Human Otoacariasis in a 40-Year Old Filipino Male: A Case Report*

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ABSTRACT

A 40-year old male, Filipino, farmer, from Bakun, Benguet, presented with a 9 months history of itchiness of right ear. He reported that he was able to collect 4-5 insects every time he cleans his ear. Consult was done with an Ears, Nose and Throat specialist and video-otoscopic examination revealed multiple animate foreign body (mites) at different stages of development. The patient underwent 5 sessions of ear flushing with warm water at intervals of 2 weeks for 3 months. Collected insects were referred to an entomologist and were identified as *Suadasia pontifica Oudemans,* belonging to family: *Acaridae.* Follow up consult after 5 sessions of ear flushing revealed complete removal of mite infestation of his right ear. Patient was instructed to do ear flushing twice daily using warm water mixed with 70% isopropyl alcohol to eradicate any eggs left behind. No other medications were given. Based on Philippine Journal of Otolaryngology – Head and Neck Surgery, Health Research and Development Information Network, and Cochrane Database of Systematic Reviews, this is the first reported case of human otoacariasis in the Philippines.

Keywords: *Mites, Mite infestation, Acari, Otoacariasis, Suadasia pontifica Oudemans*

INTRODUCTION

Foreign bodies are commonly encountered in ears, nose, throat outpatient clinic and emergency department. Animate foreign bodies constitute up to 14% of cases, majority being the cockroaches[1].

Otoacariasis is a very peculiar and rare condition wherein the foreign body in question is an arthropod of the Acari subclass, be it a mite or a tick[2]. A study conducted in the State of Karnataka, India revealed that more than 80 % of the human otoacariasis cases are due to ticks[3]. Mite infestation in the human ear is an extremely rare phenomenon, with a handful reported cases since 1977[2]. There are reports of human otoacariasis from Saudi Arabia (*Loxanoetus*), South Africa and United States (*Otobius*), Nepal (*Dermacentor*), Malaysia (*Dermacentor and Haemaphysalis*), Sri Lanka (*Amblyomma, Boophilus, Hyalomma, Dermacentor, Rhipicephalus and Haemaphysalis*)[5], South Korea (*Haemaphysalis longicornis*)[4], Iran (*Rhyzoglyphus*)[5], Taiwan (*Suidasia pontifica*)[6], and Thailand (*Suidasia pontifica*)[7]. Most recent report of said case was in Korea on the year 2018. This report represents the first documented case of human otoacariasis in the country.

This report aims to document a case of human otoacariasis and to present a brief discussion of human otoacariasis infestation.

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CASE REPORT

This is a case of a 40-year old male, Filipino, farmer, residing in Bakun, Benguet. Nine months prior to consult, he started to complain of itchiness of his right ear prompting him to clean his ear with cotton buds daily. The patient reported that he noticed insect-like objects on the cotton buds he used. There was no associated ear trauma, ear discharge, ear bleeding, tinnitus, and ear pain. No consult or any intervention was done.

Interval history revealed persistence of itchiness of the right ear with increasing severity. He was able to collect 2-4 insects every time he cleans his ear with cotton buds. He also complained of animate foreign body sensation in his right ear. However, he denied ear discharge, ear pain, tinnitus, headache, dizziness, fever and other subjective complaints. No other household member presented with the same condition.

In attempt to eradicate insect infestation, he filled his right ear with gin liquor and then manually cleaned his ear using cotton buds which provided temporary relief. However, a week after said self-intervention, ear pruritus with associated animate foreign body sensation recurred. Due to the pandemic, no consult was done.

The patient continued to present with the above stated condition until a month prior to consult. The severity of itchiness of his right ear became intolerable prompting him to seek consult at a local health unit wherein he complained of sever e itchiness of the right ear with associated animate foreign body sensation and insects collected from ear cleaning. He was then advised to seek consult with an ENT.

