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Case Report

The Tipping Point: How Little Things Can Make a Big Difference

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Abstract

Stroke is a common neurological complication of cardiac arrhythmias and is associated with increased morbidity and mortality unless diagnosed and treated. Sometimes it becomes difficult to discover cardiac arrhythmias in absence of ECG and 2-D echo findings. Here, we are reporting a similar unique case of recurrent stroke who initially was labelled as a case of cryptogenic stroke later found out to have cardioembolic stroke.

Keywords: Stroke; Cardiac Arrhythmias; ECG

Introduction

Stroke is the leading cause of morbidity and mortality worldwide. Etiological workup of stroke is essential for current management, as well as prevention of recurrence. Cases whose etiology remains unidentified despite detailed, systematic modern investigations have been designated as "Cryptogenic Stroke" [1]. Sadly, this group accounts for 30 - 40% of all strokes in spite of all the advancements in diagnostic and imaging modalities available to the medical fraternity [2]. Among patients initially labeled as Cryptogenic, a large number later turn out to be cardio embolic stroke [3].

The case we are reporting here is unique, as it entails recurrent strokes-haemorrhagic, as well as ischemic. Initially labeled as cryptogenic stroke, she was later subjected to holter monitoring which revealed her having paroxysms of atrial fibrillation (AF). After this diagnosis the patient was treated with anticoagulants. She recovered, and, till current follow up, she has not had a recurrence.

Case Report

A 64 year old lady farmer presented with sudden onset weakness of left upper and lower limb since the last 2 days. She did not complain of headache, vomiting, seizures or loss of consciousness. Also, she had no history of visual disturbance, slurring of speech, difficulty in swallowing, or facial deviation. There was no history of palpitation, chest pain, shortness of breath, limb claudication, numbness or paresthesias. She had not had fever, arthritis, muscle pains, cough, weight loss or rashes. There was no history of risky sexual behavior and resultant exposure to STD; also no history suggestive of TB in her earlier days. She did not suffer from hypertension, diabetes, rheumatic or any other valvular heart disease. In the past, she had 1 episode of facial deviation 4 years back which recovered in a few hours. Hence she did not consult any doctor at that time nor not take any medication. No significant family history of similar illness was present.

General examination revealed her blood pressure to be 190/80 mm Hg. On neurological examination power of left upper limb was 3/5 and left lower limb was 4/5. She had mild sensory impairment of left half of body and face. Routine blood investigations including lipid profile were normal. Non contrast CT scan head showed a right thalamic bleed (Figure 1). She was managed conservatively, her blood pressure was controlled. She showed improvement and was discharged on antihypertensive medication.

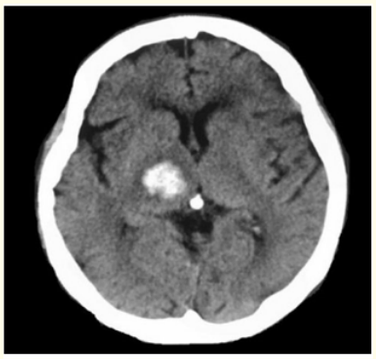

Figure 1

5 months later she again developed left hemiparesis and left sided UMN facial paresis. She also showed hemisensory loss over the whole left side of the body and face. She was on regular antihypertensives. Her routine hematological investigations and homocysteine levels were normal. Her autoimmune work up did not reveal any abnormalities. 2 D echocardiography was normal. MRI brain showed an acute infarct involving right thalamus which appeared hyperintense on T2W, DWI and FLAIR images and hypointense on T1W (Figure 2). CT angiogram of the brain and neck vessels was normal (Figure 3 and 4). She was put on dual antiplatelet therapy and neuroprotective drugs citicoline and piracetam. Her hemiparesis and facial paresis improved to some extent.

