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Multiple septic emboli in infective endocarditis

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A 46-year-old man presented with fever and backache. He had suffered from muscle pain, fatigue and fever for the last two weeks prior to admission clinically he was febrile and confused. Blood cultures were grown two days later which identified staph.aurious ,he was treated as sepsis with intravenous antibiotic. Thereafter transthoracic echocardiogram performed on day 5 which demonstrated a small pericardial effusion, moderate aortic regurgitation, but no vegetation's were seen. On day 7, CT scan of the chest, abdomen and pelvis confirmed multiple splenic infarcts. A trans-oesophageal echocardiogram was performed on day 13 which showed a bicuspid aortic valve with prolapsed of the posterior leaflet causing severe aortic regurgitation but no vegetation or aortic valve abscess were seen. On Day 26 repeated transthoracic echocardiography show severe AR, bicuspid aortic valve with a vegetation, the diagnosis of IE was made. On Day 28 the patient experienced severe chest pain. ECG performed on time and showed ST depression in leads V4-6. A troponin level was reported as 386 which confirmed a non-ST elevation myocardial infarction (NSTEMI). we initiated medical treatment for Acute myocardial infarction subsequent coronary angiogram demonstrate no obstructive coronary artery, suspicion of embolic event was thought, and intravenous antibiotics was continued and he was transferred urgently for aortic valve replacement, after which the patients' symptoms were significantly improved and discharged from the hospital in a good condition.

CASE REPORT

- A 64 gentleman he was previously healthy and independent was brought to the accident and emergency department with complaints of backache, confusion and fever which is intermittent in nature for the last week, ,On examination he was febrile, confused with Glasgow Coma Score of 12/15 and Abbreviated Mental Test Score of 0/10, blood pressure 165/90 mmHg, heart rate of 102 beats per minute, respiratory rate 40 breaths per minute, oxygen saturation 96% on air and temperature 37.8^{0}C. Examination was otherwise unremarkable. Initial blood results on admission showed: CRP =310; Hb 133, MCV 95, WCC 10.8, Plts 97, normal renal and liver function. Three sets of blood cultures were taken. ECG showed a sinus tachycardia. Chest X-Ray was normal. A diagnosis of sepsis was made with a possible source being either the urinary tract or lower respiratory tract. He was commenced on intravenous antibiotic.

- Two days later blood cultures had grown Staphylococcus aureus The patient had continued to spike temperatures since admission. A transthoracic echocardiogram on day 5 was performed looking for IE as a cause of his sepsis, which showed a small pericardial effusion, moderate aortic regurgitation, but no vegetation's were seen.

- On day 7, CT scan of the chest, abdomen and pelvis confirmed multiple splenic infarcts (Figure 1). Repeat transthoracic echocardiography on day 9 showed a small pericardial effusion and moderate-severe AR, but no vegetation's were seen.

- A trans-oesophageal echocardiogram was perform on day 13 which showed a bicuspid aortic valve with prolapsed of the posterior leaflet causing severe aortic regurgitation but no vegetation or aortic valve abscess were seen (Figure 2). The patient planned for aortic valve replacement as an outpatient

- On day 13, the patient had experienced blurred vision and the clinical visual field examination revealed a left homonymous hemianopia and Brain CT scan, on day 16 showed lesions highly suggestive of septic emboli (right occipital lobe, right cerebellum) (Figure 3). Similar findings were also noted on the brain MRI on day 23 (Figure 4). On Day 26 repeated transthoracic echocardiography show severe AR, bicuspid aortic valve with a rape between RCC & LLC. A vegetation measuring 1.2 X 0.3 cm was seen attached to LV side of AV as well as severe aortic regurgitation and a dilated aortic root (Figure 5A&B), the diagnosis of IE was made using (two major Duke's Criteria) and the antibiotic regime was changed to Rifampicin, Gentamicin and Flucloxacillin as advised by Microbiology, although appearing clinically stable with reduced

inflammatory markers whilst awaiting surgery, he had an episode of chest pain. An ECG showed new ST/T changes. A non-ST elevation myocardial infarction (NSTEMI) was confirmed by a troponin rise

