

Ischemic Stroke following Chicken Pox in an Adult Woman

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ABSTRACT

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Ischemic stroke is a rare complication of chicken pox in adults. We hereby present a case of left MCA territory infarction in a young adult female, three weeks after chicken pox, with MR Angiogram showing narrowing of M1 segment of left MCA.

Keywords: Stroke, Chicken pox

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INTRODUCTION

Chicken pox is an exanthematous fever seen predominantly in children and is caused by varicella zoster virus. VZV Virus may remain latent in the ganglions and it's reactivation may cause herpes zoster. Though ischemic stroke following primary varicella infection is a recognised complication in children, it is rare and confined to a few case reports in adults. The most plausible mechanism described for the stroke is a vasculitis response to the virus invasion along the ophthalmic branch of trigeminal nerve.

CASE REPORT

25 years old previously healthy female had chicken pox which completely resolved within one week. She was under homeopathic treatment for the same. She presented to Govt. medical college Kozhikode three weeks after resolution of chicken pox complaining of sudden onset of weakness of right side of body. She was conscious and oriented at the time of admission. There were no features of raised intracranial tension. There was no fever or rash on admission. Physical examination showed dense right hemiplegia. Both fundii were normal, pupils were equal in size and reactive and the extraocular movements were in full range.

The CT scan of brain showed infarction in the posterior limb of internal capsule. MR Angiogram showed narrowing of M1 segment of left MCA. CSF analysis was normal. There was no dyslipidemia. HIV

(ELISA) test negative. Normal echocardiogram. There was no evidence of SLE or antiphospholipid antibody syndrome. Serum protein S was 30% of normal. Patient gradually improved on supportive measures. There was no recurrence of arterial or venous thrombosis even after one year follow up.

Table 1. Biochemical values

Hb	11 g/dL	S.creatinine	0.7 mg/dL
Total count	10200/ml	BU	17 mg/dl
DC	N 70, L 13, M 15	Na/K	126/3.9 meq/L
Platelet	2.46 L/ml	SGPT/SGOT	56/76 IU/L
ESR	135 mm 1hr	RBS	98 mg/dL

Table 2. Immunological and other studies

ANA	0.8 IU/L
IgG APLA	8 GPL
HIV	Negative
Quantiferon TB Gold	Negative
CXR	Normal
Free protein S	30% of normal
ECG	Normal
VDRL	Non reactive

Table 3. CSF Studies

	CSF
TC	75 cells
DC	P 15 L 85
Protein	15 mg%
Sugar	64%
VDRL	NR

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DISCUSSION

Chicken pox is a highly contagious viral exanthem predominantly seen in children. In the tropical climate, only 15 to 20 % of the cases are seen in adults.¹ Though lesser in Varicella incidence, complications are seen more frequently in adults. In children, stroke is a recognised neurological complication of varicella complicating 1/6500 cases.² Stroke following chicken pox in adults is very rare with only a few reported cases. Cerebral infarction may be seen as a complication of herpes zoster ophthalmicus.^{3,4} The underlying mechanism of stroke caused by varicella is not known. Multiple mechanisms have been suggested²⁻¹⁴

In our patient, MR Angiogram showed stenosis of a proximal vessel. Such lesions may be suggestive of granulomatous vasculitis due to the effect of immunological reaction to viral invasion along V1 of trigeminal nerve.^{3,8,15,16} The distribution of vascular lesion in our case matches the anatomic location of trigeminal nerve innervation at the circle of Willis. Pathological studies done by Linnemann et al have demonstrated viral particles in media but not in endothelium of vessels¹³ which also supports the route of spread being neural. Alternate mechanisms postulated include spread of virus via blood stream or CSF.

Transient sympathetic mediated large vessel spasm secondary to distant infection is another possible mechanism for stroke.⁷ It is unlikely in our case as the stroke occurred three weeks after the resolution of the skin lesions. A repeat MRA could not be taken due to financial constrains. It might have helped out in ruling out this possibility.

Local thrombosis due to direct virus mediated endothelial injury is a mechanism proposed by Eidelberg et al.³ It occurs during the course of active infection.

Low level of protein S is a recognized haematological feature in chicken pox which may lead to venous thrombosis.¹⁷ It's association with arterial thrombosis is weak and is significant only if protein S is less than 15% of normal.¹⁸ Protein S activity was 30% in our case.

CONCLUSION

Varicella should be included in the aetiology of stroke syndromes in children as the association between varicella and stroke is significant. In adults, these kinds of cases should lead to detailed evaluation for a better knowledge on the pathogenesis of both young stroke

syndromes as well as the virulence mechanisms of the virus. It also points to the importance of immunisation in adult population who are not exposed to natural infection in childhood.

END NOTE

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