On video-otoscopic examination, the skin lining the right ear canal was erythematous. There were noted multiple animate foreign bodies (mites) at different stages of development (eggs, larva and adult stage) crawling in the right mastoid cavity, no noted discharge and/or bleeding. Noted with presence of Type V Tympanoplasty and granulation tissue overlying the eustachian tube (Figures 3). Further history revealed that the patient underwent Mastoidectomy, Right when he was 24 years old. Gradual loss of hearing was noted since the said procedure and total loss of hearing of his right ear was noted at 30 years of age. Patient also claimed that he often carries manure as part of his daily activity in his fieldwork.

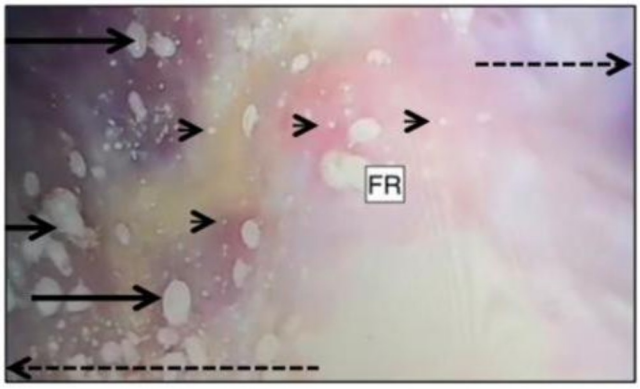

Figure 1: Video-otoscopic image of right mastoid cavity. FR: Facial Ridge; Arrow: Adult mite; Arrow Head: Eggs; Dashed arrow to the left: Towards the mastoid cavity area; Dashed arrow to the right: Toward the external auditory canal

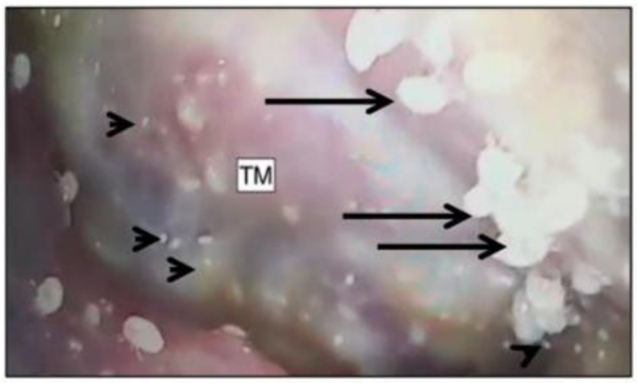

Figure 2: Video-otoscopic image of superior portion of right mastoid cavity. TM: Tegmen Mastoideum; Arrow: Adult mite; Arrow Head: Eggs

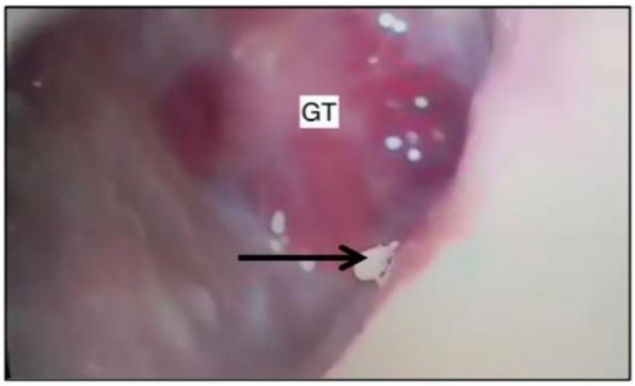

Figure 3: Video-Otoscopic mage of right external auditory canal
GT: granulation tissue overlying the area of tympanic membrane, Arrow: Adult mite

One week after the initial ear flushing, the patient's symptoms persisted and mites were still present. Collected insects (Figure 4) were submitted to an entomologist for review and were identified as *Suidasia pontifica Oudemans*. Due to the limited view provided by the video-otoscopy submitted, specific stages of development were not confirmed.

