

INTRACARDIAC TUMOR: A RISK FACTOR FOR STROKE IN THE YOUNG - a CASE REPORT

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ABSTRACT

Background: Stroke occurs commonly in individuals above 65years, especially in the background of atherosclerosis and other risk factors. In young persons below 45 years it is a rare disorder with devastating sequelae on the affected individual.

Objective: Presently there are few reports on the aetiology/risk factors for stroke in young adults in Nigeria. This is due to limited facility for thorough investigation; therefore management of such cases poses a diagnostic challenge. In this report we present a case of embolic stroke in a male undergraduate that began with two brief episodes of transient left sided weakness before a completed stroke four hours later. 2-D echocardiography showed that the likely source of emboli to be a non-pedunculated left atria tumour attached to the root of posterior mitral valve leaflet.

Conclusion: Intracardiac mass should be considered a possible risk factor for ischemic stroke in young adult, especially in the absence of other risk factors such as connective tissue disorders, HIV/AIDS, hemoglobinopathy or use of recreational drugs. High index of suspicion is required in order not to overlook such source of emboli. Early diagnosis offers the best panacea for a definitive therapy and prevention of stroke recurrence with its devastating sequelae.

Key word: Intracardiac tumour, risk factor, stroke

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BACKGROUND

Stroke is a major cause of morbidity and mortality in both the industrially developed and developing countries. It is most common in the elderly above 65years of age^{1,2}. The occurrence of stroke in persons less than 45 years is a rare phenomenon and it is termed 'stroke in the young'. Some publications seem to suggest that young adults fare better than the elderly after a stroke and have better chance of survival^{2,3,4}. Compared to normal age and sex matched population, young individuals with stroke have a high mortality^{3,4}.

The aetiology of stroke in young adults often differs from that in the older patients^{5,6,7}. Cardiogenic embolism from several causes along with small vessel diseases are the often reported common aetiology in young adults, while non embolic stroke resulting from atherosclerosis of large vessel resulting from systemic hypertension and diabetes mellitus are much more common in the elderly^{7,8}. Until recently, few reports exist on this important topic due to limited investigatory procedures. In the

recent times there appears to be increasing incidence of stroke in this age group which is likely due to improvement in investigatory modalities and treatment options. This has created increasing interest in this topic especially in the developed countries^{5,6,9,10,11}.

In this report we present a teenager with ischemic stroke who had a non-pedunculated intracardiac lesion attached to atrial surface of the posterior mitral valve leaflet. Due to lack of facility, the definitive heart surgery could not be carryout and the histologic diagnosis of the tumour cannot be ascertained.

Objective: In Nigeria, few publications exist on this interesting subject^{12,13} which poses a diagnostic challenge due to limited facilities for thorough investigation. This article, hope to highlight intracardiac lesion (most likely left atria myxoma) as a possible risk factor for stroke in young patients in our environment. Since high index of suspicion is the key to the diagnosis, attending clinicians therefore need to have a high of suspicion in cases with such presentation.

CASE REPORT

A 19-year old male undergraduate student presented

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with 5 hours history of 2 repeated transient left sided hemiparesis involving the upper and lower limbs with slurred speech which occurred while reading. Each of the two episodes resolved completely within 5- 10 minutes of their occurrence. Four hours after the second experience, he had a third episode of left sided weakness worse on the upper limb than lower, associated with left facioparesis and slurred speech. The third episode did not resolve and so was rushed to the casualty unit of our hospital. He had no preceding history of fever, headache, vomiting, weight loss or impaired consciousness. There was no antecedent history of trauma to either the head or neck and he was not a known sickler. The previous medical history was unrevealing and had never smoked or taken alcohol in the past and had never used recreational drugs like cocaine. At presentation he was anxious, not pale, anicteric, afebrile and well hydrated. The Glasgow coma score was 15, and had upper motor neurone left facial nerve palsy with slurred speech. Muscle powers in the left limbs were; 0 in upper and 2 in lower, however full strength in the right limbs. The deep tendon reflex on the left side was significantly depressed and had no sign to suggest cerebellar impairment. The pulse rate was 84 beats per minute with normal arterial wall thickness and the systemic blood pressure reading was 120/80 mmHg. Heart sounds one and two with diastolic murmur were heard. The electrocardiography revealed normal sinus rhythm with ST segment elevation in the anterolateral leads. The VDRL test was non reactive and the HIV screening test was negative. Haemogram concentration was 11.7gm/dl, total white blood cell count 5,800/mm³, with differentials of (Neutrophil=62%, Lymphocyte=33%, Monocytes=2%, Eosinophil=2%, Basophil=1%), Platelets=81,000/mm³, Fasting serum glucose was 5.3 Mmol/l, and ESR=15mm/Hr (Westergreen) and prothrombin time 12 seconds with a control of 11seconds and haemoglobin genotype was AA. The brain computerised tomography scan showed a right putaminal infarct with surrounding oedema and pressure effect. The echocardiography demonstrated a non pedunculated left atrium mass that was attached to the root of the posterior mitral valve leaflet with associated abnormal mitral valve inflow but no regurgitation. The cardiac chamber dimensions were normal with no evidence of pericardial effusion. The left ventricular function was within reference value with normal valvular morphology. The diagnosis of cardiogenic embolic stroke possibly due to a left atrial myxoma to exclude a fibroelastoma was entertained. Patient was decompressed with 200gm mannitol every hourly

