Ruptured abdominal aortic aneurysm following previous deployment of an endoluminal graft is a relatively new vascular emergency. As more patients are treated by endovascular repair, more will present with post-EVAR acute AAA. This new challenging entity is raising the need for new treatment strategies. We describe a case of post-EVAR ruptured AAA that was managed successfully using the endovascular approach.

Patient Description
A 79 year old man presented to the emergency department hemodynamically stable with a 4 hour history of severe abdominal and back pain. Six years previously he had undergone elective endovascular abdominal aortic aneurysm repair with a modular bifurcated endoluminal graft. He was lost to follow-up after 2 years, at which point he had no evidence of endoleak.

Urgent computerized tomography angiography revealed a contained rupture of an 11 cm abdominal aortic aneurysm with an extensive retroperitoneal hematoma. A large endoleak was demonstrated and appeared to be related to the distal attachment of the left limb of the stent graft. He was lost to follow-up after 2 years, at which point he had no evidence of endoleak.

In the operating room, under general anesthesia the left femoral artery was exposed and the previous stent graft cannulated with a pigtail catheter. Angiography confirmed a large type Ib endoleak [Figure B]. A 14 x 71 mm Zenith extension limb (W.A. Cook, Brisbane, Australia) was deployed over a stiff wire from inside the stent graft to the proximal external iliac artery, covering the leak and the origin of the internal iliac artery. Completion angiography revealed no endoleaks and a good flow distally. The left internal iliac artery was then ligated via a retroperitoneal approach.

Follow-up CT angiography on the third postoperative day confirmed that the endoleak had been sealed successfully. On the fourth postoperative day the patient required a right hemicolectomy, end ileostomy, and tube transverse colostomy due to cecal ischemia secondary to colonic pseudo-obstruction. The following day he developed severe hemorrhagic shock secondary to intraabdominal bleeding from the ileostomy site. Secondary thrombosis of the left graft limb due to a period of prolonged hypotension was managed with a femoro-femoral crossover bypass. Following this his postoperative recovery was uneventful and he was discharged to convalescence.

Comment
While endovascular repair of ruptured abdominal aortic aneurysm has been well described [1], to our knowledge there are very few reports of successful endovascular management of a ruptured AAA that had previously been repaired using an endovascular stent graft. Ruptured AAA following previous deployment of an endoluminal graft is a relatively new vascular emergency. As more patients are treated by EVAR, more will present with post-EVAR acute AAA [2,3]. This subgroup presents new challenges for the vascular surgeon.

This case emphasises the importance...
of post-EVAR follow-up. Estimated post-
EVAR AAA-related mortality is 0.4% to 1%
per year following graft deployment [3,4].
To date, the inability to provide a good
quality follow-up program is considered
a relative contraindication for EVAR.
The optimal long-term follow-up regime
is yet to be defined, but serial periodic
ultrasound or CT assessment of AAA sac
diameter, presence of endoleaks and plain
abdominal films to exclude stent graft
migration or structural changes are man-
datory [1,5]. Data from the EUROSTAR
registry suggest that more than 50% of
post-EVAR patients are lost to follow-up
after 2 years [4]. The mandatory need for
post-EVAR life-long follow-up cannot be
overemphasized.

The necessity to determine the size of
the aneurysm, endoleak site, and size of
previous graft means that a preoperative
CT angiography is obligatory for patients
with post-EVAR ruptured AAA. The patient
must be hemodynamically stable enough
to withstand the time delays of preope-
ратive imaging and of waiting for the nec-
necessary stent graft components, otherwise an
open approach may offer the best chance
of survival.

While many centers use endovascular
stent grafts in the angiographic suite,
the urgency, clinical complexity and un-
predictability of such cases is such that
we believe management in the operating
rooms rather than the X-ray department is
preferable in these situations. Obviously,
individual institutional policies should be
tailored in accordance with the resources
available. In addition, the operating room
must incorporate specific facilities that
will enable stent graft implantation under
emergent circumstances.

Deployment of an iliac extension piece
is a relatively easy method of managing
both modular disconnection and proximal
migration of the stent graft iliac limb, as
in our case. An alternative approach to
manage proximal migration is the deploy-
ment of an aorto-unii-iliac device with an
iliac occlusion plug in the ipsilateral (leak-
ing) iliac stent graft with a femoro-femoral
crossover bypass.

Distal migration of the main stent graft
body causing a type ia endoleak can be
dealt with by placement of a new stent
graft within the original, covering the
source of the proximal leak from below
the renal arteries into the original graft. A
large-diameter balloon-expandable stent
can be used as a temporizing measure to
enable stabilization until a more perma-
nent solution is devised.

Endovascular treatment is a feasible
method for managing post-EVAR ruptured
AAA and should be considered a potential
treatment option for such patients.

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An ounce of mother is worth a pound of clergy

Spanish proverb

Capsule

A global map of human brucellosis

Georgios Pappas et al. from the First Division of Internal Medicine
of the Medical School at the University of Ioannina, Greece,
drew a new map for brucellosis. The epidemiology of human
brucellosis, the commonest zoonotic infection worldwide, has
drastically changed over the past decade because of various
sanitary, socioeconomic and political reasons, together with
the evolution of international travel. Several areas traditionally
considered endemic – e.g., France, Israel, and most of Latin
America – have achieved control of the disease. On the other
hand, new foci of human brucellosis have emerged, particularly
in central Asia, while the situation in certain countries of the
near east (e.g., Syria) is rapidly worsening. Furthermore, the
disease is still present, in varying trends, both in European
countries and in the USA. Awareness of this new global map
of human brucellosis will allow for proper interventions from
international public health organizations.

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