SHORT REPORT

Endovascular Repair of Ruptured Abdominal Aortic Aneurysm under Local Anaesthesia

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Introduction

Endovascular repair is becoming increasingly accepted as a valuable option in the treatment of abdominal aortic aneurysm (AAA). A number of studies have suggested that it may be used in the emergency situation for ruptured AAAs.1,2 We present a case of ruptured AAA treated successfully by endovascular repair, entirely under local anaesthesia (LA).

Report

A 79-year-old gentleman presented to the Accident and Emergency department with sudden onset of left-sided abdominal pain and collapse. Despite severe hypotension, he remained conscious and so a computed tomography (CT) scan was performed. This showed a ruptured infrarenal aortic aneurysm, which appeared to be suitable for endovascular repair (Figs. 1 and 2).

The patient was immediately transferred to the operating theatre. Bilateral small groin incisions were made. An 18 French sheath was inserted into the left common femoral artery (CFA) and a 30 mm balloon passed through this sheath, to gain control of the neck of the aneurysm, should this be necessary. A similar sheath was inserted into the right CFA and the bifurcated Zenith device (Cook UK Ltd) was inserted and deployed. The whole procedure was performed under LA (Bupivacaine 0.5%, total volume 25–30 ml) in just under 3 h.

A completion angiogram revealed the left renal artery to have been occluded by the graft. Unsuccessful attempts were made to withdraw the device, prior to accepting this position. The patient’s creatinine peaked at 175 μmol/l on the third postoperative day, but had returned to within normal range by discharge.

A total of four units of blood were given intraoperatively and the patient did not require further transfusion. He was observed on the intensive treatment unit for 48 h and was fit for discharge on the sixth postoperative day.

Fig. 1. CT scan showing AAA rupture. The left kidney (straight arrow) has been displaced towards the anterior abdominal wall by the large retroperitoneal haematoma (curved arrow).
Discussion

The feasibility of endovascular repair of ruptured AAA has been demonstrated. It has been proposed that the reduced physiological stress associated with endovascular procedures may translate into a decreased patient mortality. One study in particular has published a very impressive 90% survival rate, although this may have as much to do with patient selection (on the basis of cardiovascular stability) as it does with the technique employed.

All patients must have a preoperative CT scan, to assess their suitability for this type of repair, and it has been shown that in the emergency situation, the scan acquisition and interpretation time can be as little as 10 min.

Favourable comparisons have been reported for the use of local (as opposed to general) anaesthesia, in the endovascular treatment of elective AAA. However, the exclusive use of LA in the emergency situation has only rarely been reported. Hypotensive haemostasis and minimal fluid resuscitation until control of the aorta is obtained, has long been recognised as good preoperative management in this situation. Upon induction of general anaesthesia, the vasoconstriction that has supported a patient's blood pressure and perfusion to vital organs, is released. It would therefore be beneficial if this step could be eliminated, by the use of LA, which we found our patient to tolerate very well.

Fig. 2. CT scan showing AAA rupture in coronal section, demonstrating suitable aortic anatomy for endovascular repair.

References