Case Report

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Surgery Better Cost Effective Treatment Option for Chronic Ruptured Contained Abdominal Aortic Aneurysm

Suraj Wasudeo Nagre*, K.N. Bhosle, Suhas Bendre***, Vignesh R.*****

Abstract

A chronic contained rupture of an abdominal aortic aneurysm (CCR-AAA) is a well-documented subtype of abdominal aortic aneurysm (AAA) rupture in which the hematoma is sealed by the retro-peritoneum first described by Szilagyi et al. in 1961. Patients with a sealed AAA rupture often present a diagnostic and therapeutic dilemma as they lack the typical features of hemorrhagic shock usually seen with frank rupture. While AAA is a common disorder, CCR-AAA constitute only 4% of all ruptured aortic aneurysms.Treatmentvaries from stenting to open surgery or combination of both.But it is costly. We report a case of a 27 year-old indian female who presented with a 6-month history of low back pain and a mass per abdomen. A contrast enhanced CT scan with an aortogram demonstrated a 8.8cm partially thrombosedpseudoanerysm just after the origin of superior mesenteric artery extending to both the common iliac artery.Patient was not affordable for stenting procedure so open surgery planned under GA. After left thoracoabdominal incision, as first step left common iliac artery to left renal artery grafting was done using 6 mm PTFE graft for maintaining the its blood supply after clamping aorta. After 200iu/kg heparinisation the descending thoracic aorto and femoral artery cannulated . ¾ th size tubing connected to both these canulla. Aorta clamped distal to canulla along with clamping both common iliac arteries.Aneurysm opened and large 8cm by 8cm aortic thrombus evacuated. End to end aortobiiliac grafting done using 24mm by 9 mm Y graft. Right renal artery anastomosed directly on the graft.Incision closed with two drains,one in abdomen and other in left chest.Patientextubated after 6 hours and discharged after ten days.Patients with low financial income - open surgery was the only valid and better option. Though it was difficult but with proper planning and protocols ,surgery seems to be easy with better results.

Keywords: Chronic Contained Rupture (CCR); Abdominal Aorticaneurysm (AAA).

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Introduction

A chronic contained rupture of an abdominal aortic aneu-rysm (CCR-AAA) is a well-documented subtype of abdominal aortic aneurysm (AAA) rupture in which the hematoma is sealed by the retro-peritoneum [1]. Patients with a sealed AAA rupture often present a diagnostic and therapeutic dilemma as they lack the typical features of hemorrhagic shock usually seen with frank rupture [2]. Patients are often stable for variable periods of time and may only present with abdominal or back pain, symptoms also seen with uncomplicated AAA[3]. Treatment varies from stenting to open surgery or combination of both. But stenting is costly [4].

Although contrast enhanced computed tomography (CT) and magnetic resonance imaging (MRI) are the diagnostic modalities of choice in sealed AAA [5], we have recently encountered a case with misleading radiological features that resulted in a delay in management. Fortunately, the delay in diagnosis did not alter the long-term outcome and the patient recovered well after appropriate surgical management.

Case Report

We report a case of a 27 year-old indian female who presented with a 6-month history of low back pain and a mass per abdomen. Patient also had earlier history of pulmonary kochs ten years back for which she receieved six months of antitubercular therapy. On examination, she had a pulsatile expansile abdominal mass with good femoral and distal pulses. The rest of the examination was normal with good cardiac and respiratory status. Further lab workup including a complete blood count, renal function, liver function, coagulation profile, and erythrocyte sedimentation rate (ESR) were normal except for an elevated C-reactive protein (CRP) of 26.

The initial contrast enhanced CT scan with an aortogram demonstrated a 8*8cm partially thrombosedpseudoaneurysm just after the origin of superior mesenteric artery extending to both the common iliac artery origin [Figure 1].The length of the aneurysm was approximately 12.5cm of the aorta and 0.5 cm of the common iliac arteries. CT also showed involvment of both renal arteries origin in the aneurysm.

Although it was suspected, whether or not the aorta was involved in the infective process or even ruptured with a contained hematoma was a question yet to be answered.

We have two treatment option hybrid approach [surgical bypass Y grafting of both renal arteries from external iliac artery followed by stenting of abdominal aorta by intervension radiologist] and other option is total open surgical. But the patient is not affording for hybrid treatment as stent is costly so decision taken for total surgical repair of the abdominal aortic aneurysm.