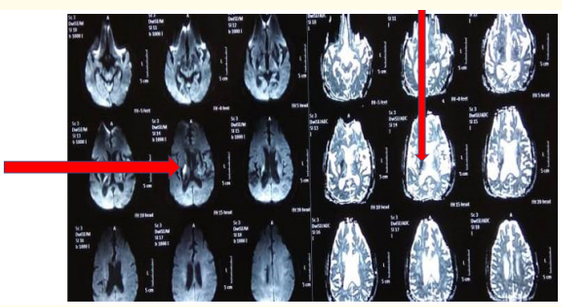

Figure 2

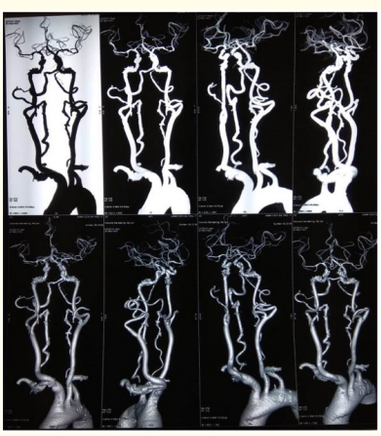

Figure 3

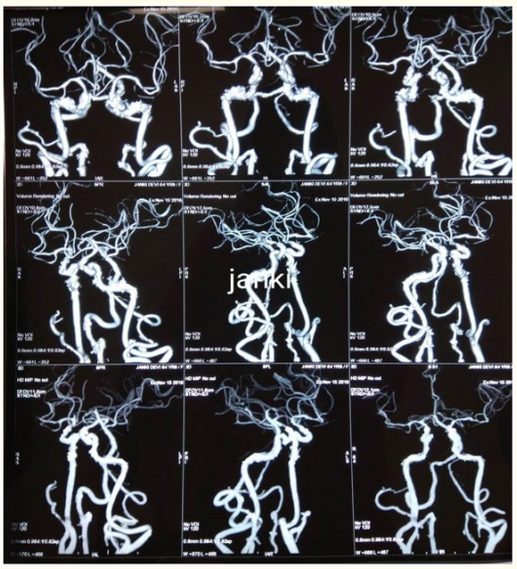

Figure 4

10 days later she was readmitted with acute onset left hemiplegia, left facial paresis of 5 days duration, and multiple episodes of vomiting. Her sensorium was altered for the last one day. She was taking her antiplatelet and antihypertensive drugs regularly. CT scan head showed acute right basal ganglia infarct. MRI brain showed acute infarct in right basal ganglia and right cerebral peduncles along with the old infarcts (Figure 5). Cardiology consultation was done, 2 D echo was done which showed hypertrophic cardiomyopathy. Holter monitoring was advised which showed short run of atrial fibrillation. She was started on rivoroxaban and aspirin was continued. She was followed up for 2 years and she never had recurrence of stroke.

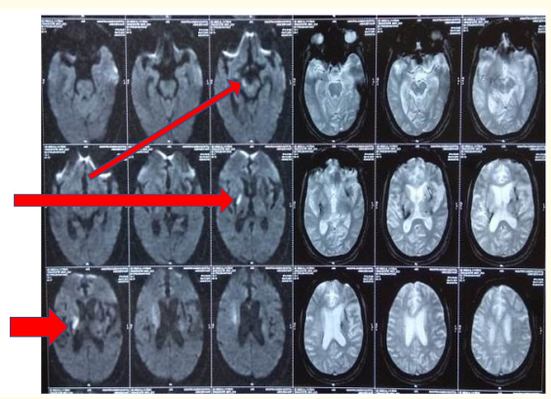

Figure 5

Discussion

Review of available literature reveals that approximately 25% of stroke survivors are likely to have another stroke event. Thus, it is of utmost importance that a thorough work up is undertaken to elicit the underlying etiology, so that a serious attempt can be made to minimize this future probability of recurrence [4]. A sche-

matic approach to the evaluation of cryptogenic stroke is outlined below (Figure 6). Strokes resulting from cardiac embolism generally have a poor prognosis. Atrial fibrillation is the most common cause of cardioembolic stroke. Valvular AF has higher embolic risk than nonvalvular AF. Risk of stroke from paroxysmal AF is the same as that from continuous AF. Lone AF boosts annual stroke risk from 0.5% to 12% [5]. Hence identification of occult atrial fibrillation is important. The usually done 12 lead ECG may not detect transient cardiac arrhythmias. Continuous cardiac monitoring is the better diagnostic option. Its use has the potential to prognosticate recurrence in all stroke patients. Approximately 4% to 8.4% of new onset paroxysmal AF neither suspected by detailed history nor diagnosed by routine ECG can be detected by telemetry or Holter monitoring [6,7]. Alejandro A Robinstein., *et al*. in "A study of paroxysmal AF in cryptogenic stroke - a case control study" observed that 25% of patients with cryptogenic stroke had paroxysmal AF [8]. To improve cost effectiveness of prolonged monitoring, patient selection is mandatory. (Table 1). In FIND - AF randomized study authors tried to establish that, for detection of atrial fibrillation, enhanced and prolonged rhythm monitoring was better in comparison to standard care procedures. They found out that enhanced and prolonged monitoring initiated early in patients with acute ischemic stroke aged 60 years or older was better than standard care for the detection of atrial fibrillation. These findings suggest that prolonged monitoring should be done for all patients aged 60 years or older with stroke because the detection of atrial fibrillation would result in a change in medical management (e.g. initiation of anticoagulation) [9].

