

A Case of Stroke in a Toddler

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Abstract

A 2 year male child, case of stroke on right side with associated anemia and thrombocytosis has been presented and discussed. Stroke is one of the rare neurological manifestation in children with multiple aetiological factors. Child was investigated to rule out various etiological conditions and was treated supportively for anemia to which he responded uneventfully.

Key Words : Stroke, Iron deficiency anemia, Thrombocytosis.

Introduction

Stroke is defined as sudden onset of focal neurological deficit due to occlusion of blood supply or hemorrhage in brain causing symptoms & signs lasting greater than 24 hrs. Hemiplegia secondary to arterial and vascular disorders in children occurs with an incidence of 2-3/lakh per year. The paediatric causes of stroke are quite distinctive as compared to adult causes. Types of stroke include arterial and venous thrombosis, intracranial hemorrhage, arterial embolism and various miscellaneous conditions.

Case Report:-

A 2 year old male child was admitted with history of sudden onset of unilateral weakness with decreased movement of right upper & lower limb for one day duration. There was deviation of mouth towards left side, loss of speech and gait disturbance in the form of dragging on right side. On sitting, he was bottom- shuffling.

On examination: The patient was conscious but there was global aphasia with upper motor neuron facial nerve palsy on right side. Tone, power and deep reflexes were absent on right side & nutrition of muscles were equal on both sides. Superficial reflexes were absent on right side, except positive babinski on right side & fundus was normal. Right sided hemiplegia with right upper motor neuron facial paralysis was the provisional diagnosis.

His investigations revealed 5.8 gm of hemoglobin, peripheral blood smear suggestive of iron deficiency

anemia & platelet count was 4.8 lakh/cmm initially which subsequently went up to 10 lakh/cmm. Sickling test was negative.

Tuberculosis was excluded by negative mantoux, negative gastric lavage for acid fast bacilli and X-ray chest was within the normal limits. Cerebrospinal fluid examination showed normal values. Renal & liver function tests were normal. Computed tomography scan (CT) brain (plain/contrast) revealed an acute non-hemorrhagic infarct in left fronto-parietal region (CT was brought by patient on admission, Fig 1). Magnetic Resonance Imaging Study (MRI) Brain/Angiography showed an area of altered heterogeneity involving left temporo-parietal region in basal ganglia of left paraventricular white matter, suggestive of recent infarct. There was absence of flow in the left middle cerebral artery suggestive of total occlusion at its origin (Fig 2).

Management and Follow up

The patient was started on *aspirin* and tablet *clopidogrel* since the platelet count was going up to 10 lac/cmm. Child was dewormed with albendazole and haematinics in the form of iron therapy were started orally. The response to treatment was uneventful. Hemoglobin started improving within 10-14 days and the platelet count came down. After the period of initial neuronal shock, tone & power improved on the right side with the deep reflexes returning to normal. By 25th day, child was able to stand up, bearing weight on both lower limbs equally, gait was with slight circumduction on right and right upper limb was flexed & internally rotated.

At the end of one month, tone, power and deep

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reflexes on right side were normal and the gait also improved. Anemia was corrected within one month and platelet count came down to 4.5 lakh/cmm. Child was discharged after 35 days stay in hospital. Regular monthly follow up for any recurrence is being done on OPD basis.

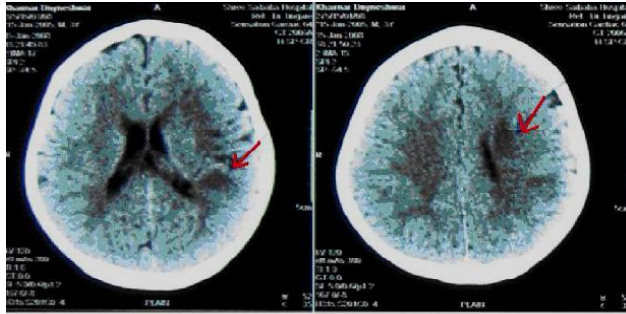


Figure 1: Showing CT scan of brain

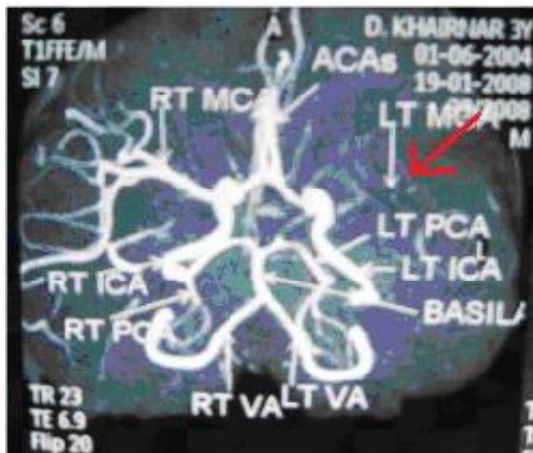


Figure 2: Showing MRI Angiography

Discussion

In general the main causes for stroke in children may be grouped as congenital cardiac diseases, haematological abnormalities, or infection like meningitis (viral, bacterial, tubercular), drug induced inflammation, autoimmune diseases, metabolic diseases like homocystinuria, intracerebral vascular lesions, external causes like child abuse, oral trauma, placental embolism etc. Thus the causes of stroke syndrome in children are varied and the presentation is also not uniform.

