



Poultry Lice (*Menopon gallinae*) Infestation in Throat Poach of Australian Pelican (*Pelecanus conspicilatus*): A Case Report

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Abstract | Four males and eight females Australian Pelicans (*Pelecanus conspicilatus*), weighing around 6.0–7.5 kg and when a physical examination was done, it was founded that lice were stuck inside the throat pouch. These lice stuck almost on every pouch of the Australian Pelicans. The lesion that appeared was in the form of reddish spots from the bite of the lice. Microscopic examination of the lice was taken from the pouch and when examined under a microscope, a parasite known as poultry lice (*Menopon gallinae*) was founded. To our knowledge, it was the first report of poultry lice (*Menopon gallinae*) in Australian Pelican (*Pelecanus conspicilatus*) in Indonesia. The Australian Pelican was injected subcutaneously with ivermectin on the skin under the neck with dose 0,2 mg/kg of body weight, as well as vitamin ADE combination and B complex intramuscular injection for supportive therapy. The treatment was done again in the next two weeks and the in third weeks, all of the pelicans were freed from poultry lice (*Menopon gallinae*).

Keywords | Poultry lice (*Menopon gallinae*), Infestation, Australian pelican (*Pelecanus conspicilatus*)

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INTRODUCTION

Pelican is a large water bird that has a long bill and big throat poach. In the pelican, the sac on the base of the mouth is large and together with the flexible mandible forms a hoop like a fishing net to catch food (Coles, 2007). Australian Pelican generally whites in color with black feathers along their back, tail, and wings. The males are bigger than females. Australian Pelican mainly eats fish, they also eat other animals such as turtles, crustaceans and other waterbirds. Their habitat is in terrestrial wetlands, estuarine and marine habitats. Australian Pelican can be found in Australia, Papua New Guinea, Fiji some parts of Indonesia and New Zealand. These Pelican are medium in size, with length 1.6–1.8 m, wingspan 2.3–2.5 m, weight 4.0–6.8 kg (Marchant *et al.*, 1990). Living in a colony of thousands make the pelican could get invested by a parasite. Birds are prone to ectoparasite infestations especially in high population colony (Bush and Clayton, 2018). Report cases disease caused by poultry lice (*Menopon gallinae*)

that infect Australian Pelican in Indonesia has never been reported.

CASE HISTORY AND CLINICAL EXAMINATION

There are 12 Australian Pelican, 4 male, 8 females weight around 6–7.5 kg which lives in Gowa Discovery Park (GDP) that show a decrease in appetite for a few days. Observation and clinical examination are conducted on this Pelican. Physical examination found a severe infestation of ectoparasite that caused erythematous and rash around the infected area. The microscopical examination is conducted to determine the species of the parasite and it is concluded that it was poultry lice (*Menopon gallinae*). Diagnosis is determined with the consideration of some aspects such as observation result, physical examination, microscopical examination of the parasite. Macroscopic examination show lice which infect is the lice that commonly found in chicken. Direct microscopic examination is conducted to determine the species of the parasite. Identification is done under a microscope and results in identification diagnosed

as poultry lice (*Menopon gallinae*).

TREATMENT

Treatment via subcutaneous (under neck skin) injection of ivermectin (0,2 mg/kg BW) (Simon, 2013), continued by vitamin ADE injection (0,1 ml/kg BW) and B complex (3-30 mg/kg BW) intramuscularly (Carpenter, 2013). The same routine repeated 2 weeks later. Australian Pelican appetite began increasing, shown by the feed that is given is always empty. A physical examination conducted 1 week after the second injection, and the lice are nowhere to be found.

RESULTS AND DISCUSSION

Parasite infection depends on some factor such as host activity, specificity, and immunity of the host. One severed suspect will be the center of contagion to the surrounding population. Research suggests that ectoparasite also acts as agent determining bird selection, affecting life condition and reproduction (Clayton et al., 2010). Lice are more pelican specific rather than fly. There are even lice species that can only be found in pelican. This parasite took blood and nutrition from the pelican and made them cannot adequately preen themselves, weakened and disabled individuals. The more lice infestation found, the lower healthy status of the pelican (Overstreet and Curran, 2005).

