

PORCINE CYSTICERCOSIS : EPIDEMIOLOGY, DIAGNOSIS AND TREATMENT

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INTRODUCTION

Cysticercosis is a common disease in pig raising areas of the third world.^{1,2} The life cycle of *Taenia solium* includes the pig as the normal intermediate host, harboring the larval vesicles or cysticerci, and human as the definitive host, harboring the adult form of the tapeworm. Humans can also serve as the intermediate host and develop the cystic form by accidental ingestion of tapeworm eggs.³ Human cysticercosis causes a variety of neurological symptoms, most commonly seizures due to cysts in the brain (neurocysticercosis).^{4,5}

Porcine cysticercosis produces widespread livestock production losses.⁶ The rates of porcine infection are variable, but in endemic regions, over 30% of pigs may be infected.^{7,8} In an abattoir study in Nigeria, over 20% (483/2,358) of pigs were found infected by ante-mortem examination of the pigs' tongues and post-mortem examination of the carcasses.⁹ However, figures obtained from slaughterhouse inspection generally provide lower levels of infection because obviously infected pigs are not brought to the abattoir for slaughter.¹⁰ Geerts¹¹ found that, although the official figures returned by the meat inspection services show that the number of Belgian cattle infected with cysticercosis decreased during last years from 0.3 to 0.03%, systematic search and careful detection proved that 9.5% of cattle were infected with cysticerci of *Taenia saginata*. This discrepancy with the official figures was due to the

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inappropriate detection techniques used routinely in the slaughtering, and demonstrated that, even in Europe, official data may widely differ from reality.

In this report we will review the existing studies on the epidemiology of porcine cysticercosis, including our initial description of the use of sentinel pigs to monitor environmental contamination, and will summarize our experience in the diagnosis and treatment of porcine cysticercosis, including the introduction of oxfendazole as the first effective, single dose therapeutic regimen.

DIAGNOSTIC TECHNIQUES

Infection by *T. solium* in pigs can be detected by necropsy, by examination of the tongue of the animal, or by serology (using the immunoblot assay to demonstrate antibodies to *T. solium*). Necropsy is only of limited use for epidemiological studies, because in endemic countries most pigs are killed clandestinely. Tongue examination, although specific, is only moderately sensitive, requires highly trained personnel, is time-consuming and entails the risk of being bitten. The latter technique appears to be highly reliable, and it is therefore best suited to field surveys. Pigs can be bled rapidly from the anterior cava vein, a task which requires less training, and involves less danger for the operator than does the examination of the tongue. The enzyme-linked immunoelectrotransfer blot (EITB, Western Blot) assay is highly specific, and is more sensitive than either necropsy or tongue examination for the detection of *T. solium* infection.⁷

Porcine serology does not correlate perfectly with necropsy, and often returns positive results when necropsy is negative. The EITB assay, however, is highly specific since pigs from *T. solium* non-endemic areas are serologically negative. A positive result in the face of a negative necropsy could result from either exposure to *T. solium* infection, a past infection that has cleared, or from an occult lesion (missed on necropsy).⁷

THE MARKETING OF CYSTICERCOTIC PIGS IN THE SIERRA OF PERU

In Peru, consumption of pork supplied from regulated slaughterhouses is primarily restricted to the large cities on the coast. Approximately 65% of the pork consumed in the country is obtained through informal channels that are