

## ISCHAEMIC STROKE IN A 38-YEAR-YOUNG AS A PRESENTING FEATURE OF POLYCYTHAEMIA VERA: A CASE REPORT

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### ABSTRACT

Ischemic stroke is rare as a presenting feature of polycythaemia. Here, we report a case of polycythaemia whose presenting feature was ischaemic stroke. Recurrence of stroke may occur if polycythaemia is not treated in these patients. Therefore, identifying this cause of stroke timely may prevent recurrence.

### KEYWORDS

Stroke, Polycythaemia, Haematocrit.

### KEY MESSAGE

Routine haematocrit should be done in all patients of stroke to rule out polycythaemia as a cause of stroke.

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**INTRODUCTION:** Several types of haematologic disorders have been associated with ischaemic strokes.

The major precipitant of brain ischaemia is a haematologic disorder or coagulopathy that predisposes to thrombosis, in approximately 1% of all patients with ischaemic stroke, and in up to 4% of young adults with strokes.<sup>1</sup>

Polycythaemia vera is a primary myeloproliferative stem cell disorder. Thrombotic occlusion of larger cerebral arteries complicates polycythaemia vera in 10-20% patients. The incidence of stroke/TIA in phlebotomy treated patients with polycythaemia vera (mean age 60-65 years) is 4-5%/yr.<sup>1</sup> Although polycythaemia is one of the causes for cerebral infarction, only one reported case of isolated cerebellar infarction as a presenting feature of polycythaemia vera has been reported.<sup>2</sup>

Here, we report a case of ischaemic stroke in young (right cerebellar infarction), with polycythaemia vera, presenting as fragmentary lateral medullary syndrome.

**CASE REPORT:** A 38-year-old previously healthy man, non-hypertensive, non-diabetic, non-smoker, non-obese, presented with sudden onset vertigo with tendency to fall towards right side, associated with vomiting. He also experienced slurring of speech and dysphagia. Symptoms were nonprogressive.

There were no similar episodes in the past. He had no past history of headache, tinnitus, vertigo, visual disturbances, pruritus, epistaxis, or easy bruising. Family history was not contributory.

On examination, he was conscious, well oriented, with blood pressure of 130/90, with normal peripheral pulses, his oxygen saturation was 95%. Neurological examination revealed dysarthria with diminished gag reflex, with right-sided appendicular ataxia.

Examination of other system revealed no abnormality.

### INVESTIGATIONS:

Sl. No.	Investigation	Values
1.	Routine blood	Haemoglobin: 18.5 g%, PCV:51.5%, RBC:6.14*10 <sup>5</sup> , WBC: 12,000/mm <sup>3</sup> , ESR:17 mm 1st hour
2.	Random blood sugar	105 mg/dL
3.	Blood urea	42 mg/dL
4.	Serum creatinine	1.0 mg/dL
5.	Liver function test	Normal
6.	Thyroid function test	Normal
7.	Coagulation profile	Normal
8.	Homocysteine level	21.6 micmol/L (High)
9.	ANA	Negative
10.	Serum erythropoietin	3.6 MIu/mL (low)
11.	Chest X-ray	Normal
12.	Echocardiography	Normal
13.	MRI Brain	Right cerebellar infarcts in right superior cerebellar territory
14.	Carotid Doppler	Normal
15.	USG-Abdomen	Normal

Based on clinical presentation and supported with investigations, he was diagnosed as fragmentary lateral

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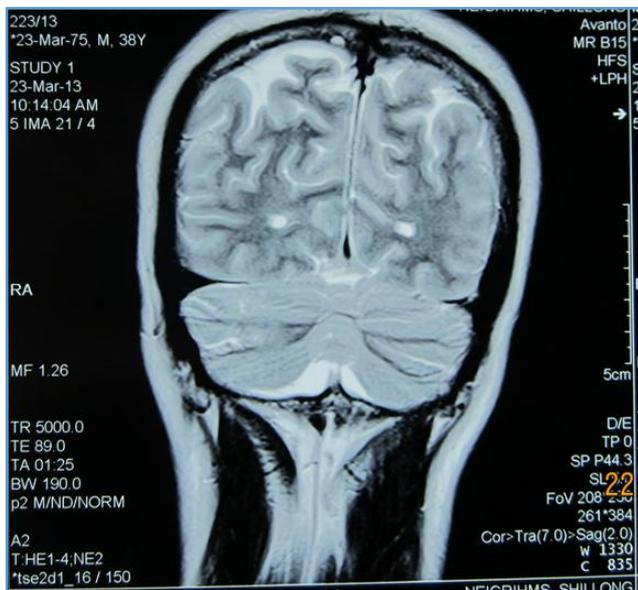
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medullary syndrome due to ischaemic stroke (Figure 1: MRI showing right cerebellar infarct), with polycythaemia vera. Stroke is a rare presenting feature of polycythaemia vera.



**Figure 1**

**DISCUSSION:** Many of the clinical complications of polycythaemia vera relate directly to the increase in blood viscosity and increased haematocrit.

In 1972, the Framingham study showed that a high level of haemoglobin might be a risk factor for cerebral infarction, and since then, several clinical and clinicopathological observations indicated that high haematocrit may be associated with cerebral ischaemia.<sup>3</sup> A high haematocrit may have a longterm atherogenic effect.<sup>4</sup>

The packed cell volume is the main determinant of blood viscosity, which may be increased five to seven times in polycythaemia. An inverse relationship between cerebral blood flow and packed cell volume has been shown in polycythaemia. Cerebral blood flow is significantly reduced in polycythaemia and predisposes to thrombus formation, it impairs the normal uptake of oxygen by tissues and impairs the microcirculation.<sup>5</sup>

**CONCLUSION:** We could not find any secondary cause of polycythaemia. He had no experience of the more common neurological symptoms of polycythaemia vera like headache, tinnitus, vertigo, visual disturbances. Stroke was the first manifestation of polycythaemia vera in the patient.

The thrombotic risk of polycythaemia vera is more pronounced in patients over 60 years old, and in those with a history of previous thrombosis.<sup>6</sup> Recurrence of stroke may occur in patients of polycythaemia vera.

Assessment of haematocrit should be routinely done in evaluation of stroke.<sup>7</sup>

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