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Prevalence of gastrointestinal parasite in pigs of Hisar city, Haryana

Hardeep Kalkal and Sukhdeep Vohra

Abstract

The present survey was performed to determine prevalence of gastrointestinal parasites in Hisar city of Haryana (India). A total of 50 faecal samples were collected randomly from pigs of with recording of age group and sex from Hisar city. Faecal samples were examined using floatation and sedimentation techniques. Among the samples examined, 24 (48%) were positive for gastrointestinal parasites and their respective prevalence were *Balantidium coli* (48%), strongyle (28%), *Trichuris suis* (22%), coccidia oocysts (14%) and *Ascaris suum* (8%). While mixed infection of *B. coli*, *T. suis* and coccidia were 8%. This short study reveals amount of gastrointestinal load in pigs of Hisar city.

Keywords: Prevalence, gastrointestinal parasites, pig, Hisar city

Introduction

Internal parasites are the major biological constraints to efficient pig production but they are often overlooked as the clinical symptoms are rarely apparent. In pigs, parasites cause 5% and 31%, reduction of the daily feed intake and average daily growth, respectively and an average 17% higher Feed Conversion Ratio compared to the parasite-free fattening pigs (Ozsvari, 2018) [12]. In India, majority of pigs are raised under free range system where they feed upon raw garbage, kitchen waste and faecal matter making them more prone to parasitic infections (Tiwari *et al.*, 2009) [18]. Moreover, the close association between pigs and humans enables cross-infection with a range of zoonotic parasites like *Taenia solium*, *Trichinella spiralis* and *Toxoplasma gondii*, all of which contribute deleteriously to human health. Pigs are infected with wide range of gastrointestinal (GI) parasites with reports from all corners of the world (Tamboura *et al.*, 2006; Lai *et al.*, 2011; Navarro-Gonzalez *et al.*, 2013; Yui *et al.*, 2014; Alyne *et al.*, 2015) [1, 5, 6, 8, 10] including India (Laha *et al.*, 2014; Dadas *et al.*, 2016; Singh *et al.*, 2017; Patra *et al.*, 2019) [3, 4, 9, 11]. The growing demand for pork due to the growth of hotel industry and proliferation of fast food chains in the country has prompted farmers in Haryana to go in for pig farming in a big way. In preview of the significance of GI parasites as one of the most important causes of economic losses to pig industry (Roessel *et al.*, 2017) [13] and lack of data from Indian states, so this pilot survey was conducted in Hisar city of Haryana.

Materials and Methods

Location, geography and climate

The city Hisar of Haryana is located at 29°5' north latitude and 75°45'55" east longitudes. It covers a geographical area of 3, 983 Sq. Km. and elevated from sea 215m (705ft).

Sample collection and analysis

A total of 50 faecal samples were collected from pigs of Hisar city. Random sampling was done while collecting the faecal sample from Hisar city. Samples were examined using floatation and sedimentation techniques as per standard protocols (Soulsby, 1982) [14].

Statistical analysis

The data generated were statistically analyzed using IBM SPSS software version 20.

Results

Prevalence of GI parasites in pigs

Out of the 50 pig faecal samples analyzed, 24 (48%) were found positive for one or more GI parasites. *Balantidium coli* was the predominant species with a prevalence of 48%. The other

GI parasites recorded were strongyle (28%) followed by *Trichuris suis* (22%), coccidia oocysts (14%) and *Ascaris suum* (8%). While mixed infection of *B. coli*, *T. suis* and coccidia were (8%) (Table 1). Cyst and trophozoites of *B. coli* in of pigs (Figure 1).

Discussion

Our reports confirm with Kaur *et al.*, 2017 have recorded an overall higher prevalence of 56.5% in pigs from Punjab, India. More or less similarly, infection of pigs with GI parasites with prevalence rates varying between 13.2 to 96.4% has been widely reported from all corners of world (Roepstorff and Jorsal 1989; Roepstorff *et al.*, 1998; Tamboura *et al.*, 2006; Tiwari *et al.*, 2009; Ismail *et al.*, 2010; Lai *et al.*, 2011; Obonyo *et al.*, 2013; Dey *et al.*, 2014; Okorafor *et al.*, 2014; Alynne *et al.*, 2015; Lipendele *et al.*,

2015; Atawalna *et al.*, 2015; Nonga and Paulo, 2015; Junhui *et al.*, 2015; Roesel *et al.*, 2017; Chilundo *et al.*, 2017; Kouam *et al.*, 2018) [15-22, 24-31].

The parasite spectrum was similar to that of previous studies from other tropical or subtropical countries (Tamboura *et al.*, 2006; Nissen *et al.*, 2011; Chilundo *et al.*, 2017) [31, 33, 34]. Hisar city have hot and humid climate thus facilitating survival, development and propagation of the pre-parasitic stages of the GI parasites, hence higher prevalence rates.

Conclusion

Gastrointestinal parasites are prevalent in pigs of Hisar city of Haryana with a prevalence rate of 48% and *Balantidium coli* as the predominant parasite and followed by strongyle (28%), *Trichuris suis* (22%), coccidia oocysts (14%) and *Ascaris suum* (8%).

Table 1: Prevalence of gastrointestinal parasite infection in pigs Hisar city of Haryana

Location	No. of samples		Parasite observed					Total mixed infection
			Nematodes			Protozoa		
Hisar city	Examined	Positive (*)	Strongyle spp. (*)	<i>Trichuris suis</i> (*)	<i>Ascaris suum</i> (*)	Coccidia oocyst (*)	<i>B. coli</i> (*)	04 (8) ^(a)
		50	24 (48)	14 (28)	11 (22)	04 (8)	07 (14)	

(*) Percentage of prevalence, *B. coli*, *T. suis* and coccidia ^a

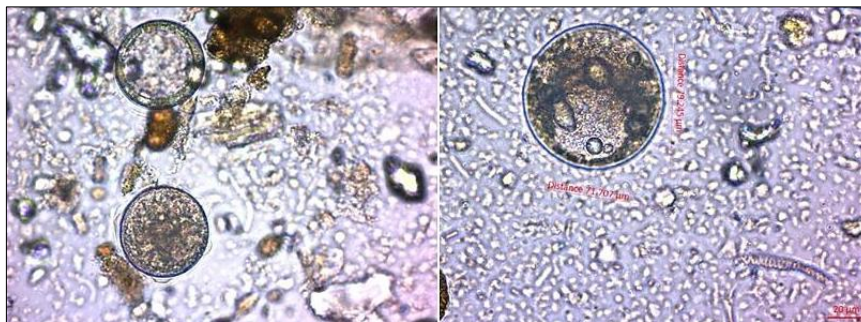


Fig 1: Picture showing cyst (right) and trophozoites (left) of *B. coli* at 40x

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