

# Mycotic Aortic Aneurysm Treated By Endovascular Aneurysmal Repair (EVAR) (First Case Report from Oman)

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## ABSTRACT

**Mycotic aortic aneurysm is rare but life threatening disease. Endovascular aneurysm repair (EVAR) has become an established procedure for the treatment of many infrarenal aortic aneurysms. Although EVAR is obviously less invasive than open surgical repair but it is not without complications. Lower extremity ischemia is a known complication of endovascular abdominal aortic aneurysm repair (EVAR). Limb occlusion, embolism or access related problems are the main causes. We hereby describe the first case of EVAR of infra renal mycotic aortic aneurysm in the history of Sultan Qaboos University Hospital Oman. A 67 years old lady known to have diabetes mellitus and hypertension admitted with fever and abdominal pain. On further evaluation found to have 4 cms infra-renal mycotic abdominal aortic aneurysm treated by EVAR but procedure was complicated by lower limb ischemia due to thrombosis at the puncture site which was successfully treated by aspirating thrombus and ischemia was relieved.**

**KEYWORDS: Mycotic aortic aneurysm; infected aneurysm; EVAR; Limb occlusion.**

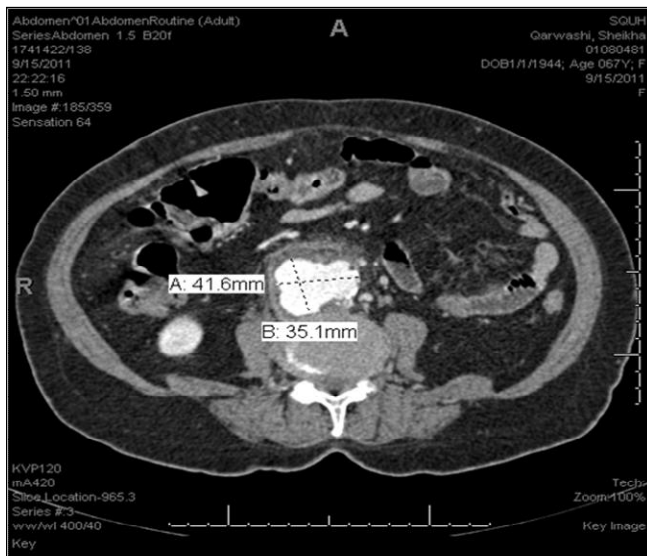
Mycotic aneurysm of the aorta is a rare entity. It is usually caused by septic embolization and super infection of pre-existing atherosclerotic aneurysms<sup>1</sup>. Prompt and accurate diagnosis is essential as it can rupture or embolize distally<sup>2</sup>, the conventional treatment of choice for mycotic aneurysm is resection of the aneurysm with debridement and excision of the surrounding infected inflammatory tissue followed by either an in-situ repair or for the minority of cases an extra-anatomical bypass<sup>3</sup> Endovascular aortic repair (EVAR) of abdominal aortic aneurysm (AAA) is widely accepted as an effective and less invasive treatment alternative to open surgical AAA repair.<sup>4</sup> It is recently becoming more popular because of many early benefits; less invasive technique with the advantages of avoiding a thoracotomy, rapid mobilization, decrease morbidity which may explain its wide use all over<sup>5</sup> despite of its several advantages this endovascular procedure is not free of complications.<sup>6,7</sup> All such complications need urgent detection and appropriate treatment because of the associated significant morbidity and mortality.

## CASE REPORT

A 67 years old hypertensive and diabetic lady presented with a history of intermittent fever associated with sweating anorexia and undocumented weight loss for past 1 month. She also gave history of abdominal pain; mostly on the right side of the upper abdomen radiating to back. There was no significant past history apart from cholecystectomy. On examina-

tion her BP was high but equal in both arms; she had mild tenderness in epigastrium and right hypochondrium. She was admitted under the care of physician investigated extensively, Her blood cultures, Urine cultures Q fever and syphilis serology all were found to be negative apart from high inflammatory markers and leucocytosis. Echo did not show any vegetations and her connective tissue disease work up also came as negative but due to her ongoing abdominal pain along with fever it was decided to go CT abdomen to look for the source of infection, meanwhile she was empirically started on IV antibiotics. Abdominal CT showed 4 cm sacular infra renal abdominal aortic aneurysm, with retroperitoneal fat stranding raising possibility of inflammatory AAA versus mycotic AAA compressing on the inferior vena cava. This was thought to be the cause of her fever and after through discussion among vascular surgeon and interventional radiologist she was given options for open repair Vs EVAR. Since the patient was reluctant for open repair it was decided to treat her with EVAR as there was ongoing abdominal pain and there was a risk of rupture.

