SHORT REPORT

Streptococcal Mycotic Abdominal Aortic Aneurysm Rupture in an Asplenic Patient

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Abstract This study concerns a 69-year-old asplenic man who presented with abdominal pain and was found to have a contained rupture of a true infrarenal abdominal aortic aneurysm (AAA). Isolates of debrided aortic wall and swab cultures identified β-haemolytic Streptococci group A, a bacterium which typically causes pharyngeal and skin infections and may also initiate invasive infection associated with multi-organ failure. Following prompt surgical and antibiotic treatment, our patient was alive and well 6 weeks following surgery.

Sir William Osler first coined the term 'mycotic aneurysm' in 1885 in his Gulstonian lectures on endocarditis when he described an aortic arch aneurysm as resembling 'fresh fungal vegetations'. Mycotic aneurysm is an umbrella term describing an infected aneurysm of bacterial or fungal origin resulting in weakening of the arterial wall with a tendency to rupture or haemorrhage.

Prior to the advent of antibiotics, majority of the infected aneurysms were found in patients with endocarditis secondary to Streptococci viridians. The aetiology has changed over time, and infected aneurysms have also been identified in patients who have previously undergone intravascular interventions and monitoring, those receiving immunosuppressive therapy and illicit intravenous drug users.

Current literature has shown bacteria Staphylococcus aureus and Salmonella spp. to be the most common cultured pathogens isolated in infected aneurysms. Streptococcal infections are uncommon, with only seven reported cases in the literature caused by β-haemolytic Streptococci Lancefield group C (five native cases; two aortic graft cases).

This is the first documented case of a patient with a ruptured aortic aneurysm infected by β-haemolytic Streptococci Lancefield group A (SGA) surviving beyond 6 weeks.


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Case Report

A 69-year-old male smoker presented to the emergency department with sudden onset, severe right-sided abdominal pain radiating into the lumbar region. He had been unwell for 4 months, with increasing lethargy, anorexia and a 6-kg weight loss. Six weeks preceding presentation, he had diarrhea and vomiting for 3 days. His past medical history included a splenectomy in 1962, for which he was not on long-term oral antibiotics.

On arrival the patient was alert and orientated. Observations revealed new onset atrial fibrillation (120 beats per min), blood pressure 122/86 mm Hg, respiratory rate 18 bpm, oxygen saturations 94% room air and temperature 36.5 °C.

Abdominal examination elicited tenderness maximally over the ilioc fossae, with a palpable abdominal aortic aneurysm (AAA). Initial laboratory investigations revealed Hb of 13.4 g d l⁻¹ and leucocytosis of 21.0 × 10⁹ l⁻¹.

A CT scanning confirmed a 7.3 × 5.2-cm infrarenal AAA extending over 7 cm. The intra-operative findings confirmed a contained rupture of an infrarenal AAA. A 16-mm Vascutek Gelsoft™ graft was used for in situ repair. The Culture of aortic tissue and swabs grew β-haemolytic Streptococci group A (GSA).

Postoperatively, he was transferred to intensive care, where he received intravenous benzylpenicillin, and, prior to discharge, he received intravenous benzylpenicillin and was discharged home after 12 days. He was given lifelong oral benzylpenicillin, and, prior to discharge, he received Hib, Meningococcal A and C and Pneumovax 2 vaccinations.

Discussion

Mycotic aneurysms represent a life-threatening condition with significant morbidity and mortality, accounting for approximately 0.8–3.4% of aortic aneurysms. S. aureus, Salmonella and Streptococcus spp. remain the most common micro-organisms cultured from aneurysms with Streptococcus pneumoniae, Escherichia coli, Pseudomonas aeruginosa and Treponema pallidum (syphilis) less commonly identified. Mycotic aneurysms develop in healthy or diseased aortic wall after an episode of bacteremia or septic emboli. They are most prevalent in the abdominal aorta and most commonly following iatrogenic arterial trauma or bacterial endocarditis.

These aneurysms require urgent repair given the high risk of rupture, although there remains no consensus as to the 'best' type of repair. Conventional options include abdominal aortic ligation or excision with in situ prosthetic grafting. Extra-anatomical repair is one recommended approach particularly in the presence of severe sepsis but is associated with high risk of lower limb amputation and aortic stump blow-out syndrome. Several studies show lower mortality rates in in situ compared to ex situ reconstructions. Conduits available for in situ repair include femoropopliteal vein, long saphenous vein spiral graft and rifampicin-bonded prosthetic grafts. Cryopreserved homografts have been used but have extremely limited availability with some reporting less than favourable results. Endovascular repair in the presence of sepsis remains controversial but has been successful in a few cases.

Although SGA has previously been reported in mycotic aortic aneurysm, with in situ prosthetic re-vascularisation our patient was alive and well 6 weeks following surgery. Lifelong antibiotic therapy was recommended in our asplenic patient.

References