

## Giant ruptured abdominal aortic aneurysm

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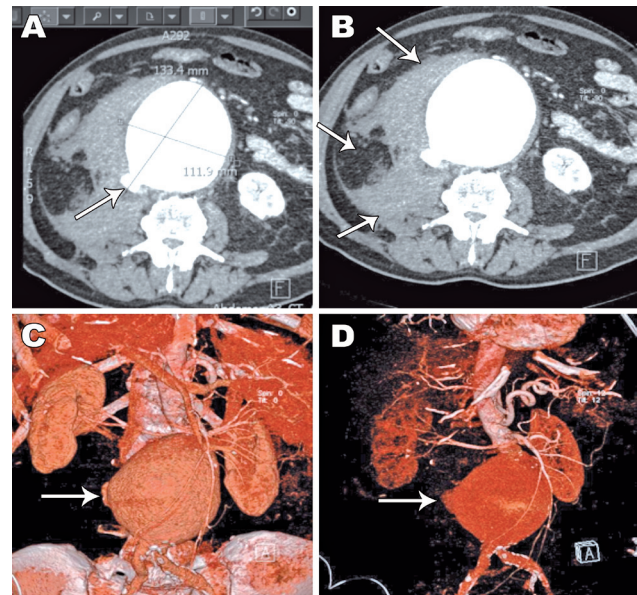
A 76-year-old male with a medical history of smoking and hypertension was admitted to our clinic with a ruptured abdominal aortic aneurysm (AAA) diagnosed by a trans-abdominal ultrasound. He was immediately brought to the emergency room (ER). His blood pressure was 80/40 mm Hg, with an HTC of less than 0.17. Six years earlier, he had noticed a painless, enlarging abdominal mass. An emergency abdominal computed tomographic angiography (CTA) with intravenous contrast showed a giant infrarenal AAA measuring 13x11 cm in diameter, with clear evidence of rupture and a large intra-abdominal hematoma (Figure 1). He was immediately brought to the operating theater (OT).

The approach to the abdomen was a classic median laparotomy. After we had opened the abdomen, we found a huge retroperitoneal hematoma that pushed beside the intra-abdominal organs rising almost to the edge of the rectal fascia. His blood pressure suddenly dropped to 45/25 mm Hg for the next several minutes. A continuous infusion of norepinephrine was administered (60 mcg/min), several doses of pure adrenalin (3 mg) and pure norepinephrine (1 mg). His blood pressure immediately rose to 80 mm Hg. During the surgery he was anuric. Autologous blood transfusion helped by cell saver was administered. Additionally, he received several doses of blood, blood derivatives (fresh frozen plasma, cryoprecipitate, platelets), and other intravenous solutions totaling approximately 8 liters. We replaced the ruptured AAA using a 20 mm polytetrafluoroethylene (PTFE) vascular graft. After surgery he was transferred to the intensive care unit (ICU) where the blood pressure rose, and diuresis was established (Figure 2).

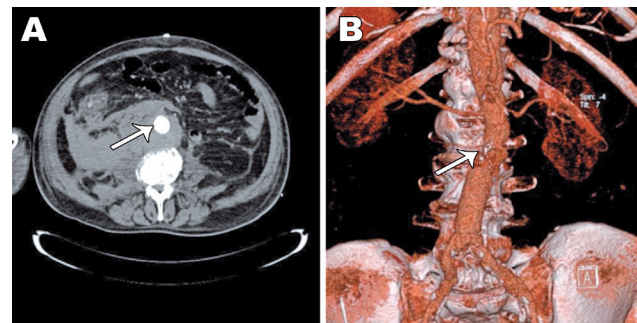
On the first postoperative day, he was woken up without neurological deficits. Six days after surgery we performed a control CT angiography that showed normal findings on the abdominal iliac and leg vessels. Recovery was uneventful and he was discharged from hospital on postoperative day 10.

**Disclosure.** Authors have no conflict of interests, and the work was not supported or funded by any drug company.

Aneurysm size is the most important factor related to likelihood of rupture, and the risk increases substantially in large aneurysms. The annual rupture risk for AAA's >8 cm is 30-50%.<sup>1</sup> Symptomatic aneurysms present with back, abdominal, buttock, groin, testicular, or leg pain and require urgent surgical attention. Rupture of an AAA involves complete loss of aortic wall integrity, and is a surgical emergency requiring immediate repair.<sup>2</sup> The sheer size of the aneurysm, the short length of the neck, and the dislodgment of abdominal organs that may be densely adhered to its



**Figure 1** - Abdominal computed tomographic angiography with contrast showing: A) a ruptured giant abdominal aortic aneurysm (AAA), measuring 13x11 cm with B) a large intra-abdominal hematoma, that compresses the intra-abdominal organs. C) and D) showing a ruptured giant infrarenal AAA.



**Figure 2** - Postoperative computed tomographic angiography (CTA) with contrast showing: A) complete sealing of the aneurysm and no endoleak detected. B) Abdominal CTA with contrast showing patency of the graft.

surface with fistula formation, make surgery of this entity very challenging. Open repair of giant AAA's is often the only available treatment, though not always with good results.<sup>3</sup>

In conclusion, open surgical repair is often the only viable treatment because aneurysm size implicates an adverse neck anatomy that makes these AAA's not suitable for endovascular aneurysm repair.<sup>4</sup> The repair of these giant aneurysms presents a challenge during surgery. Ruptured giant AAA's present a significant additional surgical and anaesthetic challenge.

Received 26th March 2014. Accepted 16th July 2014.

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