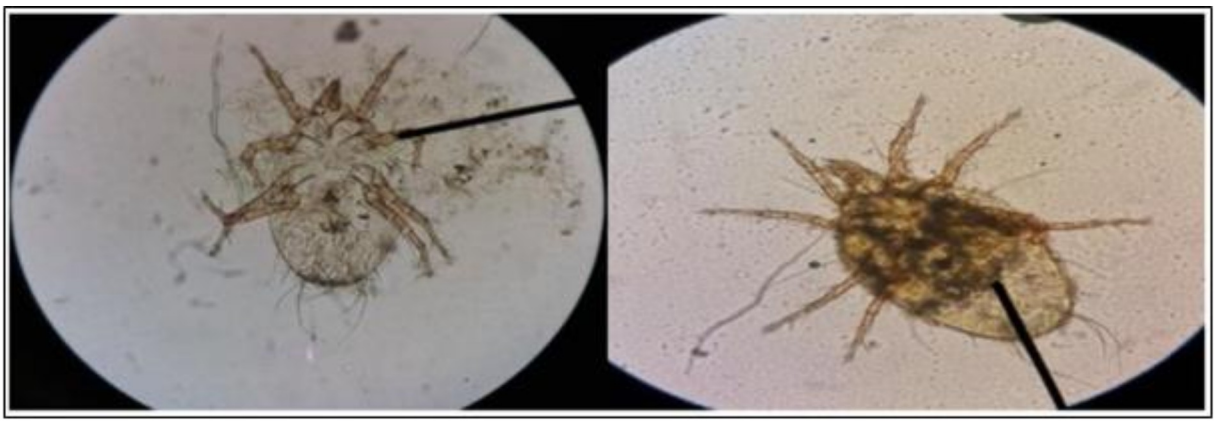

Figure 4: Specimens (adult stage) obtained from the patient on a wet mount viewed under a light microscope MPO

The patient underwent 5 sessions of ear flushing with warm water at intervals of 2 weeks for 3 months which revealed complete removal of mite infestation of his right ear (Figures 5-7). Patient and watcher were instructed to do ear flushing twice daily for 4 weeks using warm water mixed with 70% isopropyl alcohol to eradicate any eggs left behind. Patient was advised to observe proper hygiene such as hand washing before and after handling products in the field. No other medications were given.

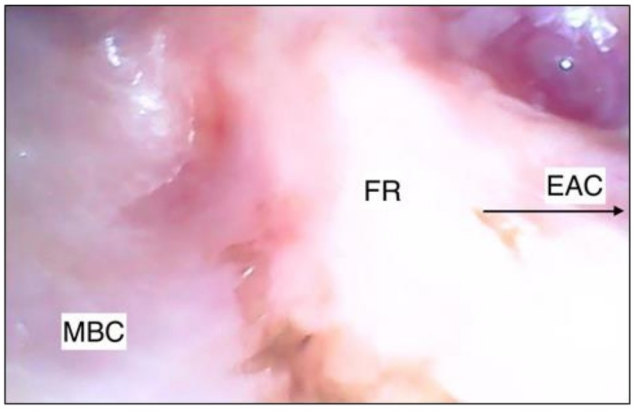

Figure 5: Video-otoscopic image of right mastoid cavity
FR: Facial Ridge; EAC: External auditory canal; MBC: Mastoid bowl cavity

Figure 6: Video-otoscopic image of superior portion of right mastoid cavity.
TM: Tegmen mastoideum

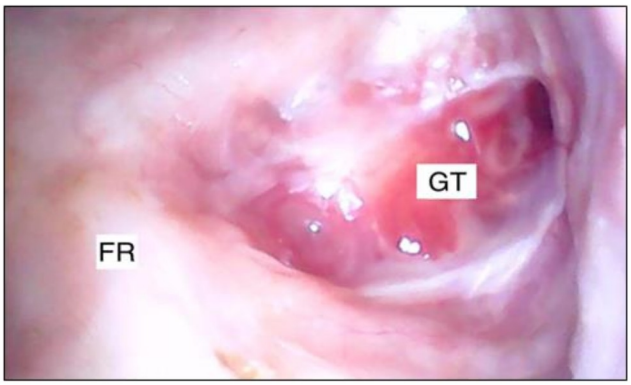

Figure 7: Video-otoscopic image of the right external auditory canal
FR: Facial Ridge; GT: Granulation tissue overlying the area of tympanic membrane

