mutiara medika
Jurnal Kedokteran dan Kesehatan
Vol 17 No 2 Hal 92-95 Juli 2017

Mutiara Medika: Jurnal Kedokteran dan Kesehatan
http://journal.umy.ac.id/index.php/mm

A Case Report: Papular Urticaria Caused by Flea Bites

Laporan Kasus: Urtikaria Papular Akibat Gigitan *Flea*

Rikyanto,[1] Muhammad Amrullah Wahid,[2] Frishia Dida Saraswati,[2] Muhammad Fajarulhuda,[2] Inges Prawita Sari[2]*

[1] Dermatologist at Department of Dermatology, Yogyakarta City Hospital
[2] Clinical Student, Faculty of Medicine, Muhammadiyah Yogyakarta University

DATA NASKAH:
Masuk: 09 Feb 2017
Direviu: 19 Mar 2017
Direvisi: 20 Apr 2017
Diterima: 28 Jun 2017

***CORRESPONDENCE:**
ingesprawita@gmail.com

DOI:
10.18196/mm.170206

ARTICLE TYPE:
Case Report

Abstrak: Dilaporkan sebuah kasus pada wanita Jawa berusia 19 tahun yang tinggal di Kecamatan Giwangan Yogyakarta terdiagnosis dengan urtikaria papular akibat gigitan *Flea*. Di Indonesia cuaca lebih panas dan lembab sepanjang tahun, memicu musim *Flea* yang rawan mendatangkan gangguan kesehatan. Terdapat banyak kasus urtikaria papular dengan penyebab yang tidak diketahui pasti, hal ini membuat kasus ini menarik karena pasien menunjukkan bahwa urtikaria papular dapat disebabkan oleh gigitan *Flea* membawa kemungkinan penyebab atas keluhannya. Laporan ini menyoroti pentingnya aspek biologis dan epidemiologi dari *Flea*.

Kata kunci: Negara Tropis; Aspek Biologi; Epidemiologi; Gigitan Serangga

Abstract: *A case reported on 19 years old Javanese woman living in Giwangan District Yogyakarta diagnosed with papular urticaria caused by flea bites. The weather in Indonesia is hotter and more humid the entire year, which supports flea growh and makes the area vulnerable to flea-related health problems. There are a lot of papular urticaria cases with unknown exact causes; it makes this case interesting because the patient shows that papular urticaria can be caused by Flea bites which become the possible cause of her complaint. This report highlights the importance of the biological and epidemiological aspects from the flea.*

Key words: Tropical Country; Biological Aspect; Epidemiology; Insect Bites

INTRODUCTION

Papular urticaria is described as a chronic allergic disease caused by a cutaneous hypersensitivity reaction following an exposure to ectoparasites, including fleas.[1] Fleas are small *Siphonaptera* with jumping movement as the characteristic.[2] They suck blood mainly on mammals but also on birds. Out of 3000 species, only a few of them that commonly attack humans. The most common species are the rat flea, human flea and cat flea. Their bites can cause irritation, discomfort feeling and loss of blood.[2,3]

CASE REPORT

The Javanese woman patient was a 19-year-old who lived in Giwangan District, Yogyakarta. She arrived at the clinic complaining of red rash around both of her lower legs that felt itchy and had been troubling her for at least 2 days. She found small blackish insects on the bedspreads, sheets and mattresses (See Figure 1.).

Figure 1. Blackish Insects the Patient Brought to the Clinic

Figure 2. Lesions on the Patient's Leg

Figure 3. Microscopic Finding of the Insect

There was no history of medications. She kept no pet but the patient recalled that wild cats had been searching for food inside her house especially her bedroom almost every day. There was no similar symptom found among her family members who live in the same house. She barely cleaned her bed and the hygiene of her room was poor.

Physical examination revealed typical 1 cm erythematous urticarial papules with microvesicle punctum on several lesions on her lower legs (See Figure 2.). We do the microscopic examination with 40 times zooming to identify the blackish insects that brought by the patient. We found 3 mm long, wingless, thick, flattened latero-lateral with long legs enabling them to jump (See Figure 3.).