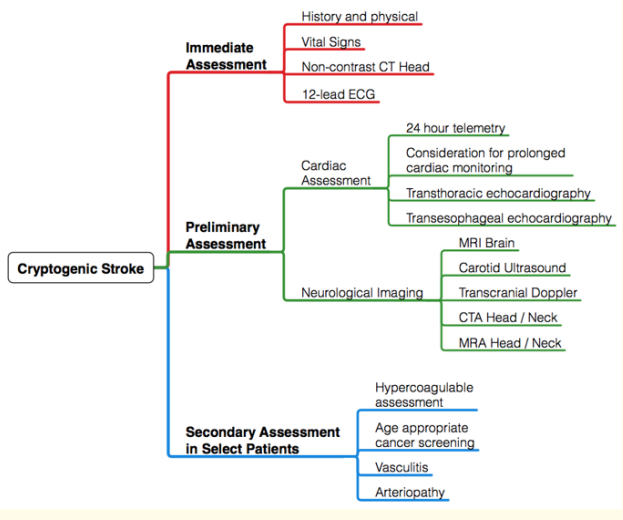

Figure 6

Test	Rate %	Duration
Initial ECG	4.8	
Serial ECG	5.5	72h
Holier	4.6	24h
Telemetry	4 - 8.4	48h
Event loop recorders or other ambulatory devices	5.7 14.3 23	24h 4 days 21 days

Conclusion

The evaluation of cryptogenic stroke requires consideration of wide differential and systemic evaluation of potential causes of stroke. Risk of recurrent cryptogenic stroke is very high. Also, paroxysmal AF is the often overlooked culprit in many patients of cryptogenic stroke. It is very important to delineate the cause of cryptogenic stroke for appropriate treatment and prevention of recurrence of stroke.

Disclosure

The authors have no financial conflict of interest.

Bibliography

1. Finsterer J. "Management of cryptogenic stroke". *Acta Neurologica Belgica* 110.2 (2010): 135-147.

2. Sundar K., *et al.* "Mystery of a cryptogenic stroke solved by an abdominal angiogram". *BMJ Case Report* (2015).

3. Sacco RL., *et al.* "Infarcts of undetermined cause: the NINCDS Stroke Data Bank". *Annals of Neurology* 25.4 (1989): 382-390.

4. Benjamin EJ., *et al.* "Heart disease and stroke statistics-2019 update: a report from the American Heart Association". *Circulation* 139 (2019): e56-e528.

5. Ustrell X and Pellisé A. "Cardiac workup of ischemic stroke". *Current Cardiology Reviews* 6.3 (2010): 175-183.

6. Bansil S and Karim H. "Detection of atrial fibrillation in patients with acute stroke". *The Journal of Stroke and Cerebrovascular Diseases* 13 (2004): 12-15.

7. Tagawa M., *et al.* "Evaluating patients with acute ischemic stroke with special reference to newly developed atrial fibrillation in cerebral embolism". *Pacing and Clinical Electrophysiology* 30 (2007): 1121-1128.

8. Rabinstein AA., *et al.* "Paroxysmal atrial fibrillation in cryptogenic stroke: a case-control study". *The Journal of Stroke and Cerebrovascular Diseases* 22.8 (2013): 1405-1411.

9. Wachter R., *et al.* "Holter-electrocardiogram-monitoring in patients with acute ischaemic stroke (Find-$AF_{RANDOMISED}$): an open-label randomised controlled trial". *Lancet Neurology* 16.4 (2017): 282-290.