HAEMOPHILUS INFLUENZAE INFECTED ATRIAL MYXOMA: A CASE REPORT

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Abstract. Atrial myxomas may rarely become infected, usually with gram-positive cocci. We report here the case of 34-year-old Thai man who presented with fever for 10 days and the presence of a diastolic rumbling murmur. His blood cultures grew out *Haemophilus influenzae*. He failed to improve with antibiotics alone so the myxoma was excised and then he improved with antibiotic treatment and was discharged home in good condition. We also review the literature regarding infected myxomas.

Keywords: *H. influenzae*, infected atrial myxoma

INTRODUCTION

Atrial myxomas are the most common primary cardiac tumors (Hoffmeier *et al*, 2014). The typical manifestations of atrial myxomas are embolic, constitutional or obstructive symptoms (Pinede *et al*, 2001). However, infected cardiac myxomas are relatively rare. We found only 80 cases of infected cardiac myxomas in the literature (Revankar and Clark, 1998; Özmen *et al*, 2014; Yuan, 2015). About 80% of the reported cases were infected with gram-positive cocci such as *Streptococcus* spp, *Staphylococcus* spp and *Enterococcus* spp (Murdoch *et al*, 2009), similar to infective endocarditis. Atrial myxomas infected with gram-negative bacilli are rare. We report here the case of an atrial myxoma infected with *Haemophilus influenzae* which as far as we know is the first reported case.

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CASE REPORT

A 34-year-old Thai male with no past history of underlying disease and who was previously healthy, presented to a district hospital with fever and myalgia for 3 days. He was diagnosed with having dengue hemorrhagic fever based on the fact he had no identified source of infection and he developed thrombocytopenia. His complete blood count (CBC) on the first day of hospitalization showed a hematocrit of 46%, a white blood count (WBC) of 5,390 cells/µl [87% polymorphonucleocytes (PMN), 11% lymphocytes (L)] and a platelet count of 133,000 /µl. On the third day of hospitalization, he had a hematocrit of 40%, a WBC count of 11,870 cells/µl (82% PMN, 12%L) and a platelet count of 38,000 /µl. He received supportive treatment with intravenous fluid without antimicrobial therapy. His clinical status did not improve, so he was referred to a private hospital. On arrival, he developed

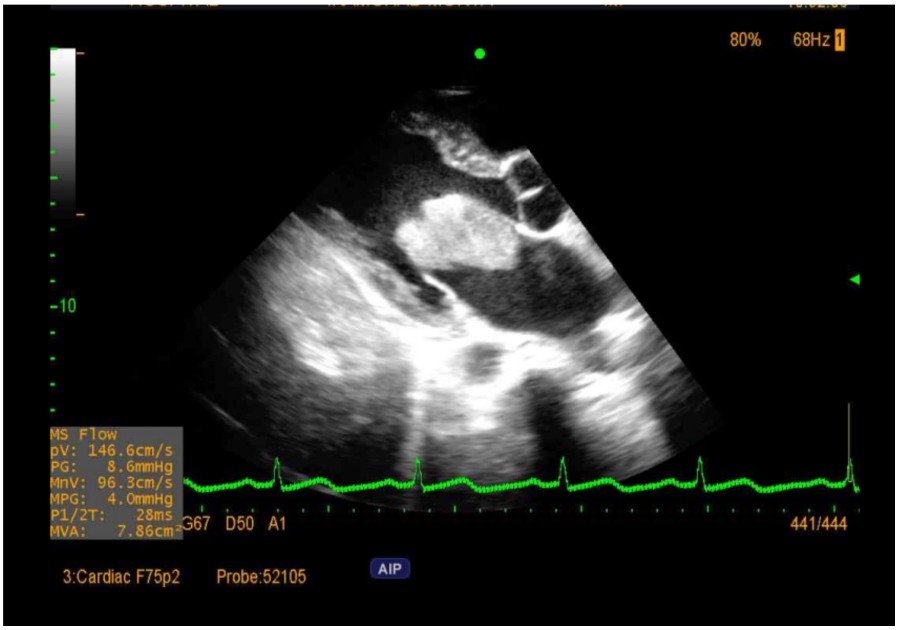

Fig 1–Transthoracic echocardiogram: parasternal long-axis view of the heart revealed a 5.4 x 2.5 cm highly mobile mass in the left atrium attached to interatrial septum.

shock and progressive dyspnea. He was intubated and placed on mechanical ventilation. His chest radiograph showed mild cardiomegaly with a minimal alveolar infiltrate in the left lower lobe. His repeat CBC showed a WBC count of 19,000 cells/µl and a platelet count of 19,000/µl (80% PMN with toxic granules). The investigations for dengue infection were negative. He was diagnosed as having septic shock with disseminated intravascular coagulopathy (DIC) from pneumonia. Since he had been hospitalized at another hospital before transfer, he was empirically treated with piperacillin/tazobactam and azithromycin. Two blood cultures subsequently reported to be positive for gram-negative coccobacillus, so colistin was added to his antibiotic regimen. After a week of antibiotic treatment, he had not improved and was transferred to our referral hospital.

Upon presentation to our hospital, the patient was alert and cooperative. His temperature was 36.7ºC, his blood pressure was 96/60 mmHg, his pulse rate was 80 beats per minute and his respiratory rate was 38 beats per minute. On examination, he had multiple dental caries. Auscultation of the heart revealed a grade III/VI diastolic rumble heard best over the apex which was not noticed by the physicians at either of the previous hospitals. There were no other abnormal heart sounds. Auscultation of the lungs revealed bibasilar fine crackles. There were no embolic signs on examination.

