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First Report of *Pennella balaenopterae* Koren and Danielssen, 1877 (Copepoda: Pennelidae) from Turkey

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SUMMARY: A parasitic copepod, *Pennella balaenopterae* Koren and Danielssen, 1877 (Copepoda: Pennelidae), has been reported from the fin whale, *Balaenoptera physalus* (Cetacaea: Mysticeti), which was found dead on the Avluk beach (Yumurtalik seaport, Iskenderun Bay, Northeastern Mediterranean coast of Turkey) in 6 May, 2002. This is the first report of *Pennella balaenopterae* in the Turkish seas.

Key Words: *Balaenoptera*, parasitic copepod, *Pennella*, Mediterranean Sea.

Türkiye'den *Pennella balaenopterae* Koren and Danielssen, 1877 (Copepoda: Pennelidae)'nın İlk Raporu

ÖZET: 6 Mayıs 2002'de Avluk Sahilinde (Türkiye'nin doğu Akdeniz Sahili, İskenderun Körfezi, Yumurtalık Limanı) ölü olarak bulunan balinadan, *Balaenoptera physalus* (Cetacaea: Mysticeti) bir parazitik kopepod *Pennella balaenopterae* Koren and Danielssen, 1877 (Copepoda: Pennelidae) rapor edilmiştir. *Pennella balaenopterae* Türkiye Denizleri için yeni bir kayıttır.

Anahtar Sözcükler: Balaenopt3era, parazitik kopepod, Pennella, Akdeniz.

INTRODUCTION

Their large size and mesoparasitic life have raised a large attention to Pennellidae (7). The species of this family members embeded deeply into the blubber of baleen whales, with the posterior end of their bodies trailing free from the host. The plump and juicy body extremity is plucked from the host and eaten raw, and the "sweet" contents of the blood-filled neck are sucked out (2). The most recent account and discussion of their effects on the fish has been published by Kabata (8). The genus *Pennella* Oken, 1816 are the largest of parasitic crustacea, and except for a single species infecting the blubber and musculature of cetaceans, are found as adults embedded in the flesh of marine fish and mammals.

In the previous studies, only two species belonging to Pennellidae were reported from Turkish Seas. First one is *Lernaeolophus sultanus* (10) and second one is *Pennella instructa* (11). Little is known about parasitic copepods of Turkish Seas. In this study, a new parasitic copepod, *Pennella balaenopterae*, reported from Turkish Seas.

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MATERIALS AND METHODS

A fin whale stranded alive ashore on Avluk beach (36° 45' 31" N - 35° 41' 58" E, Yumurtalık Bight, İskenderun Bay, Northeastern Mediterranean coast of Turkey) in 6 May, 2002 (Figure 1). Species identification was done as *Balaenoptera physalus* (Cetacaea: Mysticeti) according to Jefferson et al. (6). Parasites were taken out from the tissue of the host in the coast and fixed in 70% alcohol. The photos of the whale and parasite were taken in the sampling site. Number of the parasite in each 50 cm^2 was counted for 2 different part of the body of the whale (one was between left side of the body, another one was right side of the body). Total number of the parasite was calculated using these subsamples.

In the laboratory, length of the 22 sampled specimens were measured nearest in cm and original illustration of the parasite was drowned under the stereo binocular microscopy. Identification of the parasite was done according to Hogans (5) and Yamaguti (17).

RESULTS AND DISCUSSION

The fin whale (*B. physalus*) stranded alive ashore on Avluk beach (Fig 1) was 11.10 m in length. Skeleton of the whale is exhibited in Natural History Museum of General Director of Mineral Research and Exploration in Ankara (Turkey).

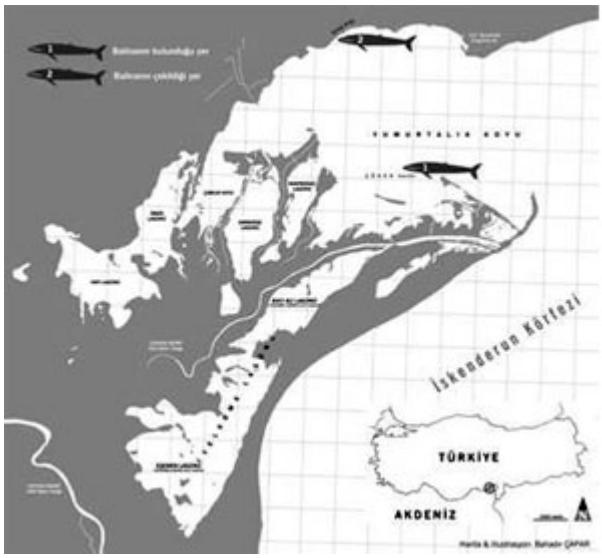

Figure 1. Avluk Beach

Lots of embedded parasitic copepods were observed on the skin of the whale and were taken out easily from the body by hands. When taken out the parasite from the body, a hole occurred on the skin of the whale (Fig. 2A, B).

