Epidemiological and Histopathological Investigation of Sarcoptic Mange in Camels in Egypt


Abstract:

Simple Summary: Sarcoptic mange is an important zoonotic parasite affecting camel production. Mange zoonosis in camels is complicated by scarcity of available data. One of the main strategies for disease control is early detection of the parasite combined with prevention/control of the major risk factors associated with the infection. The present study focused on the prevalence of sarcoptic mange in camels from Egypt together with a histopathological examination of the parasite and association of the major risk factors, to describe the epidemiological pattern of the disease. Our data demonstrate that 47.6% of the camels harbored sarcoptic mange infections. In addition, the animals exhibited obvious clinical signs of mange and numerous histopathological findings that are consistent with sarcoptic mange. The camel's age, gender and sampling season were found to be the most significant risk factors associated with the disease. Taken together, our epidemiological and histopathological data are consistent with sarcoptic mange being widespread among camels in the studied area. Our study suggests further research is needed for management of this zoonotic disease in Egypt. Abstract: Mange has been considered one of the most common parasitic infestations among camels. It adversely impacts animal productivity and poses a risk to human health. Given the scarcity of available data about mange in camels, the current study focused on the prevalence of camel mange and its associated risk factors in Aswan Governorate, Egypt. Towards this end, a general visual inspection was conducted on camels (N = 210) in different markets and slaughterhouses in Aswan Governorate. Animals 2020, 10, 1485; doi:10.3390/ani10091485 www.mdpi.com/journal/animals Animals 2020, 10, 1485 2 of 11 Skin scrapings from suspect infected camels were also examined microscopically. Importantly, these findings were further checked and confirmed by histopathology on samples from suspected cases collected post-slaughter in abattoirs. The possible risk-associated factors, which include the camel's age, sex and sampling season, were recorded and statistically analyzed. Interestingly, the data showed that a total of 100 camels (47.6%) were found exclusively infested by sarcoptic mange. Furthermore, the predominant histopathological changes included burrowing tunnel of mites in the skin, hyperkeratosis and acanthosisconsis of the epidermis, while the dermis showed hemorrhage, mononuclear inflammatory cell infiltration around the blood vessels and perifolliculitis. These major histopathological findings are consistent with sarcoptic mange. Furthermore, the statistical analysis of the possible associated risk factors, camel's age (p = 0.006), gender (p = 0.032) and sampling season (p = 0.004), were all found to be significantly acted and related to the disease. In this regard, camels ≥ 2 years old were found at higher risk of infection (odds ratio (OR) = 2.75; 95% confidence interval (CI), 1.345 to 5.604) versus younger animals (OR = 0.36; 95 CI, 0.1784 to 0.743). Females had higher odds of exposure (OR = 2.02; 95% CI, 1.096 to 3.708) compared to males (OR = 0.50; 95% CI, 0.269 to 0.912). Moreover, the exposure to infection was reported higher in winter (OR = 2.30; 95% CI, 1.297 to 4.098) than in summer (OR = 0.43; 95% CI, 0.244 to 0.771). Collectively, our data provide novel epidemiological and histopathological support for sarcoptic mange being widespread among camels in the studied area. Sarcoptic mange is extremely contagious and zoonotic. Therefore, our baseline investigation indicates an urgent need for additional multicenter-studies to investigate the occurrence of this disease in camels and humans combined with the appropriate control measures of camel importation for combating this disease.

Keywords:

came; Egypt; histopathology; prevalence; sarcoptic mange; zoonosis

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