

**PREVALENCE OF *Taenia solium* CYSTICERCOSIS IN
PIGS AND HUMANS IN NEPAL**

A

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BY

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ABSTRACT

Taenia solium, a zoonotic parasite is endemic in most developing countries where pork is consumed and recognized as the main cause of acquired epilepsy in the humans. With an aim to investigate the seroprevalence of cysticercosis in Nepalese people and swine reared at the study area, a seven month study was carried out at Central Department of Microbiology and National Zoonosis and Food hygiene research Center (NZFHRC). For the study, blood samples of 198 pigs and 142 suspected human for neurocysticercosis from Institute of Medicine (IOM) and Neuro hospital of Biratnagar were examined for the presence of *Taenia solium* circulating parasite antigen by using a monoclonal antibody based sandwich enzyme linked Immunosorbent assay (Ag-ELISA). Out of 142 human blood samples, 10.6% (n=15) were found to be positive for *T. solium* metacestode circulating antigens. The positivity rate was 80% (n=12) in males and 20% (n=3) in female's patients. The highest positivity of infection was found in the age group 30-40 i.e. 40%. There was no significant association between the incidence of the disease and different parameters like age and sex ($P>0.05$). Out of 198 slaughtered pig samples, 21.21% (n=42) were found to be positive for *T. solium* metacestode circulatory antigens. The high positivity of cysticercosis was found in pigs brought from different parts of Kathmandu (59.52%) followed by pigs imported from India (21.42%), Sunsari (9.52%) and Kavre (9.52%) respectively. There was no significant association between the incidence of the disease and different parameters like slaughtered place, sex and breed ($P>0.05$).

The porcine cysticercosis and neurocysticercosis in humans is highly prevalent in the study area. This is due to the fact that pigs are brought from low sanitized areas where they are reared in free range with easy access to human feces and availability of infected pork meat in market and consumption of undercooked meat are other contributing factors. Further studies are needed to evaluate these possibilities and a better knowledge of parasite transmission dynamics which will allow proper implementation of prevention and control measures for a better assessment.

Key words: *Taenia solium*, Cysticercosis, Neurocysticercosis, ELISA.

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LIST OF ABBREVIATIONS

Ab	-	Antibody
AC	-	Anterior chamber
AE	-	Active epilepsy
AED	-	Antiepileptic drugs
Ag	-	Antigen
CBS	-	Central bureau of Statistics
CDC	-	Center for disease control
CNS	-	Central nervous system
CSF	-	Cerebrospinal fluid
CT	-	Computed tomography
DNA	-	De oxy-ribonucleic acid
EITB	-	Enzyme immunotransfer blot
ELISA	-	Enzyme linked immunosorbent assay
FNAC	-	Fine needle aspiration cytology
FPES	-	Formalin-fixed paraffin-embedded sections
g	-	RCF –rotational centrifugal force
GTCS	-	Generalised Tonic Clonic Seizure
HRP	-	Horse radish peroxidase
ITFDE	-	International Task Force for Disease Eradication
mAbs	-	Monoclonal antibodies

MRI	-	Magnetic resonance imaging
NBCS	-	Newborn calf serum
NCC	-	Neurocysticercosis
NTD	-	Neglected tropical Disease
NZFHRC	-	National Zoonoses and food Hygiene Research Center
OD	-	Optical density
OFZ	-	Oxfendazole
OPD	-	Ortho-phenylenediamine
OPD	-	Out patient Department
PBS	-	Phosphate Buffered Saline
PCR	-	Polymerase chain reaction
TCA	-	Trichloroacetic acid
Tw-20	-	Tween 20
WHO	-	World Health Organization