

POST VACCINATION MYELITIS IN A YOUNG WOMAN FOLLOWING ADMINISTRATION OF RABIES CHICK EMBRYO CELL VACCINE – A CASE REPORT

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Abstract

A case of post-vaccination myelitis following administration of chick embryo cell rabies vaccine in a 20 year-old young lady is described. The case presented with paraplegia five days after receiving the third dose (on 12th day) of the vaccine for rabies. Myelitis was confirmed by signal changes on magnetic resonance imaging (MRI). She improved considerably on steroids treatment. This is the first case of myelitis following rabies chick embryo cell vaccination in Bangladesh.

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Introduction

There have been reports of neuroparalytic complications following nerve tissue anti-rabies vaccination.^{1,2} Also, a case of myelitis occurring after administration of rabies duck embryo vaccine has been reported.³ Here, a case of myelitis in a young Bangladeshi woman following rabies chick embryo cell vaccination is described.

Case presentation

A 20 year-old young lady was admitted in Mitford Hospital in March 2009 with 10 days history of urinary retention, inability to defecate, gradual weakness of the lower limbs and fever. On query, she mentioned that the gradual weakness of her lower limbs was not progressive. The symptoms had started 5 days after receiving the third dose of chick embryo cell culture rabies vaccine. The vaccine was administered after she was bitten by a domestic cat one month ago. Her past medical history was unremarkable. On examination, her temperature was 99°F and vital signs were stable. There was a bite mark on the lateral surface of her right forearm 2 cm from the lateral epicondyle. Neurological examination of the lower limbs revealed muscle power of 4/5, with increased reflexes and the planter reflexes were bilaterally extensor. Clonus was absent and her gait was normal. There was no sensory

impairment. All deep reflexes of the upper limbs were exaggerated. The remainder of her neurological and physical examination was unremarkable. A full blood count revealed polymorphonuclear neutrophil leucocytosis and an erythrocyte sedimentation rate (ESR) of 20 mm in 1st hour. Other routine tests namely serum creatinine, random blood sugar, routine urine examination and X-ray of chest were normal. After excluding papilloedema by ophthalmoscopy lumbar puncture was done. Cerebrospinal fluid (CSF) was clear with lymphocyte pleocytosis (total white cell count 30 cells/mm³, lymphocyte 95%), glucose 4.2mmol/l (normal range: 3.3-4.4mmol/l) and protein 750mg/l (normal range: 150-450 mg/l). Gram and Ziehl-Neelsen stains of CSF were negative. Serum VDRL test was non-reactive. A magnetic resonance imaging (MRI) of the spinal cord revealed swelling of the cord up to C6 to C7 disc level with isointense to high signal intensity on T1W1 images and high signal intensity on T2W1 images (Fig.1). MRI of the dorsolumbar spine was normal. The patient was diagnosed as post vaccination myelitis. A diagnosis of multiple sclerosis was considered but thought unlikely due to a definite history of recent vaccination and absence of optic neuritis and no relative afferent pupillary defect or any previous history.

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Treatment was started with high dose intravenous steroids consisting of 1gm methyl prednisolone daily for 3 days. This was followed by oral prednisolone at a dose of 40mg daily for 1 month with gradual tapering. Retention was initially relieved by urinary catheterization. Urinary catheter was removed on the second day of therapy. Patient was able to pass stool after another two days. Although weakness of the lower limbs improved after a week, jerks still remained brisk and the planter reflexes remained extensor. The remaining doses of rabies vaccine were stopped and vaccination was discontinued. The patient was discharged with oral prednisolone. A diagnosis of post-rabies vaccine myelitis was made based on the history of recent vaccination, upper motor neuron signs and high signal intensity on MRI.

Discussion

We report a case of myelitis following administration of purified chick embryo vaccine for rabies. Our patient developed spastic paraplegia and urinary retention after getting 3 doses of the vaccine. There were changes of signal intensity on MRI of the cervical spine. Our diagnosis was supported by a recent history of vaccination and absence of other precipitating factors like an acute viral illness. This was an isolated attack affecting only the cervical spine. She responded well to intravenous steroids.



Fig.1: MRI of the spinal cord showing swelling of the cord and high signal intensity at C6 to C7 level (arrow)

There have been reports of myelitis occurring after rabies duck embryo vaccine. In one report, a 41-year-old farmer developed myelitis 14 days after the first inoculation of rabies duck embryo vaccine.³ Four cases of transverse myelitis were reported among 424,000 people who received duck embryo rabies vaccine between 1958 and 1971.⁴

A case of acute transverse myelitis was reported in a 25 year old man with Behcet's disease two months after receiving rabies vaccine. Acute transverse myelitis was diagnosed due to the presence of a hyperintense lesion and expansion at the level of conus medullaris by MRI of the spinal cord.⁵ Two cases of ascending paralysis following administration of sheep brain tissue anti-rabies vaccine were reported from Addis Ababa in 1997.¹ The paralysis had started after 14 daily subcutaneous injections of the Fermi type nerve tissue vaccine. In 1995, Ahasan *et al* from Bangladesh reported a case of neuroparalytic complications after receiving rabies nerve tissue vaccine.²

There are many cases of myelitis in our country. A precipitating factor is not always sought. Rabies vaccination may be an important cause and should be searched for in the history of patients with myelitis. People who are vaccinated with purified chick embryo rabies vaccine should be followed to see if they develop signs of spinal pathology. A thorough search of the literature indicates that our case is the first case of myelitis following rabies chick embryo cell vaccination in Bangladesh.

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