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Research Note

House Dust Mites in Human ear

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Abstract. A study was carried out to investigate the presence of mites in human ear in 58 patients (113 ears). Ear scrapings were examined under the microscope by a parasitologist for the presence of house dust mites. Results showed the presence of house dust mites in 8 (7.1%) ears. We can conclude that mites are normal commensals of the external ears in tropical countries.

INTRODUCTION

House dust mites are commonly found in various domesticated animals and pets, including cats, dogs, buffaloes, as well as elephants (Nadchatram, 2005). In humans, mites have been blamed for causing itchiness and otitis externa (Milián *et al.*, 2004; Al-Afraj *et al.*, 2007; Van de Heyning *et al.*, 1977; Rossiter, 1997) . Isolated reports have been published finding mites in the ears of a poultry farmer, as well as a recent report noting the presence of house dust mites colonies in the ear canal and attributed this phenomenon as the cause for pruritic reaction in an elderly patient (Paleri *et al.*, 2001; Cho *et al.*, 1999; Liao *et al.*, 2012).

Hence, a study of house dust mites in the external ear canal was done.

MATERIALS AND METHODS

A total of 58 adult patients (total 116 ears) were recruited in this study. 3 ears with obvious pathology were excluded. In each patient, the ear was examined under microscope with up to 8x-magnification (the maximum magnification of our diagnostic microscope [*Opmi Sensera* by Zeiss®). Only clinically normal looking, non-diseased ears were included into this study.

History was first obtained from each individual regarding ear itchiness, pet (s) handling, allergy, asthma and eczema. A sample of desquamated skin in the ear canal was then collected using a clean and sterilized Jobson-Horne probe and curette. This was done by gentle scraping circumferentially the outer 2/3 of the external auditory canal for the collection of desquamated tissue. The collected specimen was carefully transferred onto a glass slide, which was pre-instilled with a drop of normal saline (0.9%) solution. A cover slip was placed over each sample immediately to prevent drying. The glass slide was then sent for examination under the microscope.

The parasitologist then examined for the presence of house dust mite under 10x and 40x magnification sequentially. Any mite found was photographed as evidence (Figure 1).

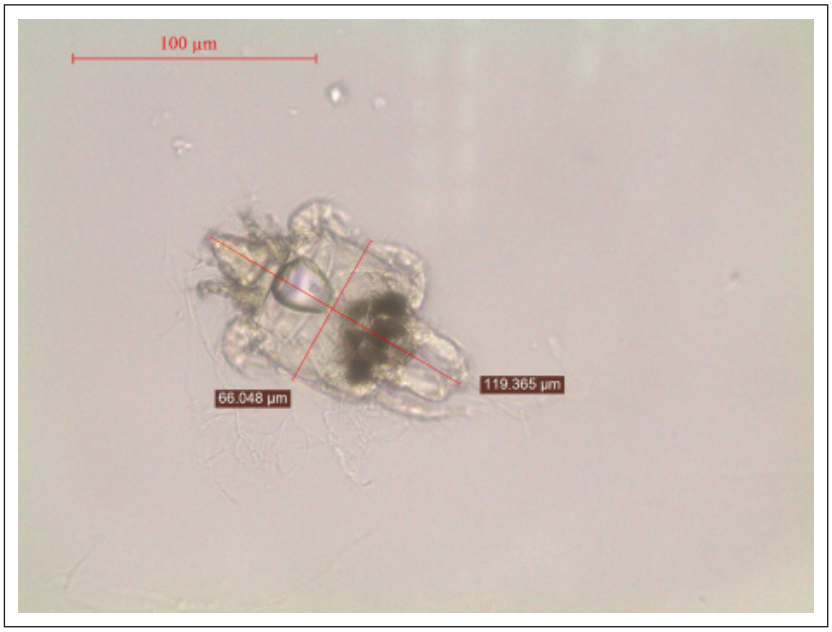

Figure 1. An example of house dust mite found in a sample scraping.

RESULTS

This study involved 58 patients (31 [53.4%] male and 27 [46.6%] female) with age ranging between 16 - 88 years (mean = 45.41). 113 ears were examined for the presence of house dust mites.

House dust mites were identified in 8 (7.1%) ears. There were 60 ears examined in patients with history of ear itchiness, however, only 5 (8.3%) were positive for the presence of mites. On the other hand, mites were found in 3 out of 53 ears in patients with out history of ear itchiness. There was no significant difference (*p value 0.721*) between the two groups. Although the number of studied subjects is small, we found no significant relation between the presence of mites and the history of allergy, asthma, eczema or pets.

DISCUSSION

The undoubted universality of house dust mites in the environment has been implicated as a main contributor to the rise in allergy sufferers. House dust mites, being susceptible to strong ultraviolet radiation and excessive warmth, are present in practically all households, thriving particularly in cool, dark corners (Nadchatram, 2005). Desquamated human keratin feeds these mites, enabling the exponential increment in mites' population.

House dust mites contribute to allergic reactions, i.e., allergic rhinitis, bronchial asthma and contact dermatitis (Milián *et al.*, 2004), by the droppings/faecal matter as well as dead shell carcasses.

House dust mites, which, feed on desquamated epithelium, are found to be normal colonizers in the ears of domestic pets and animals, particularly cats (Larkin, 1981). Mites have also been found in isolated cases, including one reported case involving a poultry farmer (Al-Faraj *et al.*, 2007).

Temperature and humidity of 28 degree Celsius (range: 20º – 30ºC) and 80% (range: 70 – 80%) are ideal for house dust mites to thrive in tropical countries like Malaysia (Nadchatram, 2005).

In our study, mites were found only in 5 out of 60 ears in patients with history of ear itchiness, while mites were found in 3 out of 53 ears in patients with out history of ear itchiness. There was no significant difference between the two groups. Consequently, house

dust mites may be normal commensals of the external auditory canal in the both the groups.

CONCLUSION

As evidenced by our study, house dust mites may be normal commensals in the human ears. This particularly may be the case in equatorial/tropical countries where favourable conditions exist for house dust mites to thrive.

Conflict of interest: None

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