As the patient was not showing any symptoms or signs suggestive of any of these etiological conditions and

ancillary laboratory findings were suggestive of iron deficiency anemia with associated thrombocytosis, provisional diagnosis of acute stroke syndrome with right sided upper motor neuron facial paralysis, due to occlusion of left middle cerebral artery at its origin was made. Thrombocytosis is common in infancy and childhood. Extreme thrombocytosis (Platelet > 10,000/uL) is uncommon occurring in <2% of children. Thrombocytosis may be essential, primary or reactive in nature. Reactive thrombocytosis in children results from acute infections (especially lower respiratory tract infection & urinary tract infection) iron deficiency or hemolytic anemia's, cases like inflammation or malignancy or after splenectomy. It is more common in neonates, particularly prematures.

In iron deficiency anemia, thrombocytosis is possibly caused by increased erythropoietin which is known to have same structural homology with thrombopoetin. In cases like renal failure, the anemia not associated with thrombocytosis as there is decreased production of erythropoietin. Essential thrombocytosis is a disorder of exclusion & is extremely rare in children. Here the platelet function is typically abnormal and the child presents with hemorrhagic or thromboembolic phenomenon. Primary familial thrombocytosis is an X linked form where overproduction of thrombopoetin is shown to be responsible for the disease.

Conclusion

In general, about 2-3 cases of stroke syndrome per month including congenital and acquired hemiplegias are being treated in this hospital. Acquired hemiplegias due to tuberculous meningitis with cerebral vasculitis leading to infarcts play an important part as the etiological factor, locally. Hemiplegia secondary to arterial and vascular disorders in children occurs with an incidence of 2-3/lakh per year. Causes of stroke are quiet distinctive as compared to adult causes. This probably is the reason for the high prevalence of stroke in children in our series.

References

1. Sutor AH. Thrombocytosis in childhood. *Semin Thromb Hemost* 1995; 21:330-339.
2. Yohannan MD, Higgy KE, al-Mashhadani SA,

- Santhosh-Kumar CR. Thrombocytosis. Etiologic analysis of 663 patients. *Clin Pediatr* 1994; 33:340-343.
3. Denton A, Davis P. Extreme Thrombocytosis in admission to pediatric intensive care: no requirement for treatment. *Arch Dis Child* 2007; 92:515-516.
 4. Dame C, Suotr AH. Primary and secondary thrombocytosis in childhood. *Br J Haematol* 2005; 129: 165-177.
 5. Heng JT, Tan AM. Thrombocytosis in childhood. *Singapor Med J* 1998; 39: 485-487.
 6. Vora AJ, Lilleyman JS. Secondary Thrombocytosis. *Arch Dis Child* 1993; 68: 88-90.
 7. Wolach B, Morag H, Drucker M, Sadan N. Thrombocytosis after pneumonia with empyema and other bacterial infections in children. *Pediatr Infect Dis J* 1990; 9: 718-721.
 8. Vlach V, Feketea G. Thrombocytosis in pediatric patients is associated with severe lower respiratory tract inflammation. *Arch Med Res* 2006; 37: 755-759.
 9. Othman N, Isaacs D, Kesson A. Mycoplasma pneumonia in Australian children. *J Pediatr Child Health* 2005; 41: 671-676.



Medical Quotes BY Martin H. Fischer

- The only equipment lack in the modern hospital? Somebody to meet you at the entrance with a handshake!
- Diagnosis is not the end, but the beginning of practice.
- The patient does not care about your science; what he wants to know is, can you cure him?
- Only one rule in medical ethics need concern you - that action on your part which best conserves the interests of your patient.
- When you no longer know what headache, heartache, or stomachache means without cistern punctures, electrocardiograms and six x-ray plates, you are slipping.
- Here's good advice for practice: go into partnership with nature; she does more than half the work and asks none of the fee.
- Physiology is the stepchild of medicine. That is why Cinderella often turns out the queen.
- On J-Day our profession will have a lot to answer for! We might at least have withheld our hands instead of making them work against God.
- A sweating ovary or a sick prostate explains most history.
- The public blabbers about preventative medicine, but will neither appreciate nor pay for it. You get paid for what you cure.
- Nowadays the clinical history too often weighs more than the man.