

CASE REPORT

A case of sub acute measles encephalitis in an immunocompetent child

Vaishali Shinde¹

¹Regional Research Institute (H), Mumbai

A 6 year old boy, presented at Mother and Child Health clinic of Regional Research Institute (Homoeopathy), Mumbai, suffering from very rare neurological syndrome sub-acute measles encephalitis (SME) with early neurological sequel, treated with *Zincum metallicum* on the basis of totality of symptoms. The auxiliary measures, nursing & medical care was provided along with homoeopathic treatment. The effective response was observed without any post viral neurological deficits. The total duration of follow up of the case was two years and six months

Keywords: Homoeopathy; Sub-acute measles encephalitis; Zincum metallicum

INTRODUCTION

Measles is a self-limiting acute viral disease that will run its course without specific treatment. However, measles rarely leads to severe fatal complications like, measles pneumonia, acute measles encephalitis, sub acute measles encephalitis, sub acute sclerosing panencephalitis (SSPE), myocarditis, thrombocytopenic purpura¹⁻³ etc. It is a highly contagious disease and nearly 90% of people without immunity, sharing the living space with an infected person will suffer from it. The infection has an average incubation period of 14 days (range 6–19 days). Measles itself caused an estimated 164,000 deaths in 2008 globally.^{2,4} An average of 450 deaths per day, 300 of which occur in India.⁴

The central nervous system complications of measles are uncommon and presents in the form of three different entities i.e. acute measles encephalitis (AME) usually presenting within 1-2 weeks of the appearance of rash, subacute measles encephalitis (SME) or measles inclusion-body encephalitis (MIBE) developing within 1-6 months of rash & Subacute sclerosing panencephalitis (SSPE) which occurs after 6-8 years of initial infection.^{3, 5}

Short interval between exposure & onset of neurological complication and rapid course distinguish subacute measles encephalitis from subacute sclerosing

panencephalitis (SSPE).³ SME is unusual condition with changes in mental-status and seizures associated with altered conscious state and variable neurological deficits with overall mortality of 85% .⁵ Though SME commonly occurs as the opportunistic infection in the known immunodeficient persons but some cases are reported in immunocompetent subject's also^{5,6,7} and this is the very uncommon finding regarding this case. In all survivors of SME severe neurological sequel like seizures, progressive deterioration of cognitive and motor functions, cortical blindness⁸ etc. persist.

In conventional medicine, the treatment of measles and its complications are limited and the role of antibiotic prophylaxis and antiviral therapy is uncertain.⁹ The only specific research focus on case management during the last decade has been vitamin A therapy which is still unclear.⁸ Immunization against measles is one of the tool by which we can prevent the infection but the failure rate of the vaccination is quite high¹⁰⁻¹³, and it is not absolute that vaccination will prevent the disease.

There was no such preventive or curative treatment available for measles in medical history, except in Homoeopathy prior to discovery of the measles vaccine. There are number of recorded evidences present in homoeopathic literatures that during the outbreak of measles epidemics in 18th & 19th century's homoeopathic medicines worked more effectively than any other system of medicine and without further complications.¹³⁻¹⁷

CASE HISTORY

A boy aged 6 yrs, pre-diagnosed as a case of SME, at Hinduja Hospital Mumbai was brought by his

Address for Correspondence:

Dr. Vaishali Shinde

Regional Research Institute (H)

Hall no. - 4, Sector-9 Shopping centre,

CBD, Belapur, Navi Mumbai. PIN -400614.

E-mail: drvshsb@gmail.com

parents at the OPD of Regional Research Institute (H), Mumbai on 10th February 2010 with complaint of inability to speak; he was attempting to speak but unable to utter a single word. There was inability to swallow, with excessive drooling of saliva and inability to walk properly. The child had no fever, no cold and cough at the time of reporting except mild macular rash on abdomen. He had incontinence of urine and stool. He had blurred, foggy vision. Presently he had no convulsions but difficulty to sit and walk.

Past Treatment

History of fever and slight rash one month back, rash first appeared on legs spreading to the hands; treated with allopathic medicine (Tab. Roxid), at Nasik by local physician, where patient resides. The rash subsided within 2 days, but fever continued for few days then after one month he started headache, irritability and drowsiness. Then the child was admitted to local hospital, the CSF was tested. Anti Koch's therapy and other drugs were prescribed (Inj. Vancomycin, Ceftriaxone, and Acyclovir) on provisional basis but the patient's condition deteriorated and was transferred to Hinduja Hospital, Mumbai.