Lice infestation from genus *Piagetiella* in the pouch of juvenile White Pelican (*Pelecanus erythrorhynchus*) and cormorants also can be found in di Canada. *Piagetiella peralis* caused hemorrhagic ulcerative stomatitis in White Pelican (*Pelecanus erythrorhynchus*) was diagnosed in one live and three dead juvenile White Pelicans (*Pelecanus erythrorhynchus*). The authors emphasized that they collected more than 500 *Piagetiella peralis* from the throat pouch mucosa (Wobeser et al., 1974). Another research is done to 24 Australian Pelicans that have been found sick and died examine in in southern coastal Queensland from 1977 to 1979. Despite the original cause of death, they also found endoparasites and ectoparasites. Ectoparasites which been found are feather mites, lice (*Piagetiella australis*), and Philoptera (Mc Kenzie et al., 1982).

Another report showed about ectoparasites infestation in throat pouch White Pelican (*Pelecanus onocrotalus*) with a similar lesson to the Australian Pelican cases. These lesions might have been a result of lice attaching and feeding on the mucosa of throat pouch. Taken together with the observation done that lice infestation in the oral cavity may result in stomatitis. May cause blood loss and death due to anemia in severe infestations. In addition, pathogenic microorganisms can enter from the portal of entry produced by the lice and cause severe secondary infections. This case caused by *Piagetiella titan*. *Piagetiella titan* which is a chewing louse from Genera *Piagetiella*. White Pelican

had erosive stomatitis by dried yellowish-brown exudate and petechial hemorrhages in throat pouch from *Piagetiella titan* (Dik, 2006). American White Pelican (*Pelecanus erythrorhynchus*) found dead in California. Necropsy found few endoparasites such as lice in the oral pouch (*Piagetiella* sp.). The parasites were identified until the genus category through an examination of their morphology, the host, and their location (Burns et al., 2013).

According to examination and diagnosis, the GDP case in Makassar is caused by poultry lice (*Menopon gallinae*). In poultry, there are several ectoparasites that infect chicken by either sucking blood (blood sucking lice) or feeding on the skin or feathers (biting/chewing lice). Cross-contamination between different host species is possible if the animals have physical contact. Poultry lice are usually found on a poultry farm. The most common thing happen in a poultry farm when lice infestation is quite high is called pediculosis (Taylor et al., 2016).

Poultry lice (*Menopon gallinae*) is one of the chewing lice located in the chest region. The chest region is the region with the most feathers, *Menopon gallinae* prefers to occupy regions that are overgrown by feathers. In addition, the chest region is also difficult to reach by the chicken, so that the population of lice will likely to be found in this region. Lice are hardly found in the neck, wing, and tail area, due to these regions are more active than the chest region so not many lice are found in the wing region (Setiawan, 2013). Poultry lice (*Menopon gallinae*) usually infect chicken, turkey, and duck and can be found worldwide. *Menopon gallinae* has small palps and a pair of four-segmented antennae, folded into grooves in the head. The abdomen is tapered posteriorly in the female but rounded in the male and has a sparse covering of small to medium length setae on its dorsal surface. Exudates at severely infested regions are potential breeding grounds for bacteria. The development proceeds hemimetabolic ($\frac{1}{4}$ without pupa) via three larval stages and takes about 3 weeks until the sexually mature adult has grown up. The lid-provided eggs ($\frac{1}{4}$ units) get glued at hairs or at the feather base. The larvae hatch from the species of the egg specifically after 4–12 days (Mehlhorn, 2012).

Lice on wild birds do not occur on domestic birds due to host specificity (Alberta Government 2015). The possibility of how this case happens in Australian Pelican might be because of the similarity between chicken and Australian Pelican. Australian Pelican become incidental host in this case. The incidental host is a host which incidentally infected by parasite usually infect other. Transmission is usually by direct physical contact. All species on birds are chewing lice and are therefore of importance because of the direct damage they cause by chewing the skin or feathers, although some blood-feeding may occur when the base

of feathers are damaged. Clinical importance is therefore usually a function of the density of the lice present (Taylor et al., 2016). Host grooming usually keeps lice populations in check, but occasionally intensity of infestation can grow in number (Galloway et al., 2014). This might happen in the Australian Pelican colony. Treatment is given by ivermectin injection. Ivermectin is used in a wide range of animals for internal and external parasites. Dosage regimens vary, depending on the species and parasite treated.

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NOVELTY STATEMENT

This is the first reported case of poultry lice (*Menopon gallinae*) throat pouch infestation of Australian Pelican in Indonesia

CONFLICT OF INTEREST

The authors have declared no conflict of interest.

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