Seroprevalence and associated factors of trichinellosis in indigenous pigs and rural communities in Vietnam

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Background: Trichinellosis remain challenges to human health and animal productivity worldwide. *Trichinella* spp. has been found in domestic and wild animals in 66 countries, while human trichinellosis has been documented in 55 countries, especially in developing countries. In southeast Asia, trichinellosis has been reported in Laos, Thailand, Cambodia and Vietnam, where the practice of eating undercooked or fermented pork is common. While information on the occurrence of this disease is infrequent, they are endemic in parts of Vietnam and mainly related to indigenous pigs kept by ethnic minorities. This study aimed to identify seroprevalence of trichinellosis and associated factors of both indigenous pigs and humans in Northern communities in Vietnam.

Materials and Methods: A cross-sectional study was conducted in 2021 in ten communes in Bac Yen district (Son La province) and Bat Xat district (Lao Cai provinces). A total of 1,000 serum samples (500 indigenous pigs and 500 community participants) was collected and tested using a commercial ELISA test kit (Priocheck, ThermoFisher). Structure questionnaires were also used to interview selected pig owners and sampled community members regarding pig raising practice, eating behavior and disease knowledge and prevention.

Results: The result shows that seroprevalence of trichinellosis in indigenous pigs and humans were 9.0% (45/500, 95%CI: 6.7-11.9) and 13.4% (67/500, 95%CI: 10.6-16.8), respectively. *Trichinella* seroprevalence in human was significantly higher in Son La (16.7%) compared to in Lao Cai (8.5%), but not for seroprevalence in pigs. Factors associated with trichinellosis seroprevalence in human were raising pigs' activities (p=0.029, Fisher test) and eating raw vegetable behavior (p=0.007, Chi-square test). While factors associated with trichinellosis seroprevalence in pigs were farmer's knowledge about trichinellosis (p=0.033, Chi-squared test).

Conclusions: Seroprevalence in both pigs and humans in northern Vietnam were relatively high, especially in the endemic province, which suggested the possibility of *Trichinella* spp. circulation in the community and indigenous pigs. Animal and public health awareness for the northern communities and pig farmers, i.e., using One health approach, are necessary to improve prevention and control this disease.

Keywords: Zoonosis, Indigenous pigs, Vietnam