The patient was admitted to pediatrics' intensive care unit (PICU) for close observation, on 14th January 2010, subsequently the patient developed bradycardia, ptosis, and right facial paresis. MRI was done, suggestive of brain stem encephalitis. After few days the patient developed akinesia and dyskinesia. The patient was kept on Ryle's tube (RT) feed. After prolong stay of 25 days patient was discharged from hospital with most of the CNS complaints not treated successfully like inability to speak & swallow with excessive drooling of saliva. Inability to walk properly. He had blurred, foggy vision. He was kept on full Ryles tube (RT) feed with multivitamin & soya syrup.

Family History

Paternal uncle suffered from Koch's 3years ago.

One of the cousins in the family developed rash with fever just two weeks before the patient developed fever.

Personal History

- Birth history: Uneventful
- Developmental: Mile stones well achieved for the age

Physical Generals

- Appetite : Decreased
- Thirst : Normal
- Desire : Nonspecific
- Aversion : Nonspecific
- Stool : Involuntary 2-3 times in a day
- Urine : Involuntary urination
- Sleep : Restless, difficulty to get sound sleep

Mental generals

Dull, sluggish, difficulty in thinking, highly irritable, alternating moods, etc. Prior to illness, he was active, intelligent and performing well in studies.

General Physical Examination

- Weight : 21 kg.
- Pallor : +
- Head circumference : 49.5 cms.
- Pulse : 79/ min, weak.
- RR : 21/ min
- BP : 100/60 mm of Hg.
- Lymphadenopathy : Absent

Systemic Examination

Nervous System : Pupils: Dilated, Skull & Spine: Normal, Drowsy GCS score E4 M4 V2, Hypotonia in all 4 limbs, Power 3/5 in all limbs, Bicep & triceps jerk 1+, Knee/ankle jerks: absent, Planter reflex up going, Neck stiffness ++

G.I. System: P/A- Soft, No guarding rigidity.

Cardiovascular System: S₁S₂ normal, no added sound.

Respiratory system: On auscultation of lung found air entry decreased in right lower zone.

Locomotor system: Tenderness in left leg, unable to sit and walk without support, akinesia & dyskinesia

Genitourinary System: Involuntary urination

Gastrointestinal System: Involuntary stool.

Investigation

- CBC- Platelet count : 49400
- ESR : 18mm/hr
- Urine Routine + Microscopic :Nil
- RBS : 89 mg/dl
- Sr. electrolytes : Normal
- X-ray chest (PA view) : Normal
- X-ray pelvis with both hips (AP view) : Normal
- Rapid Malaria Test : Negative
- C - reactive protein : Negative
- CPK : Normal
- Alkaline phosphate : 176.0 U/l
- Weil felix : Negative
- Anion gap : 19.90 mEq/l
- TCO₂ : 14.40
- Blood culture : Aerobic, anaerobic no growth
- Colour Doppler left lower limb : Normal
- ASLO throat swab : Negative

- A.S.O. : Negative
- MRI brain: Suggestive of brain stem encephalitis with possible pathology involvement in the perivascular spaces along the tract.
- EEG : Abnormal EEG because of diffuse background slowing which confirms that this child has diffuse encephalopathy
- MRI Hip : Findings suggestive of infective etiology
- Anti basal ganglion antibody : Positive (0.26)
- CSF : WBC 3, protein 34, glucose 60, chloride 128
- CSF TB : PCR Negative
- CSF C/S : No growth
- CSF for HSV enteroviral Japanese B encephalitis : Negative
- CSF measles IgG : Positive 1.9
- Measles IgG : 5.5
- HIV antibody : Negative
- T-Cells Count : Absolute CD4 lymphocyte count - 741/cmm, Absolute CD8 lymphocyte count -744/cmm

