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**Research Article**

# POLYCYTHAEMIA AS THE CAUSE OF ISCHAEMIC STROKE

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**A R T I C L E I N F O**

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**A B S T R A C T**

Patients with polycythaemia vera are at high risk for vasoocclusive disease including cerebral ischaemia. Although unusual acute ischaemic stroke may be the ist manifestation of polycythaemia vera. It has been thought that cerebral ischaemic events have been due to increased blood viscosity and platelet activation within CNS. However some due to microembolic events originating outside brain. Some may also present with bleeding from nose or other sites due to excessive platelet and defect in function of vwf.

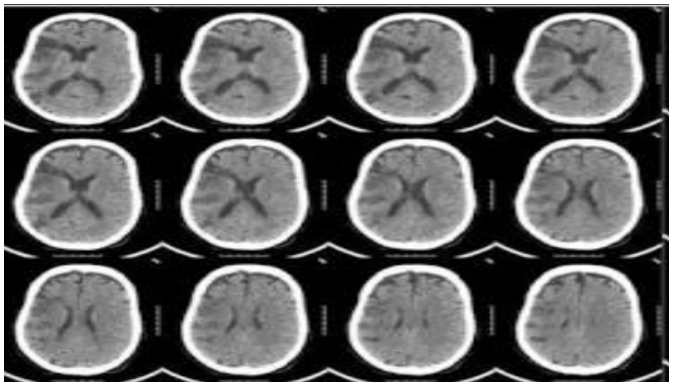


## INTRODUCTION

Polycythaemia vera uncommonly may present with stroke(1,2) and other thrombotic complications and rarely with bleeding episodes due to altered von willebrand factor function. Ischaemia in polycythaemia patients was due to increased blood viscosity. In our case patient presented with acute onset left sided weakness of body along with gangrene developing in right ring finger and index finger, which is quite an uncommon presentation of polycythaemia vera. Hemodilution has been considered in many studies as a management of stroke with conflicting results.(3)

### *Case Study*

45 year old male presented with complaints of left sided weakness developed 20 days back, and acute onset painful bluish discolouration of right ring finger and right index finger mainly involving distal phalanx for 1 day. He also complained of long standing headache on and off, throbbing in nature mainly in the bilateral occipital region along with redness of eyes during periods of headache. He did not complain of double vision, nausea, vomiting, joint pain, photosensitive rash, oral ulceration, raynaulds phenomenon, intermittent claudication, tightening of skin. He is non diabetic and nonhypertensive with no addiction to tobacco. No family history of any thrombotic events and no history of substance abuse.



**Ct Scan Showing Hypodense Area In Right Side Involving Internal Capsule ,Basal Ganglia And External Capsule**

**Fig showing gangrenous changes in the right index and ring finger of distal phalanyx**

His BP recorded on admission was 140/80 mmhg both arms, pulse –regular with no radio- radial delay, patient had bluish

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discolouration in the right ring and index finger. His GCS intact, mild deviation of angle of mouth to the right side Tone is mildly decreased in the left half of body.Power is 4/5 in all the joints in upper and lower limbs in left half .Deep tendon reflexes diminished in upper and lower limbs in left half. Sensory and motor examination normal in right half in right half of body. Per abdomen -showed mild splenomegaly. Other systems -No abnormality detected

Patient's hemoglobin(HB)was 15.6 g/dl, Total Red Blood Cells (TRBC)-7.01, Total Leucocytic count (TLC)-29000 ( n77l17), Platelet-6.48lac. General blood picture showed no abnormal cells.Haemocrit (HCT)-56%.Iron /TIBC- 24/385 and Ferritin was in lower side, Lipid profile was normal along with other routine test.2D Echo- Normal. USG (whole abdomen) showed mild splenomegaly. Colour Doppler right upper limb done along with b/lcarotids were normal .ANA –negative, APLA and other thrombophilic profile negative.PT/INR, APTT within normal limits. His Erythropoietin level was normal and then jak 2 study showed V617F mutation in exon14 of jak 2. Patient was hydrated properly, Ecosprin and hydoxy urea started and 3 unit phlebectomy done. His Hb kept below 12. Patient was then kept in follow up and routine HB estimation was done from time to time.

## DISCUSSION

Polycythaemia vera is a myeloproliferative disorder resulting in an elevated absolute red blood cell count because of uncontrolled red cell production. This is associated with increase in WBC and Platelets. Incidence of polycythaemia vera is rare occurring in .6-1.6 persons per million population. The peak incidence is seen in 50-70 yrs of age though persons of all ages can be affected (4).

The increased haematocrit causes increased blood viscosity, as the viscosity increases the cerebral blood flow decreases (5,6) leading to cerebro vascular accidents. In this case patient had background history of headache and developed sudden onset weakness in his left half of body, followed by tingling and bluish discolouration in the right index and ring finger. TRBC, TLC and PLT were persistently elevated in blood. HB persistently in between 15-16 g/dl in the background of iron deficiency anemia. He was evaluated for myelo proliferative disorder. His erythropoietin levels were normal and JAK 2 study showed V617F mutation. The cause was attributed to increased blood viscosity which caused stroke and finger gangrenous changes, other thrombotic profiles being negative.

## CONCLUSION

Although unusual acute embolic cerebral ischaemia may be an initial presentation of polycythaemia vera. All clinicians should be aware of the association of ischaemic stroke with polycythaemia vera.

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