

Prevalence of Zoonotic Hydatidosis among Slaughtered Buffaloes in Aligarh Area of Uttar Pradesh

Khalid Hussain, Sanjolly Gupta, Gobinda Yadav,
I. A. Shah

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Abstract Hydatidosis is an important medical, veterinary and economic concern in India. The public health and economic significance of hydatidosis is the most important of the cestode zoonosis. Study was conducted on the prevalence of hydatidosis among slaughtered buffaloes in Aligarh area of Uttar Pradesh at the time of slaughter by inspecting the viscera and carcasses for the presence of hydatid cysts with particular reference to lungs, liver, spleen and heart. The prevalence of hydatid cysts in buffaloes was found to be 21.67%. The presence of hydatid cysts was observed more in lungs with 54% followed by 32% in liver, 10% in spleen and 6% in heart, respectively.

Keywords Prevalence, Hydatidosis, Abattoir, Buffaloes.

Introduction

Hydatidosis is a zoonotic parasitic disease caused by the larval stage of *Echinococcus granulosus*, involving two mammalian hosts where carnivores such as dogs are the definitive hosts and herbivores and omnivores as the intermediate hosts in which development of hydatid cysts occur in lungs, liver and other organs. In animals, hydatidosis causes major economic loss due to condemnation of liver, lungs, other organs and at times the meat inspection. Severe hydatidosis in animals results in retarded growth, reduced quality and yield of meat, milk or wool. It is a public health and economic problem of global proportions as per Khan and Purohit [1].

The pathogenicity of the cyst depends on the severity of the infection and the organ in which it is situated. In hydatidosis there is a development of the hydatid cysts in organs such as lungs, liver, spleen, brain and heart. Consumption of beef in India was around 2 million tons in 2012, as per the report of GAIN (Global Agricultural Information Network). Beef production and consumption has doubled in three years between 2008 and 2011 and is set to scale further heights as stated by Subramani [2]. The estimation of the economic importance of hydatidosis varies greatly amongst countries and regions. There are differences in the reports of hydatidosis in buffaloes slaughtered in different regions of India as reported by Khan and Purohit [1]. The prevalence rate in North India was reported as 48% for water buffalo, because

K. Hussain, S. Gupta, G. Yadav*, I. A. Shah
Al-Hamd Agro-Food Products Private Limited Aligarh,
Uttar Pradesh, India
e-mail: vetdrgobindayadav@gmail.com
*Correspondence

of an extensive distribution throughout the world, it gets such a significant attention that prevention of this disease is one of the dynamic programs of the World Health Organization. The Indian subcontinent provides ideal conditions for the establishment, propagation and dissemination of hydatidosis both in human and livestock as per Gupta et al. [3].

Materials and Methods

The attempt was made to know the prevalence of hydatidosis among slaughtered buffaloes at Al-Hamd Agro-Food Products Private Limited, an abattoir in Aligarh area of Uttar Pradesh, a government approved slaughter house having a capacity to slaughter 500 buffaloes per day. During the period from 1st July 2015-31st August 2015, a total of 25,210 buffaloes were slaughtered. Animals were brought from different parts of the state to this abattoir for being slaughtered. As a part of an on-going surveillance system each slaughtered animal was inspected individually by a veterinarian in the course of their routine duties. The carcass and the viscera of the slaughtered buffaloes were inspected for the presence of hydatid cysts with particular reference to lungs, liver, spleen and Heart.

Visceral organs were assessed macroscopically either by visual inspection or palpation and when necessary with one or more incision. Individual cyst was carefully incised and examined for protoscolices which look like white dots on the germinal epithelium; such cysts were characterized as fertile cysts. The organ wise fertility rate was also recorded so as to know the percentage of fertile and sterile hydatid cysts in different organs. The results of the study were expressed by percentage.

Results and Discussion

Among 25,210 buffaloes examined 5,464 buffaloes were found to harbor hydatid cysts with an overall prevalence of 21.67%. The frequency of distribution of hydatid cysts in various visceral organs with particular reference to lungs, liver and spleen was also studied. Distribution of cysts in visceral organs is given in Table 1. Lungs accounted for 54% followed

Table 1. Distribution of cysts in various visceral organs (N=25,210).

Organs	Positive (% age)	Fertile (% age)	Sterile (% age)
Lungs	54	58	42
Liver	32	55	45
Spleen	10	5	95
Heart	6	5	95

by 32% in liver, 10% in spleen and 6% in heart, respectively. Hydatid cysts in lungs accounted for 58 and 42% of fertile and sterile cysts, respectively, whereas in liver, 55 and 45% were found to be fertile and sterile cysts, respectively. From spleen and heart only 5% cysts were found to be fertile. Similar finding were reported by Pour et al. [4].

Conclusion

The higher prevalence of hydatidosis in buffaloes slaughtered in Al-Hamd Agro-Food Products Private Limited is likely due to the over population of stray dogs in the areas where the plant gets its supply. Hydatid disease is caused by small tapeworms (*Echinococcus granulosus*) that live in the intestine of dogs and continuously passes eggs through faces and thus dogs act as regular carriers of the disease. Unhygienic and lack of appropriate disposal of affected organs at the plant adds to the higher risk of infection. Thus, there is an immediate need for mass deworming program in stray dogs. Proper disposal of the affected organs, increasing the awareness regarding the disease among the butchers and implementing effective sero-surveillance of the disease is the need.

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