Nevertheless, the possibility of aortic wall infection and abdominal sepsis required careful pre-operative planning and the need to keep both the renal arteries perfused during the entire surgery was planned preoperatively.

A left thoraco abdominal anterior approach was undertaken [Figure 2]. The descending thoracic aorta was exposed in the thorax and the diaphragm was cut [Figure 3] and mobilized with releasing posterior crux to gain control of the descending thoracic aorta for the aorto femoral bypass.Left kidney mobilized and renal artery looped [Figure 4]. As first step left common iliac artery to left renal artery grafting [Figure 5] was done using 6 mm PTFE graft by 6-0 prolene suture for maintaining its blood supply after clamping descending thoracic aorta [Figure 6]. Abdominal aortic aneurysm assessed all around[Figure 7]. After 300iu/kg heparinisation the descending thoracic aorto and femoral artery cannulated with ¾ th size tubing in between [Figure 8]. Aorta clamped distal to descending thoracic aorta canula. Both common iliac arteries also clamped.Aneurysm opened with cautery [Figure 9] and large 8cm by 8cm aortic thrombus evacuated [Figure 10]. End to end aortobiiliac grafting done using 24mm by 9 mm Y graft [Figure 11]. The right renal artery was canulated using a coronary canula and cold ringer lactate was infused to maintain cold ischemia of the right kidney during the entire procedure.Right renal artery then anastomosed directly on the graft.Incision closed with two drains,one in abdomen and other in left pleural cavity [Figure 12]. Patient extubated after 6 hours and discharged after ten days. Cultures of the aortic wall and thrombus all yielded negative results for bacteria and fungi including TB and brucellosis.

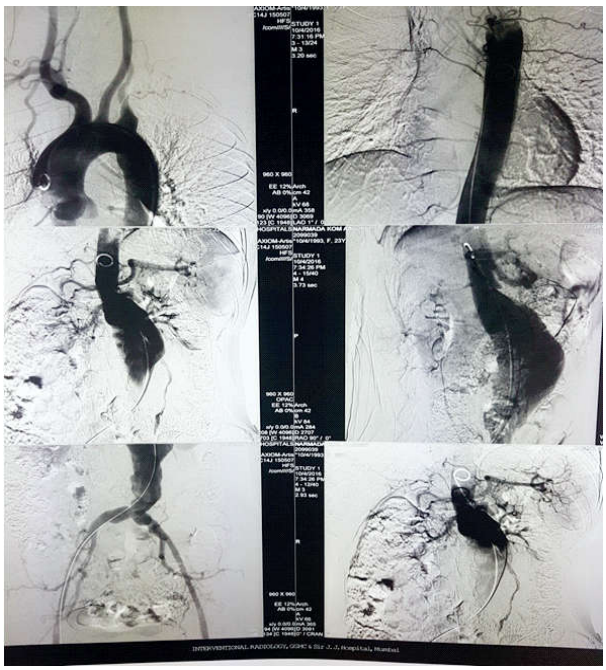

Fig. 1: Contrast enhanced CT scan with an aortogram demonstrated a 8*8cm partially thrombosedpseudoanerysm just after the origin of superior mesenteric artery extending to both the common iliac artery origin