- A diagnostic coronary angiogram was performed which showed no obstructive disease, the radiologist had reviewed his initial image which show suspicion of left lower abscess and advice for A repeat CT of the thorax which showed destruction of L3 and L4 in keeping with osteomyelitis and discitis (figure 6) The patient was discussed with cardiothoracic surgeons regarding urgent inpatient transfer due to obvious recurrent emboli and thus an indication for immediate surgery ,at surgery, a pseudo-bicuspid aortic valve with a fused large right coronary cusp and small left coronary cusp was found. A large perforation was found in the non-coronary cusp with attached vegetation prolapsing into the left ventricular outflow tract. Dense vascular adhesions due to acute pericarditis were noted. Both ventricles were noted to be dilated and the ascending aortic measured 5.2 cm. The patient had a successful outcome from the surgery and was discharged home without immediate complications.

Discussion: Infective endocarditis (IE) is an inflammation of the inner tissues of the heart, endocardium and the heart valves. It is usually caused by bacterial infection but a few other pathogens can also be responsible[1]. According to the degree of severity and progression of the disease Infective endocarditis has been classified into acute and sub-acute. The acute form characterized by an acute onset and fulminant course[2], in developed country, the annual incidence of infective endocarditis is reaching up to 9 cases per 100,000 people and the incidence of infective endocarditis is increased among people 65 years of age and older[3]. The overall in hospital mortality for IE remains very high, and reached up 50% among those patients acquiring endocarditis as a result of iatrogenic nosocomial infection. There has also been an increase in IE associated with fastidious organisms (HACEK group), This case highlights how Infective endocarditic remains as a severe disease with significant mortality and morbidity rat, delay of early recognition still remains an important cause of morbidity and mortality and may leave the patient with permanent disability, our patient was found to have Staphylococcal aureus, an aggressive organism on a bicuspid aortic valve. Despite antibiotic therapy guided by the results of blood cultures, he continued to experience embolic events. He went on to do well following aortic valve replacement but he left with permanent disability as has a residual visual field defect so he can't drive and he lost his main job as builder and he still remain high risk of recurrent emboli despite of excellent quality of care. IE a very serious disease, Despite great efforts directed towards the treatment of infective endocarditis (IE) medically and surgically, infective endocarditis (IE) constitute significant health problem worldwide and the mortality and morbidity remain persistently high.[4] previously rheumatic heart disease and poor dentition are recognized risk factors for IE, the natural history of IE has been changed dramatically over the past decades as the IE is more frequently associated with invasive medical procedures and old age[5], There has also been an increase in nosocomial IE associated with vascular instrumentation, related to central venous lines and haemodialysis, often with no associated valvular disease.[6] Systemic embolism represents one of the most of serious complications of IE and has been reported in 13% to 49% among patients with IE. most commonly affecting the central nervous system, spleen, Kidneys, liver, and mesenteric arteries.[7] Acute myocardial infarction as a result of septic coronary embolism caused by IE is relatively rare, however it is deadly condition. [8] The causative organisms have also changed, the number of cases of IE secondary to oral streptococci have decreased in western countries.[9] Whilst Streptococcus and Staphylococcus together account for 80% of cases of endocarditis, Staphylococcus is now the most commonly isolated organism in IE.[9] The overall in hospital mortality for IE remains very high, ranging from 15-22% and reaches 50% in those patients acquiring endocarditis as a result of iatrogenic nosocomial infection.[9],This case illustrates the high morbidity associated with staphylococcal IE and that we need to have a high level of suspicion for IE in all patients irrespective of age presenting with sepsis of unknown cause. These patients are challenging to manage and require input from a multidisciplinary team (MDT) including cardiologists, cardiac surgeons, microbiologists and radiologists. The recent guidelines from the European Society of Cardiology[10] emphasise the importance of the MDT team in the management of IE patients.

Biography

Abdalazeem Ibrahem has done his Graduation from Kassala University, Sudan in 2009. He also did his Co-medical training in UK 2015, MRCP UK Diploma 2015. Currently he is working as Cardiology Registrar in Ysbyty Gyneed Hospital ,Bangor ,UK/

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