

Tick paralysis in human; a case report

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ABSTRACT

Background: Tick paralysis is a disease of human and animals characterized by an acute ascending flaccid motor paralysis. The condition may terminate fatally unless the tick(s) are removed before respiratory paralysis occurs.

Patient: A 48 years old female was referred to a clinic in Tehran with edema at the head and neck regions. She had fever and disequilibrium. She reported a travel to mountainous parts of Tehran in early spring. During physical examination a small tick was found attached firmly to the head. It has been detached and sent to Razi Research Institute and a female *Dermacentor marginatus* (Acari: Ixodidae) was verified. Following the tick removal the patient's condition was improved.

Conclusion: With respect to a rich fauna of Ixodid ticks in Iran, it is important to keep in mind the tick associated complications in this area.

Keywords: Tick paralysis, Iran.

(Iranian Journal of Clinical Infectious Diseases 2006;1(3):159-160).

INTRODUCTION

Tick paralysis is a kind of disease associated with ticks. It is a disease of human and animals characterized by an acute ascending flaccid motor paralysis. The condition may terminate fatally unless the tick(s) are removed before respiratory paralysis occurs. Adult ticks, chiefly females, but sometimes nymphs, are responsible and ticks of the genus *Ixodes* are particularly associated with the condition but other genera especially *Dermacentor* (*D. andersoni*) are concerned. It has also been ascribed to infections with *Ornithodoros lahorensis* (1) and *Argas persicus* (2). In general, the degree

of paralysis is proportional to the length of time the tick has been feeding and the number of tick attached. Electrophysiological investigations show an almost complete reversibility following removal of the ticks (3).

PATIENT

A 48 years old female teacher presented with facial edema, predominantly at the frontal and behind the ear regions. She had a history of 3-day travel to the mountainous countryside in northern Tehran. She has curiously observed black small particles on her pillow in the morning. She had headache, severe head itching, swelling behind the ear and disequilibrium after one week. Following the 12th day, she has got fever, and was prescribed

Received: 2 January 2006 Accepted: 18 July 2006

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amoxicillin and gentamicine, however, her condition was aggravated. Her facial edema was so severe so that she could not open her eyes.

At arrival, she was suspected to have cellulitis of head and neck regions. Thus, she was referred to the laboratory for blood analysis (at the day 16th), however, WBC was normal (6600/mm³) and CBC analysis did not confirm the diagnosis of cellulites. All laboratory results were normal except for a mild PMNs (68%) and sedimentation coefficient (31mm). Having examined the head and neck, a small object measuring 7mm was attached firmly to the vertex region of the skull with a yellowish covering. It was detached and a small animal was noted. The object was fixed in ethanol and sent to Razi Research Institute for final verification.

The abovementioned specimen was carefully studied and compared to paratype of the same species, so a female *Dermacentor marginatus* was detected.

With respect to the patient's history (traveling to the tick infested area, edema, neurological symptoms and improvement in her condition following the tick removal), a diagnosis of tick paralysis is confirmed. Since she was not hospitalized, CT scan, CSF analysis and serological tests for bacteria and *rickettsia* were not ordered.

DISCUSSION

Tick and tick borne diseases should be reemphasized to public and health sectors since there are 6 genera and 23 species of Ixodidae ticks infesting livestock in Iran. Our case reported small black particles on her pillow that are certainly Guanin bodies secreted from the ticks. It should be noted that ticks must be detached as soon as possible, since their detachment is curative. The detachment should be performed by a fine pincer holding the nearest part of tick body to the attachment site (i.e. mouth part of tick) and pull it out by several attempts followed by a sudden tight one (4). Following the tick removal, a disinfectant

should be applied. The tick specimens should be kept in small amount of ethanol 70% in a sealed vial and sent to an expert acarologist. Delpy, who was the founder of Razi Institute, had worked on Iranian Ixodidae fauna (5).

Our case was similar to the cases reported from the United States since the responsible tick is a *Dermacentor* and recovery occurs promptly after the tick removal.

Tick paralysis is not routinely found in Iran, however, it is believed that there are some misdiagnosed or missed cases due to the lack of public awareness. Thus, tick and tick associated complications should be clarified for the public sector.

REFERENCES

1. Mihailov M. Incidence of *Ornithodoros lahorensis* and tick paralysis in sheep in Bitola, Yugoslavia. *Vet Glasn* 1957;2:814-18.
2. Soulsby E.J.L, editor. Helminths, arthropods, and protozoa of domesticated animals. 7th edition, Baillier Tindall, 1982.
3. Gothe R, Kunze K. Neuropharmacological investigations on tick paralysis of chickens induced by larvae of *Argas(persicargas)* Walkerae. In: Soulsby E.J.L, editor. Parasitic zoonoses. New York: Academic Press, 1974;p:369-82.
4. Burgdorfer W. Rocky mountain spotted fever. *US. News and World Report* 1977;p:70.
5. Rafie A, Rokk H, editors. Parasitology, arthropoda (Entomology). Tehran University Publications, 1985;p:501. (In Persian).