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Case Report

Incidence of tick as foreign body in ear in Western Pahang and case series

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ABSTRACT

We report the incidence of tick as a manifestation of foreign body in the ear in our centre and how climate change is a contributing factor in the increasing amount of tick densities. The removal of tick can be difficult in centres with limited equipment and expertise. The commonest presentations may include ear pain or ear bleeding. However, in certain occasions, patient may come with its complications, such as otitis externa, otitis media, and rarely, isolated facial nerve palsy. Further discussion includes a case series and the complications and management of the foreign body manifestation.

Keywords: Tick, Foreign body, Facial nerve palsy, Climate

INTRODUCTION

Tick infestation is a common incidence seen in otorhinolaryngology clinics in the East Coast of Peninsular Malaysia.[1] One of the most important factors that affect the prevalence, infection intensity, and distribution of ticks is climate change.[2] A shift in the weather such as the temperature, rainfall, and humidity will be attributed to the transmission of disease, thus influencing the timing and intensity of outbreaks.[3] Cases of foreign body tick complicated with isolated facial nerve paralysis are less commonly encountered.[4] About 2% of patient with intra-aural tick seen has developed unilateral facial nerve palsy as a complication, which is stated in a year study.[5] We are presenting two cases of foreign body tick infestation complicated with facial nerve palsy, which are encountered in our centre located in the western region of Pahang state.

CASE REPORT

Case 1

A 3-year-old Malay boy presented to our emergency department with 4-day history of left otalgia and a sudden onset of left facial asymmetry. He initially presented with a tick in the left ear, which was removed one week prior to the otalgia. Since the removal, he claimed that the pain persisted despite analgesic intake. Upon examination, we noted left-sided hemifacial weakness grade III according to House and Brackman's (1985) classification.

Figure 1: 3-year-old Malay boy with left facial asymmetry (House and Brackmann's classification) grade III.

Otoscopic examinations show a granulation tissue at the poster superior aspect of the external auditory canal, while the tympanic membrane was intact following ear toileting. He was treated for isolated facial nerve palsy and s tarted on antibiotics, intravenous steroid, eye care, and facial rehabilitation.

The patient was seen 2 weeks later in our clinic well with resolved facial asymmetry.

Case 2

A 4-year-old Malay girl presented to our emergency department with left facial asymmetry. On further history, the patient complained of right ear pain for one week. She was suspected to have tick over her left ear, which was not removed. Upon examination, we noted grade III House and Brackman's (1985) classification.

Rigid otoscopic examination showed a tick attached to the left tympanic membrane. It was removed gently under general anaesthesia with crocodile forceps. She was started on steroid tapering dose, analgesic, eye care, and physiotherapy prior to discharge. Upon follow-up in 1 week time, she recovered well and no facial weakness was seen.

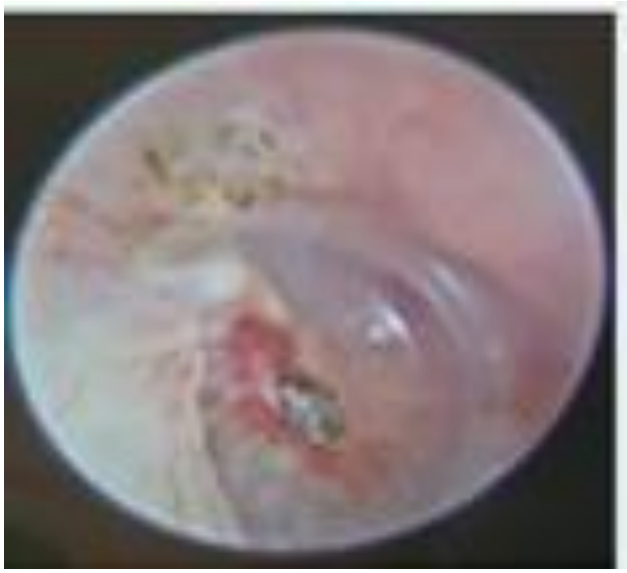

Figure 2: Tick attached to the left tympanic membrane.