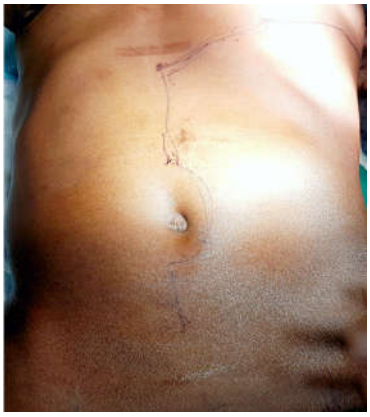

Fig. 2: Marking of left thoracoabdominal incision

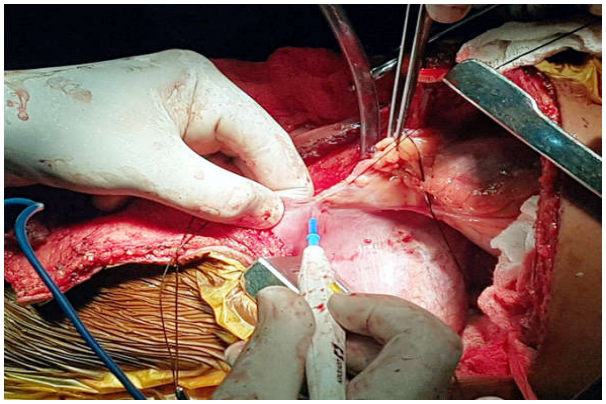

Fig. 3: Cutting of diaphragm with cautery

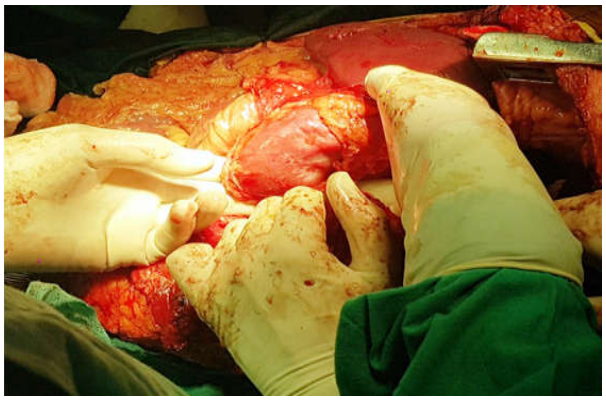

Fig. 4: Mobilising left kidney

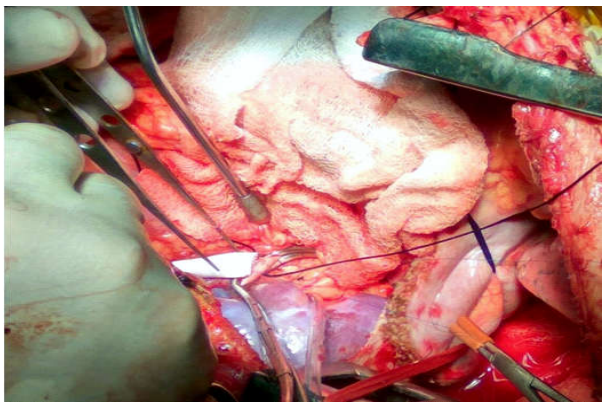

Fig. 5: Suturing of 6 mm PTFE graft to left renal artery

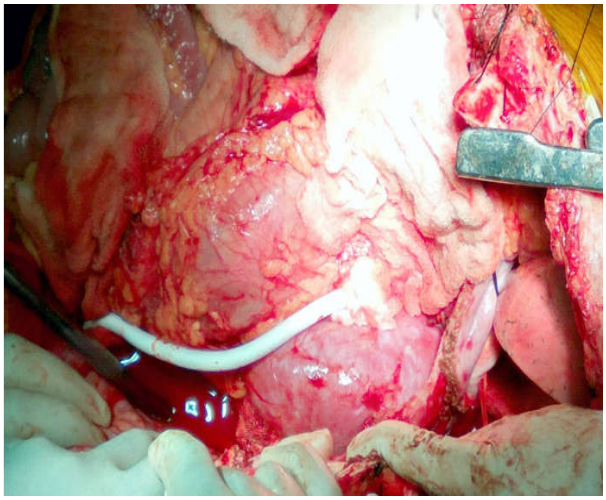

Fig. 6: Left Ileorenal bypass grafting with 6 mm PTFE graft

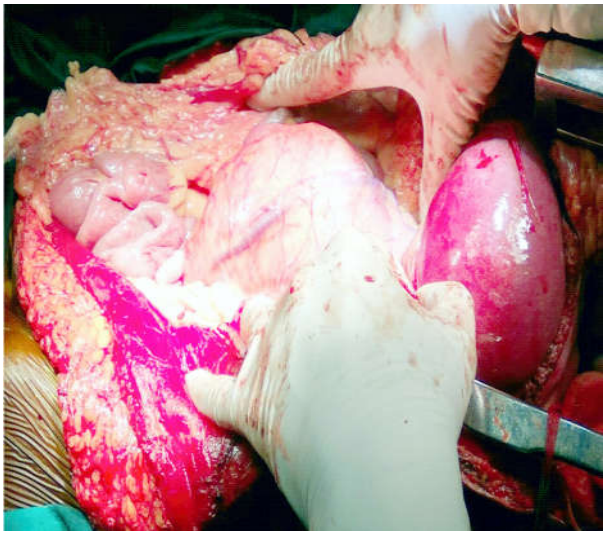

Fig. 7: Abdominal aortic aneurysm

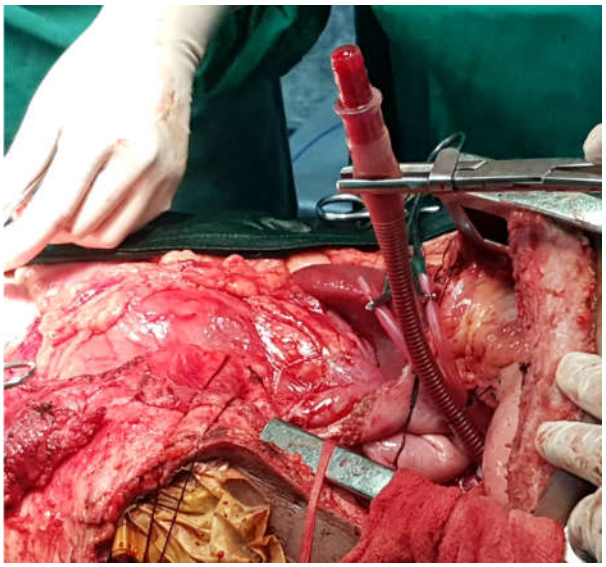

Fig. 8: Cannulating descending thoracic aorta above the diaphragm

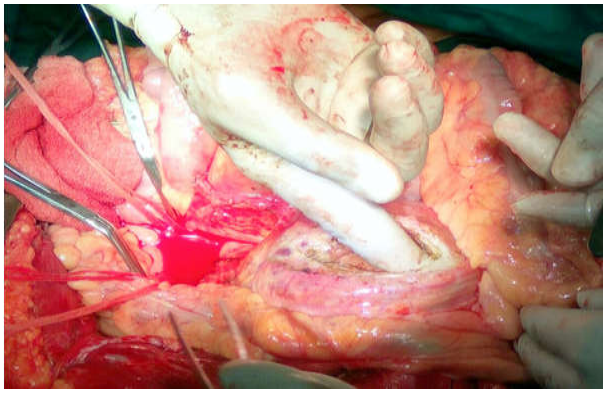

Fig. 9: Aneurysm opened with cautery

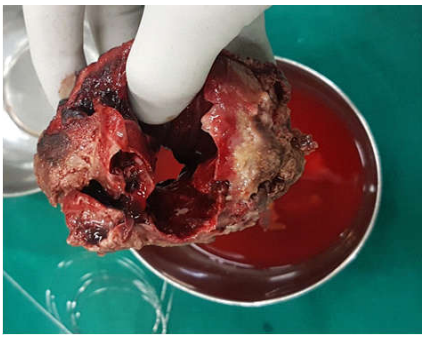

Fig. 10: Excised thrombus from aneurysm

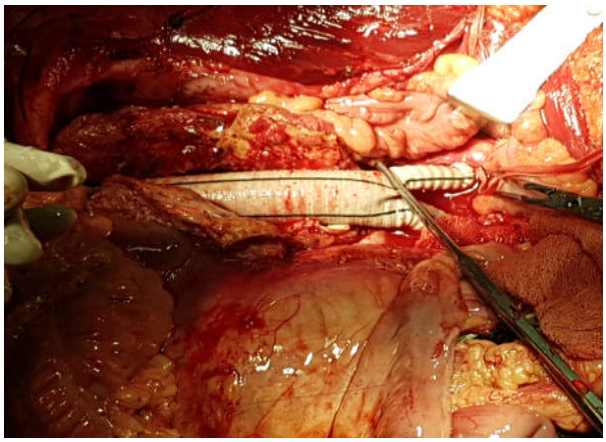

Fig. 11: End to end aortobiiliac Y grafting

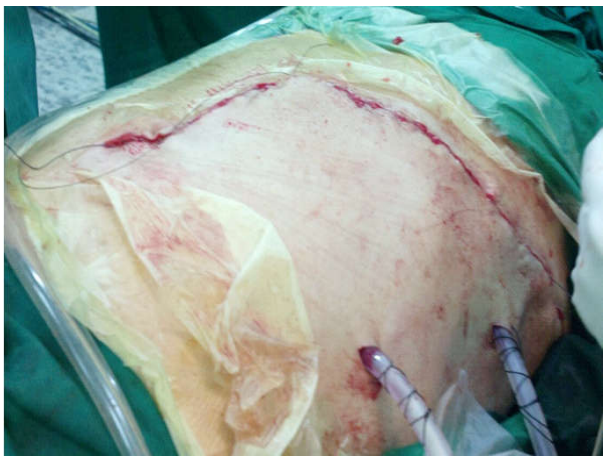

Fig. 12: Closed left thoracoabdominal incision

The patient recovered well post-operatively and had palpable bilateral pedal pulses. She was discharged from the hospital on the 10 th day post-operatively in excellent condition and an ABI of 1.0 bilaterally. By 2 weeks post-op, she was mobilizing with no difficulty and her back pain had disappeared. A follow up ultrasound abdomen showed no collection in the peritoneum/ retroperitoneum and a patent functioning aortobiilliac graft and a left iliorenal graft .

Discussion

A chronic contained rupture of an abdominal aortic aneu-rysm is a well known phenomena first described by Szilagyi et al. in 1961.

