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Case Report

Insect Bite Hypersensitivity (Sweet Itch) in a Non-Descript Riding Local Breed Mare

Tanveer AHMAD [1] Muhammad Saleem AKHTAR [1] Muhammad Mazhar AYAZ [2]
Muhammad Mudassar NAZIR [2] Ejaz AHMAD [1] Muhammad Raza HAMEED [2] Maqbool HUSSAIN [1]

[1] Department of Clinical Sciences, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, PAKISTAN
[2] Department of Pathobiology, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, PAKISTAN

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Abstract

Summer itch or insect bite hypersensitivity is common problem during summer in all animals. Some horses are allergic to insect saliva. A 13 year old mare kept for riding purpose at livestock farm FVS, BZU, Multan was examined with a condition characterized by little bumps, papules and abrasions on neck, abdomen, thighs and tail, anaemic mucous membranes, concentrated urine, partial anorexia and generalized emaciation. There was a history of chronic lesion of about more than one year old and many therapies were tried but all non-responsive. A mixed biting infection of *Tabanus* spp. and *Stomoxys* spp. was identified. On the basis of clinical sign(s), history and fly identification a diagnosis of insect bite hypersensitivity was detected. Treatment protocol was done in two rounds i.e. first round of treatment was done with dexamethasone along & vitamin E administrated through intramuscular route for 5 days and followed by 10 mg dexamethasone orally for one month. Animal respond the treatment and there was full recovery from condition and on follow up no relapse of the condition was observed.

Keywords: *Tabanus, Stomoxys, Mare*

Yerel Irk Bir Kısrakta Böcek Sokmasına Bağlı Aşırı Duyarlılık (Tatlı Kaşıntı)

Öz

Yaz kaşıntısı veya böcek sokması aşırı duyarlılığı tüm hayvanlarda yaz aylarının yaygın bir problemidir. Bazı atlar böcek salyasına alerjiktir. FVS, BZU, Multan'da bir çiftlikte binek amaçlı tutulan 13 yaşlı bir kısrakta boyun, abdomen, uyluk ve kuyrukta küçük şişkinlikler, papüller ve abrazyonlar, anemik mukoz membranlar, konsantre idrar, kısmi iştah kaybı ve generalize zayıflama bulguları gözlemlendi. Yaklaşık bir yıldan daha uzun süredir devam eden kronik lezyon tablosu olup birçok tedavi uygulanmış ancak hepsi cevapsız kalmıştı. *Tabanus* spp. ve *Stomoxys* spp.'nin her ikisinin sokmasına bağlı enfeksiyon belirlendi. Klinik bulgular, hastalık hikâyesi ve sinek tespit edilmesine dayanarak böcek sokması aşırı duyarlılığı tanısı koyuldu. Tedavi iki basamaklı olarak gerçekleştirildi. Birinci basamakta 5 gün dekzametazon ile birlikte kasiçi vitamin E uygulaması yapılırken ikinci basamakta 10 mg dekzametazon oral yolla bir ay uygulandı. Hayvan tedaviye yanıt vererek hastalığı tamamen atlattı ve takipte hastalık tekrarı gözlenmedi.

Anahtar sözcükler: *Tabanus, Stomoxys, Kısrak*

INTRODUCTION

Insect bite or arthropod bite causes an allergic response in the body due to provoking of allergic response in the skin [1]. This allergy is mostly called allergic dermatitis allegedly caused by *Culicoides* spp. by the evoking of T cells (Th2 and T reg) [2]. As the horses are very sensitive to various salivary proteins and Airway hyperactivity sensitive [3]. The disease like Insect bite Hypersensitivity (IBH) may find its some clues in horse genetics too [4]. This is a case report of hypersensitivity in teaching hospital a 13 year old local breed mare kept for riding purpose at Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan Pakistan which is caused by *Tabanus* spp. and *Stomoxys* spp. as unusual one.

CASE HISTORY

A 13 year old mare kept for riding purpose at Livestock farm FVS, BZU, Multan was examined with a condition

İletişim (Correspondence)
+92 314 7890797
drsaleemakhtar@bzu.edu.pk

characterized by little bumps, papules and abrasions *(Fig. 1)* on neck, abdomen, thighs and tail, anaemic mucous membranes, concentrated urine, partial anorexia and generalized emaciation. There was a history of chronic lesion of about more than one year old and many topical therapies including Betnovit ointment at local area and ivermectin injection were tried but all non-responsive. A mixed biting infection of *Tabanus* spp. and *Stomoxys* spp. was identified on the basis of their specific biting site(s) and pattern. On the basis of clinical sign(s), history and fly identification a diagnosis of insect bite hypersensitivity was detected. Treatment protocol was done in two rounds i.e. first round of treatment was done with dexamethasone along & vitamin E administrated through intramuscular route for 5 days and in round two treatments by 10 mg dexamethasone orally for one month. The blood parameters (WBC, Hb, PCV, RBC) were analyzed through hematology analyzer NIHON KOHDEN MEK 6450K and physical parameters like TPR (body temperature, pulse and respiration rate) were recorded. The different blood and physical parameters were in normal limit before and after treatment. After the due treatment animal responded the treatment and there was full recovery from condition(s) *(Fig. 2)* and on follow up no relapse of the condition was observed even after a year. Repeated Topical application with trichlorfon 0.2% solution proved effective to avoid the recurrent attacks of biting flies.

Fig 1. Before treatment

Fig 2. After treatment

DISCUSSION

Insect bite hypersensitivity (IBH) is very common in horses reared in hot and temperate climate where biting flies are commonly observed like *culicoides*, *tabanus* and *stomoxys* spp. it is very hard to find the exact modus operandi that how the response was provoked but involvement of certain helper cells (Th cells and T reg), interleukins (IL-25 and IL-33) along with innate cytokines of epithelium and epidermis with the collaboration of Thymic Stromal Lymphopoietin (TSLP) play a vital role in dermatitis specially in actopic dermatitis and asthma [5]. ITLN knockdown cells are prerequisite for the induction of phosphorylation for epidermal growth factor receptor (EGFR) and extracellular-signal regulated kinase (ESRK) required by interleukins and suppresses IL-33, Tslp and Th2 along with eosinophilic involved inflammation [5] which clearly demonstrates the contribution of ITLN1 induced hypersensitivity in horses and humans and the similar phenomenon has been observed in pollen allergy [6]. It has been widely accepted that allergic response occurs in all domestic animal along with humans which is mediated by IgE Abs which binds to mast cells and help to release or synthesise a progeny of potent mediators (PM) [7]. It is main objective of this study to treat such filed problems which are commonly observed in horses. Regarding the therapy against urticarial or allergy either insect bite hypersensitivity, food borne allergies, dust mite allergies or pollen they are multifactorial even including genes [7,8] and the ever best option is avoidance of that factor(s) to suppress or meltdown IgG and IgE Abs [9] but the other options like topical application of pesticides can be a good option [10]. After a follow-up of a year post-treatment there was no sign of reoccurrence of the problem in local breed mare despite of unavailability of any specific treatment for IBH [11]. The available treatment with cortisones suppressed the factors involved in sensitivity along with histamine release factors controlled the exaggerating situation proved already in a study [12,13]. The vitamin E

is now routinely used in the treatment of skin allergies along with other problems. Vitamin E plays a major role in provoking immune system, anti-oxidant, anti-allergic, actopic dermatitis and cell function. It is lipid soluble non enzymetic vitamin. It is first report from Pakistan on IBH or Summer Itch here we can suggest about genetic analysis [14] of various horses before purchasing and possible available treatment regime with cortisones and antihistaminic substances.

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