DISCUSSION

In Western Pahang, the climate is characterised by extensive rainfall in most parts of the country, thus providing an abundant vegetation cover. This extends the breeding season of rodents in the area and the resultant increase in tick density. The rise in host rodent population also affects the extent of ticks in the country, with a resultant rise in tick and tick- borne diseases.[6]

The data collected in our centre showed the number of foreign body ticks encountered throughout the year 2019 till 2020 at Hospital Sultan Haji Ahmad Shah, Temerloh, Western Pahang. From this data, the rainy season showed higher incidence of tick as a foreign body in ear compared to the dry season.

The modification of the ecosystem and the collateral effects of climate change will inevitably modify the tick life cycle, tick survival, and host abundance. The effect of climate itself on vegetation in a specific environment may influence the number of infected ticks, thus rendering dense humid vegetation favorable for the endurance of some tick species and leading to its rise.[7] Eventually, this results in the increased incidence of foreign body of tick in-ear.

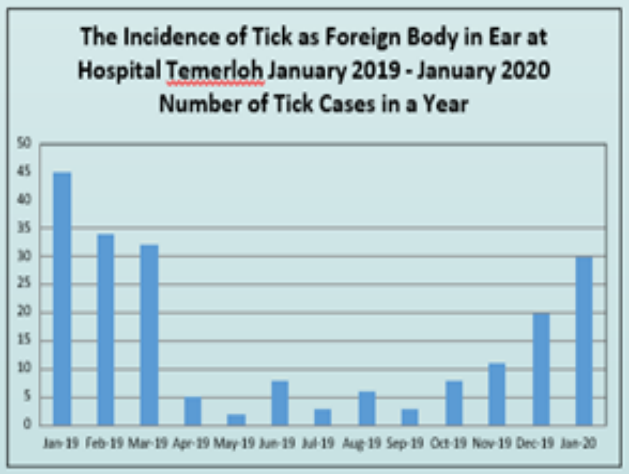

Figure 3: Incidence of tick in hospital Temerloh within one-year duration.

The two major types of tick are known as the Argasidae (soft ticks) and Ixodidae (hard ticks).[8] The most potent and paralyzing tick globally is of the dermacentor, which is derived from the families of Ixodes species and a subgroup of hard ticks.[9] Research on ticks in North America has reported that tick paralysis is frequently due to Dermacentor species.[11] In contrast, Ixodesholocyclus is responsible for most cases in Australia. Both of these species come across in Malaysia, which are known to cause localised facial nerve palsy.[1]

The pathophysiology of localised facial nerve palsy in foreign body of tick infestation has been explained in several theories. The presence of perforation in the tympanic membrane enables the toxin in the tick saliva to enter the middle ear and enclose the facial nerve through the natural dehiscence of the bony canal, thus causing paralysis. On the other hand, Miller (2002) has reported that in the cases of an intact tympanic membrane, a direct extension of the inflammatory process to the bony canal causes persistent gaping. Otherwise, a direct invasion of the infectious organisms into the facial canal through the middle ear may result in oedema of the inflamed nerve

within the canal.[9] The paralysing effect of tick is associated with a toxin secreted in their salivary gland, which is found to oppose the release of acetylcholine at the motor endplate of muscle fibre.[11] The severity of paralysis is independent of the number of ticks infested.[8]

In our practice, we applied 10% cocaine in our patient's ear canal for ten minutes and then proceeded to extract with ear suction or by using crocodile forceps under microscopic guidance. We found the use of cocaine as helpful to reduce the pain and lessen the inflammation inside the ear canal; concurrently, the tick was anaesthetised and easily removed.

On the contrary, the challenge is different when dealing with crying children. More often than not, we will proceed for the removal under general anaesthesia, which is the most recommended. Meanwhile, a successful tick removal method is via manual extraction of the tick as it is safer and less traumatic to the patients.[12] Post-removal of the tick, its fecal particle should also be cleaned as it can be contaminated and lead to infection.

CONCLUSION

From this study, we should anticipate in the incremental incidence of foreign body in the ear during certain climates, namely the rain season. It is important to refer patients with a foreign body in ear to a centre with expertise as early as possible as the aim of the treatment is to prevent further complication.

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