While AAA is a common disorder, CCR-AAA constitute only 4% of all ruptured aortic aneurysms.[4] The diagnostic criteria for CCR-AAA has been recently described as the following:

1. Known AAA
2. Previous pain symptoms that may have resolved
3. A patient whose condition is stable and whose hematocrit is normal
4. A CT scan showing a retroperitoneal hematoma; and pathological confirmation of an organized hematoma. Nevertheless, this entity may present with misleading clini-cal and radiological findings.

Since Szilagyi's initial description of seven ''sealed ruptures'' of abdominal aortic aneurysms simulating intra-abdominal sepsis, there have been sixteen other reports presenting the details of a further 43 cases of chronic contained ruptures [6]. Haemorrhage is typ-ically walled off in the retroperitoneal fascial planes posterior and lateral to the aorta, leading to the pres-ence of organised thrombus outside the aortic wall. CT appearances are variable, and may be similar to those seen in patients with acute presentations [7]. A soft tissue mass may be seen arising from the aortic wall silhouetting the psoas muscle. There may be a breach in calcification in the aortic wall at the site of rupture. Recurrent leaks will lead to a whorled or ''onion skin'' appearance [8]. Chronicity of the rupture is suggested by the clinical presentation and is confirmed at operation by the presence of organised thrombus within an extra-mural mass, which communicates with the abdominal aorta [9].

The natural history of chronic, contained rupture is uncertain. Although the suspected time interval

