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## SHORT REPORT

# Spontaneous Rupture of the Non-aneurysmal Abdominal Aorta

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### Introduction

Rupture of the abdominal aorta is common, accounting for 4500 deaths per year in the United Kingdom.<sup>1</sup> The vast majority of these are secondary to an abdominal aortic aneurysm (AAA); other reasons include dissection, trauma, arteritis and iatrogenic causes.

Eighteen cases of spontaneous rupture of the thoracic aorta have been described in the English literature since 1961,<sup>2</sup> with the majority related to atherosclerosis or cystic medial necrosis. Spontaneous rupture in the non-aneurysmal abdominal aorta has not previously been reported.

### Case Report

A 74-year-old gentleman presented during the night with epigastric and right loin pain radiating into the back. He was known to be hypertensive and hypercholesterolaemic, for which he was on Amlodipine, Captopril and Simvastatin. He had also recently been diagnosed with a small cardiac ventricular aneurysm, and was taking warfarin for this. He was a non-smoker, and was otherwise fit and active.

On examination he was pale, clammy and hypotensive at 70/44 (equal in both arms). His abdomen was diffusely tender on the right side. There was no palpable AAA. All distal pulses were present and of normal character. Blood investigations revealed

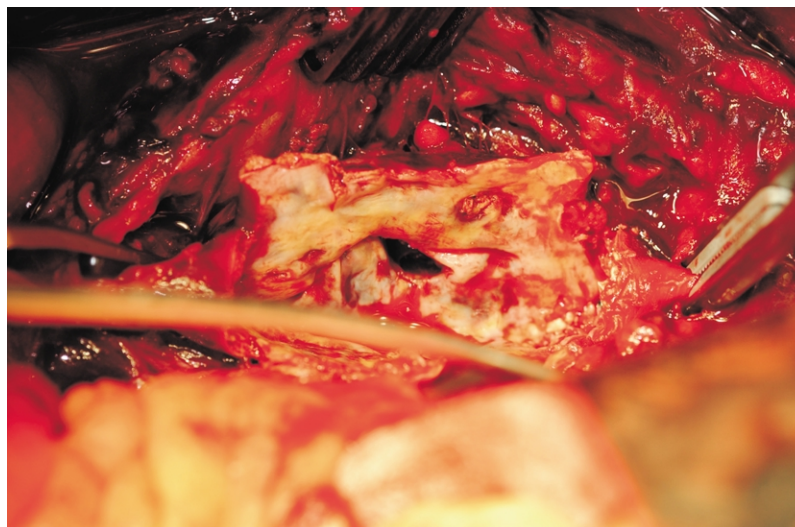
normal haemoglobin and renal function, and an INR of 2.9.

The initial clinical impression was of a ruptured aortic aneurysm, which was impalpable from hypotension. The patient was resuscitated and given fresh frozen plasma and vitamin K. His blood pressure stabilised and an urgent CT scan was arranged that night (Fig. 1). This demonstrated a small retroperitoneal bleed, but no AAA. A provisional diagnosis was made of retroperitoneal haematoma secondary to warfarin. As the patient was now stable but still anticoagulated, he was admitted for close observation while the INR returned to normal.



**Fig. 1.** CT scan showing contained haematoma between normal sized aorta and vena cava.

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**Fig. 2.** Aorta opened with clamp on the right showing defect in the wall.

The CT scans were reviewed the following morning in a specialist vascular meeting. It was concluded that there was a connection between the retroperitoneal haematoma and aorta, and that there had been an aortic rupture. Following this preoperative diagnosis, the patient was taken to theatre, and the abdominal aorta repaired. A large retroperitoneal haematoma was found at operation with a significant defect in the aorta (Fig. 2). This defect was 6 cm below the renal arteries, on the right postero-lateral aspect of the aorta, and large enough to admit a little finger. The haematoma was contained between the aorta, inferior vena cava and retroperitoneum. A specimen of the aortic wall was sent for microbiological analysis (no growth after 7 days of culture). The aorta was repaired using a 16 mm Dacron graft. The non-aneurysmal nature of the aorta made it difficult to suture the aortic wall over the graft, and the retroperitoneum had to be sutured over the repaired aorta to separate the graft from the bowel. The patient made a good post-operative recovery.

### Discussion

Spontaneous rupture of the aorta without an aneurysm is very rare and has only been reported in the thoracic aorta.<sup>3</sup> The typical patient is a middle-aged

hypertensive man, and the rupture tends to occur through an atherosclerotic plaque.

In our case the diagnosis was initially missed, despite the clinical suspicion being high for aortic rupture. This was because the CT demonstrated no aneurysm, and therefore, rupture was thought to have been excluded. It was only when the films were carefully re-assessed in a vascular meeting that the correct diagnosis was made. The rupture in this case was through an atherosclerotic plaque, and although the repair was technically difficult due to the non-aneurysmal nature of the aorta, the patient had a successful outcome.

We would like to highlight spontaneous rupture through an atherosclerotic plaque as one of the differential diagnoses of abdominal aortic rupture.

### References

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