Pennella balaenopterae (Fig. 3) was identified according to Hogans (5) and Yamaguti (17). Adult females are characterized by a loss of external segmentation and obscuration of swimming appendages. *Pennella* species are recognized by the branched outgrowths on the posterior part of their trunks. The mandibles are prolonged, forming a sucking tube for the mouth through which the species feed. Adults also have paired, segmented sensory antennae. Five pairs of thoracic legs are found in the species, which are more modified in females than males (13, 16).

Number of the parasite was counted as 7 for the left side and as 15 for the right side of the body per 50cm^2. According to subsamples total number of parasite was calculated as 65 for the left side and 138 for the right side, and 203 for whole body of the whale. Mean total length of parasites was calculated as 28±3cm.

Pennella balaenopterae was originally described on *Balaenoptera* spp. in the Iceland, Faroe Islands by Koren and Danielssen in 1877. *Pennella balaenopterae* is the largest known copepod in the world. The presence on Mediterranean fin whales of ectoparasitic copepods *Pennella* sp. has been known for a long time (9). Such parasites are commonly observed on fin whales in the Ligurian-Corsican-Provençal Basin, and are occasionally quite abundant and uniformly distributed over the visible part of the surfacing whales' body. Cases of particularly severe infestations by *Pennella* are known in weakened specimens, such as the whale which stranded alive near Livorno in October 1990. Accounts of endoparasites in Mediterranean fin whales are quite rare (9). Infestation by the parasitic copepod *P. balaenopterae* was found on *B. physalus* in the northeastern Atlantic Ocean (1) and in Galicia (Spain) (12).

In addition to fin whale, an infestation by *P. balaenopterae* was found in a northern elephant seal (*Mirounga angustirostris*) (3), Sei whale (*Balaenoptera borealis*) (4) and minke whale (*Balaenoptera acutorostrata*) (14, 15). Infestation prevalence of 68.4 % for *P. balaenoptera* on minke whales (*B. acutorostrata*) from the Western North Pacific Ocean was reported by Uchida and Araki (15).

In the previous studies, there were only two species reported belonging to the Pennellidae from the Turkish Seas. *Lernaeolophus sultanus* (Nordmann, 1839) was reported on the mouth base of *Diplodus vulgaris* from the Mediterranean by Öktener and Trilles (10) and *Pennella instructa* Wilson, 1917 was isolated on the base of the anal, pectoral fins and in the muscle tissue of the abdomen of *Xiphias gladius* from the Aegean Sea by Öktener and Leonardos (11).

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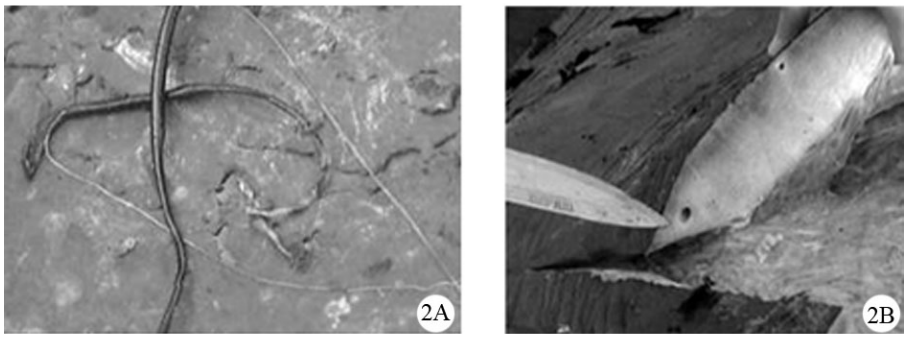

Figure 2A: Parasite in the tissue of the whale, **B:** Hole of the parasite in the skin of the whale. **Figure 3**. *Pennella balaenopterae*, habitus.

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