For 24hour with enoxaparin (clexane) 40 mg daily, and given intravenous normal saline infusion for 5days. After a week, the enoxaparin was changed to 2.5 mg daily dose of warfarin on which he was maintained. The need for definitive cardiac surgery outside our centre was discussed with patients and relatives but due to financial constraints this could not be carried out. After 18days of management and with appreciable clinical improvement evident by muscle power 2 in the upper limb and 3 in the lower limb he was discharge home on warfarin. At clinic review one year after the last ictus the limb muscle powers had improved to 3 in left upper limb and 4 in the lower limb and had resumed back to normal campus life. The patient had not experienced any repeat episode of either transient ischemic attack or stroke.

DISCUSSION

Cardiogenic embolism is increasingly being recognized as an important cause of strokes and is probably a result of improvement in investigatory modalities for cardiac lesions. The specific underlying cardiac disease determines the pathophysiology and the natural history of each cardiogenic embolus¹⁴. Cardiac abnormalities such as atrial fibrillation and acute myocardial abnormalities may induce emboli by stasis, while those resulting from valvular lesion and endocardial abnormalities results in attachment of materials (e.g. platelets, bacteria) to the free border of the valves. Intracardiac tumours are often found during evaluation for embolic events of unclear aetiology, but sometimes are recognized in totally asymptomatic patients or at autopsies. In the highlighted case a non-pedunculated intracardiac mass was identified by echocardiogram as the predisposing risk factor for stroke in the teenager. Other non-cardiogenic causes like vasculitis, antiphospholipid antibody syndrome were considered, but absence of systemic symptoms like fever, anorexia, and normal erythrocyte sedimentation rate, and the unreactive VDRL test makes these causes unlikely. The patient was also negative for the HIV screening test.

The intracardiac mass most probably served as a nidus for thrombus formation which subsequently was dislodged and embolized to the right middle cerebral artery, resulting in ischemic infarction.

Distribution of cardiogenic emboli to any part of the body depends on the amount of cardiac out-put pumped to the organ. In majority of cases more than 80% of these emboli involves the brain, especially to the anterior circulation in about 80% of cases^{6,14,15}. The patient illustrated had no clinical evidence suggestive of embolic showers to any other organ

system of the body. The clinical picture and the brain scan showed occlusion with ischemic infarct in the territory of the right middle cerebral artery of the anterior circulation.

Generally it has been shown that of all stroke types, cardioembolic forms often have a worse prognosis due to their multiple nature and involvement of a large area resulting in disabling neurological deficit^{9,10}. Reported predictors of negative stroke outcome in young adults include male gender, age over 35 years, the presence of cardiovascular risk factors and large-artery atherosclerosis in the carotid territory^{5,6,9}. Only one of these risks (male gender) occurred in the illustrated case. It was therefore not surprising that he made appreciable neurological improvement in activity of daily living within 3 weeks. A year after the stroke incidence, he only had subtle left facioparesis with fluent speech while muscle power on left upper and lower limbs were 3 and 4 respectively using the British Medical Research grading. Histologic diagnosis of this intracardiac tumour had been impossible.

The 2 differentials entertained in the course of patient's management were atrial myxoma and fibroelastoma. Atrial myxoma is most likely being the most commonly reported intracardiac tumour in all ages, especially if situated in the left atrium. It accounts for between 33-58% of intracardiac tumours^{16,17,18}. The diagnosis of atrial myxoma depends on suspicion along with clinically picture and echocardiographic evidence of echo masses behind mitral valve during diastole. Our patient though had no systemic symptoms (such as weight loss, fever, anorexia and finger clubbing or even raised ESR) which are common, but are not invariable accompaniment of myxoma. Left atrial myxoma cannot be completely refuted in this case^{17,18}. Other possible but less frequently encountered differentials of intracardiac tumour are papillary elastofibromas, hemangiomas, lipomas, rhabdomyomas and fibromas¹⁸. Papillary elastofibroma is commonly attach to the cardiac valves or endocardium¹⁸. A recent report on cardiogenic cause of stroke in a young Italian woman documented elastofibroma of the left atrium¹⁹. Due to lack of facility for open heart surgery in our centre and financial constraints to travel abroad, the definitive surgical excision of the tumour is yet to be done and patient had been on oral warfarin. This report highlight the need to have a high index of suspicion and to thoroughly evaluate cases of stroke in individuals below age 45, especially in the absence of cardiovascular risk factors such as diabetes mellitus, hypertension or hyperlipidemia.