DISCUSSION

Acarid, (subclass *Acari* or *Acarida* or *Acarina*), is any member of the subgroup of the arthropod class *Arachnida* that includes the mites and ticks. *Suidasia pontifica* (*Acaridida: Suidasiidae)* is commonly found in most tropical countries where temperature and humidity are high throughout the year; mostly associated with stored agricultural products such as rice grain, rice flour, cereals, animal feed and even inside our houses[8]. Mites belonging to family *Acaridae* infest stored foods (preferably in damp places), prefer high relative humidity, and usually are fungivores. Mites are common inhabitants of stored products of all kinds including grain and grain based commodities at all stages of processing. They commonly infest grain during harvesting, transporting, processing for consumption and storage. Mites are described to have a fungivorous character of mites as they fed on hyphae of various fungi available[9].

Occasionally mites can gain access to the human ears and can cause otoacariasis as occupational problem. The local lesions observed in ear infection such as skin congestion, increased vascular permeability and raised temperature creates favorable conditions for their development. Mites are facultative commensals surviving on secretions, exudates and microflora in ears of certain mammals. Also, it is more plausible to believe that environmental factors (hot, humid, damp climate), occupation (agricultural workers, veterinarians, poultry workers), and an underlying ear infection (otitis externa, otitis media, mastoiditis, etc.,) can predispose to mite infestation[9].

Suidasia pontifica Oudemans is a mite that is cosmopolitan in distribution and is particularly widespread in the Oriental Region[9,12]. In Malaysia, the species was found as a common inhabitant of house dust [11]. The Philippines is not an exception to the list of the species' distribution range. Within this country, *Suidasia pontifica* is widely distributed and occurs on different plants, organic debris, litter, moss, decaying vegetation, upper layer of soil, poultry houses, house dust, stored foods, other arthropods and even on vertebrates. Pacia et al., studied the biology of *Suidasia pontifica* at University of the Philippines Los Baños. The said species passes through egg, larval, protonymphal, deutonymphal and adult stages ranging from 10-25 days. The total number of eggs laid by mated females ranged from 289-0907 eggs while those unmated ones, as they present parthenogenesis, ranged from 1 to 116 eggs[12].

Cases of human otoacariasis (also called as parasitic otitis) by ticks have been reported from various countries but ear infestation caused by mites is less common and under reported[9]. Paleri V. and Ruckley RW. reported a case of recurrent infestation of mastoid cavities with the storage mite *Sancassania berlesie*[10]. Samung Y et al., ang Ho, SH., reported similar cases of mite infestation due to Suidasia pontifica[6,7].

The patient works as a farmer generally tending crops and started to present with ear itching on the month of March, during the harvest season of cabbages in Bakun, Benguet where humidity was high. The patient may have acquired infection while handling contaminated harvest. Possibly the mites entered the ear from dust or by direct transfer from hands. Several species of mites have been reported to infest stored products[9]. It is suggested that good personal hygiene such as hand washing after handling products in the fields or in stores is an important preventive measure.

CONCLUSION

Human otoacariasis is rarely documented and underreported in literature. One must suspect tick and/or mite infestation for patients coming in with otalgia and/or ear pruritus, and animate foreign body sensation from rural areas with agricultural occupation. They should be carefully examined for possibility of infestation. Several species of mites have been associated with human otoacariasis hence; appropriate method for collection of mites to permit correct identification is needed. Preventive measure includes observance of good personal hygiene such as hand washing after handling products in the field.

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