Figure 1 : Repertorial chart

Remedy Name	Puls	Zinc	Phos	Bell	Sulph	Ars	Gels	Pb-ac	Chin	Rhus-I	Hyos	Stram	Apis
Totality	26	25	25	24	24	23	23	23	21	21	20	20	20
Symptom Covered	11	11	10	10	10	10	10	9	10	9	10	10	9
[C] [Mind]Dullness, sluggishness, difficulty of thir	3	3	3	3	3	1	3	3	2	2	3	2	2
[C] [Mind]Irritability:	3	3	3	3	3	3	2	3	2	3	2	2	3
[C] [Mind]Mood:Alternating:	2	3	2	3	2	1	1		2		1	2	
[C] [Vision]Foggy:	3	3	3	2	3	3	3	2	3	2	2	2	2
[C] [Extremities]Weakness:Lower limbs:	1	3	3	1	2	3	3	2	2	3	2	1	2
[C] [Generalities]Eruptions:Agg. suppressed:	2	3	1	2	3	3	2	3	1	2	1	3	3
[C] [Generalities]Pulse:Weak:	2	1	2	1	2	3	3	3	2	2	1	2	1
[C] [Respiration]Difficult:Measles, from suppresse	3	2											
[C] [Eye]Pupils:Dilated:	2	1	2	3	1	1	3	2	3	1	3	3	2
[C] [Rectum]Involuntary stool:	2	1	3	3	3	2	1	3	2	3	3	1	2
[C] [Bladder]Urination:Involuntary:	3	2	3	3	2	3	2	2	2	3	2	2	3

Prescription & follow-up

Zincum metallicum 1M, one dose was prescribed based on the history of presenting complaints, causation, sphere of action and repertorial work-out.

DISCUSSION & CONCLUSION

This patient does not have any other infection of central nervous system because investigation reveals the presence of measles antibody in CSF & serum of the patient.

Table: Details of follow-up and medicine prescribed

Date	Symptoms	Medicine prescribed
10-02-10	Inability to walk and sit. Mentally dull, sluggish, difficulty of thinking and act accordingly with alteration in mood. Can't see anything clearly with dilated pupils. Face pale with weakness in extremities more affected was lower one. Involuntary urination & stool. Pulse was very weak. Difficulty in respiration	<i>Zincum metallicum</i> 1 M one dose followed by placebo
15-02-10	Ryle's Tube was removed, the patient was able to swallow liquid orally and respiration was normal. Pulse - normal. Other complaint as it is.	Placebo continued
23-02-10	Speaking normally, able to stand & sit with support. Posture in standing was not erect. Stool & Urine normal. Normal vision. Response to queries was better.	<i>Zincum metallicum</i> 1M, one dose followed by placebo.
20-05-10	Over all condition better. No neurological sequelae observed after the treatment.	Placebo continued for one month
18-12-10	General condition better.	No medicine given.
20-08-11	General condition better.	No medicine given.
05-11-11	General condition better.	No medicine given.
29-09-12	General condition better, GSC score- E4 M6 V5. MRC score for muscle power 5/5.	No medicine given.

It is case of SME and not SSPE due to the rapid clinical onset. The EEG patterns of diffuse slow waves confirm the diagnosis of SME instead periodic complexes associated with myoclonus in SSPE.^{5,8} The significance of host versus viral factor in the pathogenesis of SME is still a topic of debate.⁷ There is reports of SME infection in Immunocompetent patients though it is said to be a opportunistic infection in immune compromised individuals.^{5, 6, 7}

In conventional medicine for viral diseases like measles, the prophylaxis (vaccination) is the only treatment option available. Once the infection develops there is no defined treatment, except some significant role of vitamin – A⁹ & supportive medical care.

Serious complications in measles like sub-acute measles encephalitis have a very high mortality rate^{5,18}, and if patient survives, most of them suffer from neurological sequelae like seizures, progressive deterioration of cognitive and motor functions, cortical blindness etc.⁸

Reportorization chart though reflecting *Pulsatilla* with highest score, *Zincum Metallicum* was given to the patient considering the sphere of action. For the final selection of the remedy materia medica when referred, justification for the selection of *Zincum metallicum* was

convinced. It is the greatest tonic we have to build up the nervous system and this being a cerebro-spinal remedy, affecting more especially the peripheral extremities of the motor and sentient nerves. *Zincum metallicum* is indicated in sequel following repercussed eruptive diseases, in the cerebral affections, in impending paralysis of brain, where the vis medicatrix nature is too weak to develop exanthemata.^{19, 20}

While treating this case all precautions were taken into consideration and patient was provided required auxiliary, medical & nursing care like feeding through Ryle's tube, oxygen saturation monitoring, physiotherapy, etc.