Laboratory examination on admission to our hospital showed a leukocyte count of 15,600 /µl with 69% PMN. Blood chemistry and liver function tests were within normal limits. Chest radiography on admission to our hospital showed car-

diomegaly and vascular pedicle width, a hazy contour of the vessels and perihilar cuffing. A transthoracic echocardiography revealed a 5.4 x 2.5 cm highly mobile mass in the left atrium attached to the interatrial septum partially obstructing the mitral valve (Fig 1). The left atrium was slightly dilated but the right ventricle was normal. Two blood cultures obtained at our hospital were positive for *Haemophilus influenzae* and the final result on the blood culture obtained at the private hospital revealed *H. influenzae*.

Ceftriaxone and gentamicin were initiated at our hospital based on the echocardiogram results and the gram-negative coccobacillus found on his previous blood cultures prior to identification and sensitivity results were obtained. Surgical excision of the tumor was performed two days later. Intraoperatively, the left atrial mass was attached by a stalk to the left atrial wall. Post-operatively, the patient improved and was extubated. He was continued on ceftriaxone 2 gram intravenously once the final sensitivity results were received, for a total of 4 weeks. The gentamicin was discontinued after the sensitivity results were obtained. The patient was discharged home without any complications. Pathology of the atrial myxoma showed a large area of suppurative inflammation and necrosis.

DISCUSSION

Infected atrial myxomas are rare with just over 80 cases reported in the literature (Revankar and Clark, 1998; Özmen *et al*, 2014; Yuan, 2015). It is difficult to differentiate between infected and non-infected atrial myxomas. Infected atrial myxomas cause fever and increase the risk for embolic events (Yuan, 2015). Revankar and Clark (1998) classified myxomas into 3 groups based on clinical and pathological findings: 1). cardiac myxomas with definite infection, defined as having a pathologically confirmed myxoma and the presence of microorganisms seen on pathology or the finding of inflammation on pathology and having a positive blood culture, as was seen with our case; 2). cardiac myxomas with probable infection defined as having a pathologically confirmed myxoma and finding inflammation on pathology or having positive blood cultures; 3). cardiac myxomas with possible infection, defined as seeing the characteristic appearance of a cardiac myxoma on transthoracic or transesophageal echocardiography and having positive blood cultures.

Atrial myxomas usually cause no specific signs or symptoms making diagnosis difficult. Our patient was febrile similar to the majority of cases reported in the literature (Revankar and Clark, 1998; Yuan, 2015). On auscultation, our patient had a diastolic rumble prompting us to perform an echocardiogram looking for infective endocarditis. In our case, there were no embolic events, which are commonly reported in the literature (Revankar and Clark, 1998; Yuan, 2015). Meticulous examination is crucial in making a diagnosis since the cardiac murmur was missed by the physicians at the 2 previous hospitals.

The infective organism in our case, *H. influenzae*, is unusual. We found no previous reports in the literature of it causing infection in an atrial myxoma. The majority of reported cases of infected atrial myxoma are due to gram-positive cocci, *Streptococcus* spp, *Staphylococcus* spp and *Enterococcus* spp. Gram-negative bacilli are a rare cause of infected atrial myxomas (Revankar and Clark, 1998; Yuan,

2015). The gram-negative bacilli previously reported to cause an infected atrial mxyoma are two cases of *Klebsiella pneumoniae* infection (Yuan, 2015), and one case each of *Pasturella multicoda, Actinobacillus actinomycetemcomitans, Capnocytophaga canimorsus* and *Haemorphilus parainfluenzae* infection (Revankar and Clark, 1998). Darras-Joly *et al* (1997) reported 42 cases of *Haemophilus* causing infective endocarditis and only 7% of them were *H. influenzae*.

Infected atrial myxomas are rare and an infection due to *Haemophilus* spp has not been previously described in the literature. In our case, excision combined with prolonged antibiotic treatment was successful in treating this infection.

REFERENCES

Darras-Joly C, Lortholary O, Mainardi JL, Etienne J, Guillevin L, Acar L. Haemophilus endocarditis: report of 42 cases in adults and review. Haemophilus Endocarditis Study Group. *Clin Infect Dis* 1997; 24: 1087-94.

Hoffmeier A, Sindermann JR, Scheld HH, Martens S. Cardiac tumors–diagnosis and surgical treatment. *Dtsch Ärztebl Int* 2014; 111: 205-11.

Murdoch DR, Corey G, Hoen B, *et al*. Clinical presentation, etiology, and outcome of infective endocarditis in the 21st century: the International Collaboration on Endocarditis–Prospective Cohort Study. *Arch Intern Med* 2009; 169: 463-73.

Özmen G, Doganay K, Ari H, *et al*. Fungus infected atrial myxoma: a rare cause of infective endocarditis and chordae rupture. *Asian J Med Sci* 2014; 6: 81-3.

Pinede L, Duhaut P, Loire R. Clinical presentation of left atrial cardiac myxoma. A series of 112 consecutive cases. *Medicine* (Baltimore) 2001; 80: 159-72.

Revankar SG, Clark RA. Infected cardiac myxoma. Case report and literature review. *Medicine* (Baltimore) 1998; 77: 337-44.

Yuan S-M. Infected cardiac myxoma: an updated review. *Braz J Cardiovasc Surg* 2015; 30: 571-8.