Psychosis due to non-bacterial thrombotic endocarditis

H. Clough1, J. George1, A. Duncan2

1Department of Medicine for the Elderly, Cumberland Infirmary, Carlisle, CA2 7HY, UK
2Cumbria Partnership Trust, Carleton Clinic, Carlisle, CA1 3SX, UK

Address correspondence to: J. George. Email: jim.george@ncumbria-acute.nhs.uk

Abstract

Non-bacterial thrombotic endocarditis or marantic endocarditis is an uncommon and frequently terminal condition. We report non-bacterial thrombotic endocarditis presenting as a psychotic illness. The underlying cause was found to be adenocarcinoma of the lung. The patient was nursed on a specialist joint medical/psychiatric unit. Many medical illnesses can present with psychosis in older people: this is the first case report of this presentation in non-bacterial thrombotic endocarditis.

Keywords: non-bacterial thrombotic endocarditis, marantic endocarditis, psychosis, elderly

A 65-year-old lady was admitted as an emergency to a district general hospital with a 1-month history of increasingly paranoid behaviour. She had become increasingly agitated and convinced that her son was being persecuted and tortured. She had had a lobectomy for adenocarcinoma of the lung the previous year. There was no relevant family history or drug history.

Physical examination and investigations, including chest X-ray, head CT scan and chest CT scan, were unremarkable. She was well orientated, alert with normal attention span and her Mini Mental State Examination score was 26/30. Temperature was 37°C, pulse 90, sinus rhythm, blood pressure 140/70 mmHg, respiratory rate 24 and oxygen saturation 98%. ECG showed normal sinus rhythm. Her mental state deteriorated, becoming euphoric and more paranoid and she was referred to the psychiatric team who admitted her under Section 2 of the Mental Health Act.

She was treated with quetiapine and sodium valproate as a mood stabiliser. She then developed a petechial rash on her legs. She was transferred to a joint psychiatric/medical ward for further investigations and was found to have a systolic murmur over the aortic area and thrombocytopenia (platelet count $100 \times 10^9$ l$^{-1}$ normal 140–450). There were no features of disseminated intravascular coagulation in the blood film, and fibrinogen levels were normal. Urinalysis showed a trace of blood and protein. The sodium valproate was withdrawn as her low platelet count was thought to be possibly drug-related. Six sets of blood cultures were negative, as was an autoantibody screen, including anti-DNA and antiphospholipid antibody. A transthoracic echocardiogram showed thickening of the aortic valve and a possible vegetation. She was treated with intravenous antibiotics for possible endocarditis.

Unfortunately, she became increasingly paranoid, convinced that her husband was an imposter and that medical staff were plotting against her and were holding her son hostage. Her mental state continued to deteriorate and her platelet count dropped to $42 \times 10^9$ l$^{-1}$. She then suddenly developed a left haemianopia and dense left hemiparesis. Her paranoid delusions completely resolved, but her general physical condition deteriorated and she died.

Post mortem revealed multiple infarcts in the spleen, lungs, brain and kidney with multiple small vegetations on the aortic valve comprised primarily of fibrin and platelets. In addition, there was metastatic involvement of multiple mediastinal lymph nodes with adenocarcinoma.

Discussion

Psychosis in older people may be classified into three main types: (i) affective psychosis (psychotic depression and mania); (ii) functional psychoses (schizophrenia); (iii) organic psychosis (dementia and delirium) [1]. This patient initially had a normal CT head scan and normal investigations, the initial diagnosis being an affective psychosis leading to psychiatric admission. However, subsequent progress with
visual hallucinations and a petechial rash suggested a medical (organic) cause for the psychosis.

Initially, it was thought that the rash and low platelet count could be drug-related. The possibility of endocarditis was also considered in view of the systolic heart murmur and echocardiogram findings. Multiple blood cultures were negative and the subsequent rapid deterioration, despite antibiotics, raised the possibility of marantic or non-bacterial thrombotic endocarditis due to her previous adenocarcinoma of the lung. Post mortem confirmed this diagnosis with multiple cerebral, splenic and renal infarcts and heart valve vegetations consisting of fibrin and platelets.

Non-bacterial thrombotic endocarditis (NBTE), or marantic endocarditis, is a rare condition associated with cancer, especially adenocarcinoma and with other illnesses where there is increased thrombotic tendency, e.g. post-pregnancy and severe septicaemia [2]. The main differential diagnosis of NBTE is infective endocarditis. Distinguishing clinical features of NBTE are very small multiple valvular vegetations which may be only visible on transoesophageal echocardiography and multiple small, medium and large disseminated emboli in patients with an underlying cause for NBTE [2]. Multiple negative blood cultures may also be a result of previous antibiotic therapy, or also due to infections due to fastidious organisms, including fungi and the HACEK group. In this case, rarer possible infective organisms were not totally excluded. Polymerase chain reaction techniques on valve tissue would have been helpful to further exclude infective endocarditis [2]. The most common clinical presentation is one of multiple thromboembolic events in a patient with cancer. Treatment with heparin may be effective unless contraindicated by thrombocytopaenia [3]. Although it is well recognised that infective endocarditis may present with psychosis [4], we can find no reports of this presentation in non-bacterial thrombotic (marantic) endocarditis.

Key points

- Non-bacterial thrombotic endocarditis should be suspected in older patients with a background of cancer who present with multiple thromboembolic events.
- Medical causes need to be considered in psychotic illnesses in older people, and joint management between psychiatrists and physicians may be required.

References


Received 27 July 2009; accepted in revised form 25 November 2009