It's true that most people who get measles recover totally – most but definitely not all. Getting measles is always risky and can result in serious complications including SME which may lead to lifelong disability and death.²¹ This case with a follow up of one year & eight months illustrates that homeopathic medicine plays a significant role in treating post viral neurological complications without leaving any morbidity, which is very common in ordinary course of disease.²¹

ACKNOWLEDGEMENT

The author express her gratitude to Dr. S.K. Dey,

former Asstt. Director (H), Dr. K.C. Muraleedhran Asst. Director Incharge, and Dr. Ramesh Bawasker, Research Officer, RRI (H), Navi Mumbai, for their valuable suggestions.

REFERENCES

1. Manual for the Surveillance of Vaccine-Preventable Diseases (4th Edition, 2008), <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt07-measles.htm> accessed on dated 02-12-2010.
2. Measles data & Surveillance, <http://www.who.int/topics/measles/en> accessed on dated 02.12.10.
3. W. Michael Scheld, Richard J. Whitley, Christina M. Marra, Infections of the central nervous system, Lippincott Williams & Wilkins, 2004, page 111-122.
4. www.who.int/.../measles/REVISED_FINAL_Measles_AR_June_23_2009.pdf accessed on 13-04-12,
5. HT Chong et al, Subacute Measles Encephalitis: A case of long term survival with follow-up MR brain scan, *Neurology Asia*-2007;112:121-125
6. Croxson MC, Anderson NE, Vaughan AA, Hutchinson DO, Schroeder BA, Cluroe AD, Hyatt AD. Subacute measles encephalitis in an immunocompetent adult, *J Clin Neurosci*, 2002, Sep; 9(5):600-4
7. DW Chadwick , S Martin , PH Buxton, AH Tomlinson, Measles virus and subacute neurological disease: an unusual presentation of meseales
8. Mustafa MM, Weitman SD, Winick NJ, Bellini WJ, Timmons CF, et al. Subacute measles encephalitis in the young immunocompromised host: report of two cases diagnosed by polymerase chain reaction and treated with ribavirin and review of the literature. *Clin Infect Dis* 1993;16:654-60.
9. Hussey GD, Clements CJ, Clinical problems in measles case management. *Annals of tropical pediatrics*, 1996 Dec; 16(4):307-17.
10. www.who.int/mediacentre/factsheets/fs286/en/, accessed on 13-04-12.
11. Benjamin M. Nkowane, MD, et al. Measles Outbreak in a Vaccinated School Population: Epidemiology, Chains of Transmission and the Role of Vaccine Failures, *AJPH*, April 1987, 77, No. 4, Page 434-438.
12. R.A. kambarami, et al. Measles epidemic in Harare, Zimbabwe, despite high measles immunization coverage rates *Bulletin of the World Health Organization*, 69(2): 213-219 (1991).
13. T.M. Akande, *Nigerian Medical Practitioners*, Vol-52, No.-5-6, 2007, Page no.112-116.
14. Dr. Ozanne on Measles, *the British Journal of Homoeopathy*, Volume; 06, 1848, Page 181-189.
15. Comparative statistic of measles death, *the southern journal of Homoeopathy*, Volume -09, 1891, Page – 349.
16. Measles 42- cases, *Transaction's of the.....session of the American Institute of Homoeopathy*, Volume-20, 1854, Page – 43.
17. Kate Biru, *Vaccine free prevention & treatment of infectious, contagious diseases with Homoeopathy: A manual for Practitioners and consumers*, Trafford publications -2007, Page no.- 136-142
18. Bitnun A, Shannon P, Durward A. et al. Measles inclusion - body encephalitis caused by vaccine strain of measles virus. *Clin Inf Dis* 1999; 29:855-61.
19. *Pocket manual of Homoeopathic material Medica*, William Boericke, Ninth Edition B. Jain Publishers Pvt. Ltd.
20. *Characteristic Materia Medica* by William H. Burt, Gross & Delbridge, 188.
21. <http://www.cdc.gov/vaccines/vpd-vac/measles/downloads/dis-measles-color-office.pdf> accessed on dated 18.04.11.