

Extensive muscle spasms after unprovoked dog bite: Is it rabies?

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ABSTRACT

We report a 7-year-old incompletely immunized male child who presented with intermittent dyspnea, fever, and extensive muscle spasms following an alleged history of unprovoked Category III dog bite 20 days back with inadequate post-exposure prophylaxis. This case highlights the importance of detailed clinical evaluation including minor signs such as trismus, persistent tetanic muscle contraction in intervening period between muscle spasms and preservation of normal sensorium in the absence of aerophagia and hydrophobia in ruling out a possible diagnosis of rabies in this child, and establishment of diagnosis of less sinister treatable disease with better prognosis.

Key words: *Essen schedule, Muscle spasms, Rabies, Tetanus*

Rabies is a strong differential diagnosis in any child presenting with intermittent dyspnea, fever and extensive muscle spasms following an alleged history of unprovoked Category III dog bite especially when post-exposure prophylaxis had been inadequate. However, a thorough history and clinical examination can be of immense help in the establishment of alternative less sinister diagnosis such as tetanus as was seen in this case. A thorough history and clinical examination can be of immense help in the establishment of alternative less sinister diagnosis such as tetanus as was seen in this case. This case highlights the vital role of detailed clinical evaluation in arriving at most likely diagnosis in a case having close differential diagnosis based on presenting symptoms and signs.

CASE REPORT

A 7-year-old boy, resident of Saharanpur, Uttar Pradesh, India, presented to pediatric emergency department of our hospital with alleged history of dog bite 20 days back followed by the development of intermittent breathing difficulty, fever, and muscle spasms for the past 10 days. The child was playing in the park when he suffered from unprovoked transdermal dog bite (Category III) from a stray dog in the left gluteal region (Fig. 1). There was no history of any tingling or twitching sensation at the site of dog bite. The child was taken to a local health center where he was provided with wound care and rabies vaccine on days 0, 3m and 7 as per Essen schedule [1]. No rabies immunoglobulin was received by the child. The stray dog was known to have bitten two other children in the neighborhood and was not traceable after the incident.

10 days after the dog bite, child developed intermittent breathing difficulty which was described by him as choking sensation lasting a few minutes. No associated cough, coryza,

or chest pain was complained of by the child or noted by his parents. However, these episodes of breathing difficulty were not precipitated by any stimuli (sound/light) and neither in response to offering of water to child or any air current. The child was admitted to a local hospital with these symptoms. On the 3rd day of admission, child developed low-grade intermittent fever. No associated rash, headache, photophobia, diarrhea, or urinary complaints were present. On the 2nd day of fever, the child was noted to be having multiple episodes of muscle spasms by the father who typically described them as presenting with clenching of teeth, flexion, and adduction of upper limbs and extension of lower limbs lasting few minutes each. However, the sensorium of the child was reported to be absolutely normal by the parents even during the muscle spasms. Another important observation by the father was the presence of hypertonia in lower limbs (left>right) which he detected due to the progressive inability of the child to completely extend his lower limbs even in intervening period between the muscle spasms. These muscle spasms progressively increased in frequency over the next 2 days, and the child was referred to our institute for further management with a provisional diagnosis of rabies. These spasms were not associated with any alteration in sensorium during or after the event and no bowel or bladder incontinence. These were later noted to be aggravated by light and sound. Initially child's mother denied the presence of any difficulty being experienced by the child in opening his mouth. However, on specifically being asked about child's ability to eat large food pieces, she recollected that she had to cut apple into smaller pieces as the child was not able to open mouth fully thus establishing the presence of trismus on history. This was in contrast to the ability of the child to eat larger pieces of apple before the illness suggestive of trismus. The birth, development,



Figure 1: Transdermal dog bite (Category III) in the left gluteal region

and past history of the child were unremarkable. He was incompletely immunized with only vaccinations received at birth and none thereafter.

On examination, the child had normal anthropometry and vitals. His higher mental functions were normal except for unclear speech due to trismus. No neck rigidity was present. Kernig and Brudzinski's signs could not be checked due to hypertonia of lower limbs as a result of persistent contraction of hamstring muscles bilaterally. No cranial nerve deficit was noted, and motor system examination was normal except for the presence of hypertonia in lower limbs (left>right) and precipitation of muscle spasms along with the development of opisthotonus on trying to elicit deep tendon reflexes. No local dog bite site sensory abnormalities were detected and no percussion myoedema was elicited. No hydrophobia or aerophobia was noted. No features of autonomic instability were detected during a hospital stay. Rest of the systemic examination was normal.

The child was shifted to isolation room to avoid stimuli precipitating muscle spasms, and tetanus vaccine and immunoglobulin both were administered in addition to intravenous antibiotics such as penicillin and metronidazole. The muscle spasms were controlled with use of diazepam infusion and morphine injections. The muscle spasms gradually reduced in frequency and were relieved after 72 h of therapy, and the child was discharged after 5 days of hospital stay. The child came for follow-up twice: The child had no residual symptoms or signs at 1 week and 3 months of follow-up. His catch-up immunization was advised and other siblings were also called for completion of their pending immunizations.

DISCUSSION

Based on the clinical presentation, possibility of both tetanus and rabies was considered. Features favoring tetanus were the

shorter incubation period (10 days), incomplete immunization status of the child, history of exposure in the form of transdermal dog bite, and presence of trismus and muscle spasms which were aggravated by sound and light in addition to preserved sensorium. Features favoring diagnosis of rabies were the presence of Category III unprovoked transdermal dog bite from a stray dog who was known to have bitten other children in the locality as well, dog being untraceable after the incident along with inadequate post-exposure prophylaxis received by the child. Although rabies usually has longer incubation period (1–3 months), shorter incubation period of up to 5 days has been previously reported [2,3]. Intermittent muscle spasms and breathing difficulty have also been reported in rabies [4]. However, the clinical pointers toward this being a likely case of tetanus rather than rabies were the preservation of normal sensorium, persistent muscle contraction noted in lower limbs even in intervening period between muscle spasms (tetanic muscle contraction), absence of aerophobia and hydrophobia, and precipitation of muscle spasms by touch, sound, and light. The child responded well to treatment for tetanus and was absolutely normal at discharge. He had been advised regular follow-up and completion of rabies vaccine schedule as the child was still in the incubation period for the development of rabies.

CONCLUSION

This case highlights the importance of detailed clinical evaluation including minor signs such as trismus, persistent tetanic muscle contraction in intervening period between muscle spasms and preservation of normal sensorium in the absence of aerophobia and hydrophobia in ruling out a possible diagnosis of rabies in this child, and establishment of diagnosis of less sinister treatable tetanus disease with better prognosis.

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