At first peripheral angiogram was done that confirmed the finding of CT abdomen. Mycotic Aortic aneurysm was successfully stented with a 12 size covered stent; however there was a small type 1 leak from the proximal end. Just after 45 minutes of the procedure, patient had severe right limb pain with absent pulses distally, urgent ultrasound revealed the absence of flow within the right common femoral artery. The



patient was then transferred to the angio suite. Patient was diagnosed to have right lower limb ischemia due to thrombosis of the puncture site. The left common femoral artery was accessed with 6-French sheath, using a combination of a pigtail catheter and Terumo guide wire. Angiogram was performed and revealed thrombosis of the right common femoral artery, which was aspirated using thrombectomy aspiration catheter. A follow up angiogram revealed brisk flow across the right common femoral artery with minimal residual thrombus. There were some clots seen in the right popliteal artery, aspirated successfully. Follow-up angiogram revealed good flow cross right common femoral and the popliteal artery. Clinically afterwards her foot became warm and distal pulses were well felt. Her Fever and abdominal pain subsided completely. She remained asymptomatic and her follow up CT angiogram after two months showed type I endo leak at the aortic aneurysm repair. But as the required sizes were not available to repair it at that time, patient was rescheduled for stent placement later. Further follow up was advised after three months.

## DISCUSSION

The term Mycotic aneurysm was first used by Osler<sup>8</sup> in 1885 to describe infected arterial embolization due to infected endocarditis, this term has since been applied to arterial infections of all types, although today it is generally used more restrictively for fungal infections and, hence, the designation of infected aneurysms (IAA) is the most appropriate. Mycotic aneurysms are uncommon but potentially fatal condition.<sup>9</sup> Its incidence is 0.65% to 2% of all aortic aneurysms.<sup>10</sup> These aneurysms may involve any arterial vessel but have been described most commonly in the thoracic and abdominal aorta. Untreated Mycotic aortic aneu-

rysms expand rapidly and have a high risk of rupture if left untreated. Early diagnosis and treatment are mandatory for survival<sup>11</sup>. Conventional surgical treatment, which consists of a radical operation with resection of the aneurysm, extensive local debridement, and revascularization by in situ reconstruction or extra-anatomic bypass is the gold standard but carries a high mortality.<sup>12</sup> EVAR is widely accepted as an effective and less invasive treatment alternative to open surgical AAA repair.<sup>14</sup> Endovascular aneurysm repair (EVAR) has become an established technique for the treatment of many infrarenal aortic aneurysms.

It has edge over the other options as it avoids the need for a large abdominal incision, cross clamping of the aorta, and massive blood transfusion. It can be performed under regional or local anesthesia, thus avoiding the need for endotracheal intubation and general anesthesia.<sup>13</sup> However; this endovascular procedure is not without complications. These complications, potentially occurring both during and after the EVAR procedure, can be serious, prompting a quick diagnosis and subsequent interventional or surgical treatment.<sup>10</sup> Complications during or after EVAR can be categorized as complications owing to surgical exposure of the cannulated arteries, systemic complications, ischemic complications occlusion of a stent-graft limb, and graft infection.<sup>15</sup> Arterial thrombosis, dissection, or pseudoaneurysm formation can occur in up to 3% of EVAR procedures.<sup>10</sup>

A successful stent-graft procedure results in freedom from aneurysm rupture with long-term device patency. Although early results are promising, the future role of this technology in the treatment of abdominal aortic aneurysm is not certain<sup>16</sup>.

## CONCLUSION

The endovascular procedure for repair of abdominal aortic aneurysms has had an enormous impact on the treatment of this challenging disease. Complications, however, do occur and it is important to have a thorough knowledge of complications and appropriate management strategies. As compared with open repair, endovascular repair of abdominal aortic aneurysm is associated with lower short-term rates of death and other complications.

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