 10% in the seventh decade, and 12% in the eighth decade.⁽¹⁾ The natural history of aneurysms is to grow and expand though the rate of growth is variable between individuals. In general, a five centimeter aneurysm has up to a 50% chance of rupturing within five years. Given this ever-present risk to life, aortic aneurysms are resected in surgical candidates. Operative mortality for an elective AAA repair is less than 5 % in most centers, while the rate for ruptured AAA repair ranges from 24 - 95 %.⁽²⁾ Despite this dramatic difference, up to 50 % of all abdominal aortic aneurysm repairs are performed emergently for rupture.⁽³⁾ With the evolution of endoluminal grafts from endovascular stents, new techniques of aneurysm exclusion are currently being developed. Since the original introduction of this technique in 1991, acute aortic rupture has been "automatically excluded" from trial protocols. Given this, we herein present the successful management of a ruptured abdominal aortic aneurysm with an endoluminal graft.

CASE REPORT

A 65 year old male, with a 6 cm. infra-renal abdominal aortic aneurysm, began experiencing sudden and severe

abdominal pain while driving his motor vehicle. His wife, after moving him over to the passenger seat, drove him to the local hospital. Ultrasonography revealed an acute aortic rupture with distal dissection. He was transferred by air-ambulance to our regional center. Upon landing, the patient was taken directly to the operating theatre. Since he had remained relatively "stable" in-flight (BP 100/60 mmHg), we proceeded with an endovascular exclusion of his abdominal aneurysm. A 26 mm. Vanguard endoluminal graft was inserted through the left common femoral artery; a 12 mm. Passager device was inserted through the right common femoral artery. Following balloon dilation, angiography demonstrated complete exclusion of both the aneurysmal sac as well as the site of distal dissection. The time, from patient arrival to completed procedure, was 65 minutes. He was discharged to home on post-procedure day 2 and did well through follow-up. At twelve months, computed tomography revealed a well-aligned graft without evidence of endoleak or further abnormality.

CONCLUSION

Since Parodi et al reported their experience in 1991⁽⁴⁾, endovascular exclusion of abdominal aortic aneurysms has been a topic of much interest and enthusiasm throughout the world. However, there is limited experience with this technology in the setting of acute aortic rupture. This case

serves to demonstrate that this approach is not only safe but effective, and thus, “automatic exclusion” may not be fully warranted in some patients. However, continued efforts and well-designed studies are required before comparisons can be drawn between standard surgical approaches and endoluminal grafting.

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