REFERENCE

1. **Kappelle IJ, Adas HP Jr, Heffner ML, Torner JC, Gomez F, Biller J.** Prognosis of young adults with ischemic stroke. Long term follow-up study assessing recurrent vascular events and functional outcome in the Iowa registry of stroke in young adults. *Stroke* 1994; 25:1360-5.
2. **Sangui E, M'baye PS, Dubecq C, Ba fall K, Niang A, Gning S. et al.** JM. Ischemic and hemorrhagic strokes in Dakar, Senegal. A hospital-based study. *Stroke* 2005;
3. **Varona JF, Bermejo F, Guerra JM, Molina JA.** Long-term prognosis of ischemic stroke in young adults. Study of 272 cases. *J Neurol* 2004; 25:1507-14.
4. **Neau JP, Ingrand P, Mauille-Brachet C, Rosier MP, Couderq C, Alvarez A.** Functional recovery and social outcome after cerebral infarction in young adults. *Cerebrovasc Dis* 1998; 8:296-02.
5. **Zeiler K, Siostrzonek P, Lang W, Gossinger H, Oder W, Cicivasvilli H. et al.** Different risk factor profile in young and elderly stroke patients with special references to cardiac disorders. *J Clin Epidemiol* 1992; 45:1383-9.
6. **Nedeltchev K, der Maur TA, Georgiadis D, Arnold M, Caso V, Mattle HP et al.** Ischemic stroke in young adults: predictors of outcome and recurrence. *JNNP* 2005; 72:191-5.
7. **Ogunniyi A, Talabi O.** Cerebrovascular complications of hypertension. *Niger J Med* 2001; 10:154-61.
8. **Osuntokun BO, Adeloye RBA.** Cerebrovascular accidents in Nigerian: a study of 348 patients. *WAJM* 1969; 160-172.
9. **Marini C, Totaro R, De Santis F, Ciancarelli I, Baldassarre M, Carolei A.** Stroke in young adults in the community based L'Aquila registry: incidence and prognosis. *Stroke* 2001; 32:52-6.
10. **Nencini P, Inzitari D, Baruffi MC, Fratiglioni L, Gagliardi R, Benvenuti L. et al.** Incidence of stroke in young adults in Florence, Italy. *Stroke* 1988; 19:977-81.

- 11 **Naess H, Nyland HI, Thomassen L, Aarseth J, Nyland G, Myhr KM.** Incidence and short term outcome of cerebral irction in young adults in western Norway. *Stroke* 2002; 33:2105-8.
- 12 **Nwosu CM, Nwabueze AC, Ikeh VO.** Stroke at the prime of life: a study of Nigerian Africans between the ages of 16 and 45 years. *East Afr Med J* 1992; 69:384-90.
- 13 **Aghaji MA, Nwezi C.** Stroke syndrome in the young due to obliterative arteritis of extracranial carotid arteries. *Clinical pathological profiles. J Neurosurg Sci* 1989; 33:333-7.
- 14 **Hart RG , Palacio S.** Cardioembolic stroke, 2005. www.emedicine
15. **Kristensen B, Malm J, Carlberg B, Stegmayr B, Backman C, Fagerlund M. et al.** Epidemiology and aetiology of ischemic stroke in young adults aged 18 to 44years in northern Sweden. *Stroke* 1997;28;1702-9.
- 16 **Branch CL Jr, Laster DW, Kelly DL Jr.** Left atrial myxoma with cerebral emboli. *Neurosurgery* 1985;16:675-80.
- 17 **Yeh HH, Yang CC, Tung WF, Wang HF, Tung JN.** Young stroke, cardiac myxoma, and multiple emboli: a case report and literature review. *Acta Neurol Taiwan* 2006;15:201-5.
18. **Colucci WS and Price DT.** Cardiac tumour, cardiac manifestation of systemic diseases, and traumatic cardiac injury. In Braunwald, Fauci, Kasper, Hauser, Longo, Jameson eds. *Harrison's principles of internal medicine.* 16th Ed Mc Graw Hill 2005.
19. **Locci G , Pili A.** Ischemic stroke in a young woman with aortic papillary fibroelastoma: echocardiographic diagnosis and surgical excision. *Ital Heart J* 2005;6:357-60.