from onset of rupture to presentation is 42 days, chronicity of rupture has been confirmed radiologically in only a handful of cases by review of prior imaging [10]. Once diagnosed, the majority of reported cases have been operated on without delay. Long-term survival (>6 months) has been reported in radiologically proven chronic contained ruptures left unoperated on for reasons of co-morbidity and in previously undiagnosed ruptures discovered on review of previous CT scans. The number of reported cases is too small to detect differences in surgical outcome between those cases repaired urgently, semi-urgently and electively. Given, however, that the results of planned repair of AAAs are generally superior to those of urgent repair, it seems advisable that, once diagnosed, repair of a chronically contained ruptured AAA should proceed as a planned event, allowing time for adequate pre-operative preparation and the gathering of appropriately skilled personnel.

Conclusion

This report confirms that chronic contained rupture of AAA truly exists. Clinically, it can mimic infective abdominal etiology and presents with peculiar radiological findings. Therefore, a high index of suspicion is required to prevent life threatening consequences.The results of planned repair of AAAs are generally superior to those of urgent repair, it seems advisable that, once diagnosed, repair of a chronically contained ruptured AAA should proceed as a planned event, allowing time for adequate pre-operative preparation and done by experienced skilled vascular surgeon only.Patients with low financial income - open surgery was the only valid and better option. Though it was difficult but with proper planning and protocols ,surgery seems to be easy with better results.

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