Ctenocephalides felis, the cat flea, is known by their wingless and lateral-flattened body. The colors range from polished reddish brown to black. Various backward pointing bristles help as the insect moves ahead through those host's hide. Fleas are usually 1.5 mm to 4 mm long. They also have mouthparts for piercing and sucking. The antennae is short and embedded under grooves behind unnoticeable eyes. Expansive rear legs need aid outlined for bouncing. The cat flea *C. Felis* is originated from Africa. Although, it may have spread and currently possible to be found around the world. The adult flea is looking for blood 48 hours after developing from those cover. The adult flea typically exists for no less than two or three weeks. Its future is often not that long, due to those grooming propensities of the host. Then after mating, those female lays dry eggs in the host's hide. The eggs promptly unstick and tumble under those resting territory underneath the creature, then start the hatching period for about 21 days. Eggs will not hatch on the host.[4]

Based on the anamnesis, physical examination and microscopic findings, we conclude that the diagnosis for the patient was papular urticaria caused by cat flea bites. According to the Clinical Practical Guideline (CPG) from the Indonesian Ministry of Health 2014, the treatment starts by applying moderate to high potency topical corticosteroid twice a day and oral antihistamine once a day for seven days. The symptoms fade after two days.[5, 6]

DISCUSSION

Papular urticaria is a common and often distressing disorder in a form of chronic or repetitive papules brought on by an extreme touchiness as a response to the bites of mosquito, fleas, bedbugs and other different insects. Individual papule often has a central punctum. The severity is frequently identified with the presence of light salivary alternately contactant proteins found in the host. Mild sub-epidermal edemas, extravasation of erythrocytes, interstitial eosinophils, and exocytosis of lymphocytes are the histopathology of papular urticaria.[1]

Bites and stings from arthropods are generally unavoidable due to the number of offending species and their distribution throughout our environment. Fleas or bedbugs bites are usually the cause of papular urticaria, but virtually any arthropod is capable of inducing such a reaction.[7]

Fleas often reproduce in large numbers where pets and other animals live. The pets are full of flea bites and scratches themselves continuously. Their coat becomes rough and the skin can become infected. Symptomatic host symptoms are often mistaken for scabies. Cat fleas and dog fleas may be hosted by dog tapeworm.[8] Dermatitis flea allergy is an expensive and uncomfortable disease for animals and humans. The way to minimize the suffering is early detection and early treatment.[9]

The types of reactions triggered by insect bites depend on the previous exposure; recurrent bites can lead to the development of allergic reactions,

which can lead to the release of cutaneous manifestations. Moreover, insects often inject various pharmacologically active substances for example hyalurodinase, proteases, histamine and kinins etc., which can cause various nodular reactions.[1]

The discomfort feeling is usually different for one person to another. Some people often suffer more than others from flea bites. The bites can cause intense itching, often resulting in secondary infection. Usually a flea bite has a small red spot where the flea has inserted its mouthparts. There is a red halo with a slight swelling around the spot. Because of different reasons, some people do not react to flea bites at all, while others are sensitive and suffer severe allergic reactions. Fleas may occur as a vector of several human diseases like plague, typhus and tularemia.[8]

In four season countries, the environment is getting hotter and there is an increase humidity in the summer. At that time, pet's skin problems appear particularly in cats and dogs caused by ectoparasite especially flea, which is why summer season is also called flea season. In Indonesia, the weather is hotter and more humid the entire year, which supports flea growh and makes the area vulnerable to flea-related health problems. Based on the Clinical Practical Guideline (CPG) from Indonesian Ministry of Health 2014, treatment starts by applying moderate to high potency topical corticosteroid twice a day and oral antihistamine once a day for seven days.[5, 6]

A combination of several strategies is usually required for the control of pet flea infestations to be successful.[10] Several attempts to reduce or eliminate flea from the environment can be done by targeting the host using environmental insecticides and mechanics. Some examples of mechanical precautions are washing pet bedding or bed cloths that are often occupied by pets. Cleaning the carpets, furniture cushions, rugs, or other textile products by using a vacuum machine that has a "beater bar" which can remove fleas as well as their eggs and larvae. Even the pupae at the bottom of the carpet can also be removed. The prevention of this case, to avoid contacts with arthropods, apply insect repellent such as diethyltoluamide (DEET) to skin, use passive measures such as screens, nets, clothing.

CONCLUSION

Papular urticaria is a common and often distressing disorder caused by a hypersensitivity reaction to the bites of mosquitoes, fleas, bedbugs and other insects which are manifested in the form of chronic or recurrent papules. Fleas are small *Siphonapteran* order, with jumping movement as the characteristic. They suck blood mainly on mammals but also on birds. From 3000 species, only a few are commonly known to attack humans. Their bites can cause irritation, discomfort feeling and loss of blood. In Indonesia, the weather is hotter and more humid the entire year, which supports flea growh and makes the area vulnerable to flea-related health problems. The discomfort feeling is usually different from one person to another. Some people often suffer more than others from flea bites. The bites can cause intense itching, often resulting in secondary infection. Usually, a flea bite has a small red spot where the flea has inserted its mouthparts. A lot of papular urticaria cases comes with unknown causes, it makes this case interesting because the patient bring the possible cause for her complain. This report highlights the importance of the biological and epidemiological aspects of the flea.

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