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# Prevalence of Cattle and Buffalo Lung-worm Infestation in Tabriz city, Iran

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**ABSTRACT: Lungworms can result an infection of the lower respiratory tract, usually resulting in verminous bronchitis or verminous pneumonia. The aim of this study was assessment of cattle and buffaloes contamination to lungworms of Tabriz city in Iran in 2013. In this study initially with referring to Tabrizabattoir were selected rejected and apparently healthy lungs by randomly and then sent to parasitology laboratory of veterinary faculty of Tabriz branch, Islamic Azad university. In lab, lungs were opened and contents were isolated. Then with staining of parasites and creating of slides, type of parasite was detected by light microscope. Of 200 collected lungs, were infected 33 cases (16.5%) to hydatid cyst, 95 cases (47.5%) to *Dictyocaulus viviparous*. also 13 cases (6.5%) of lungs were infected to *Linguatula serrata* larva. with attention to relatively high contamination rate in Iran, exerting of prevention and treatment measures was recommended.**

**Key words:** Cattle and buffalo, Lung-worm, Tabriz, Iran.

## INTRODUCTION

Large ruminants are important domestic animals in tropical livestock production systems (Eslami 1999). They play a great role in food supply, a source of income and foreign currency (Etminani 1980). However, the economic gains from these animals remain insignificant when it is compared to their huge number. This low productivity is a reflection of disease, limited genetic potential and husbandry standard (Gorski *et al.* 2004). Helminthes of ruminants are ubiquitous and many tropical and sub-tropical environments in the world provide nearly perfect conditions for their survival and development. Lungworms can result an infection of the lower respiratory tract, usually resulting in verminous bronchitis or verminous pneumonia (Gorski and Niznikowski 2004). Lugworms are Protostrong ylids and *D. viviparous*. Protostrongylids are heteroxenous parasites that infect terrestrial mollusks as intermediate host (Imari 1962) where as *D. viviparous* has a direct life cycle (Maraqa, 2005). Small and Large ruminant's lungworms with waste and losing of livestock productions cause significant damages (Nematollahi and Moghaddam 2009 and Sami, 1984). *Dictyocaulus viviparous*, cystocaulusocreatus, Protostrongy lusrufescent and Muellerius capillaries are responsible to these damages (Uriarte Cabaret, 1985 and Yildiz, and Gurcan, 2003). Most of done observes and studies are based on detection of contamination to cattle and buffaloes lungworms in Tabriz according to fecal experiments and abattoir assessments. (Nematollahi and Moghaddam 2009).

The aim of this study was assessment of cattle and buffaloes contamination to lungworms of Tabriz city. In this study initially with referring to Tabrizabattoir were selected rejected and apparently healthy lungs by randomly and then sent to parasitology laboratory of veterinary faculty of Tabriz branch, Islamic Azad university

## MATERIALS AND METHODS

This study was done in 3 steps as follow:
Collection of lungs, work on lungs and work on parasites.

*A. Collection of lungs*

For 6 month in 2013 with referring to Tabriz abattoir rejected cattle and buffalo lungs for 150 samples and apparently healthy lungs for 50 samples were selected by randomly and were located into plastic packages and sent to parasitology laboratory of veterinary faculty, Tabriz branch, Islamic Azad University.

*B. Work on lungs*

In this study we cut the lungs from trachea and then washed opened lungs with water and contents were collected in the basin and then were screened with number 60 and 100 sieves, then remaining contents transported to other bottle with formalin 5% and finally labeled. Of course, before opening of lungs, the lungs were evaluated from existence of hydatid cyst and other nodules.

*C. Work on parasites*

Parasitic samples were collected in glass containers containing 5% formalin for staining for the final diagnosis. Thus, the lactophenol and azo carmine was used for temporary staining and carminic acid & alcohols 50, 70, 80, 90, and 100% for permanent staining.

The samples were carefully evaluated using a microscope. The keys in the Schmidt's book were the reference for identifying gender and species of parasites.

## RESULTS

From 100 cattle and 100 buffalo assayed lungs these results were achieved as follow:

Of 200 total lungs, 33 cases (16.5%) were infected by hydatid cyst, of 200 lungs, only13 cases (6.5%) were infected by *Linguatula serrata* larva.

Among nematodes, totally 1 species were isolated as follow:

Of 200 total lungs, 95 cases (47.5%) were infected by *Dictyocaulus viviparous* which is includes highest infection rate (Table 1) and (Fig. 1-3).

**Table 1: Type and number and percentage of found parasites in cattle and buffalo lungs.**

| Parasite | Cattle = 100 samples (%) | Buffalo = 100 samples (%) | Total = 200 samples (%) |
|---|---|---|---|
| *Hydatid cyst* | 18 (9%) | 15 (7.5%) | 33 (16.5%) |
| *Linguatula serrata* | 6 (3%) | 7 (3.5%) | 13 (6.5%) |
| *Dictyocaulus viviparous* | 57 (28.5%) | 38 (19%) | 95 (47.5%) |

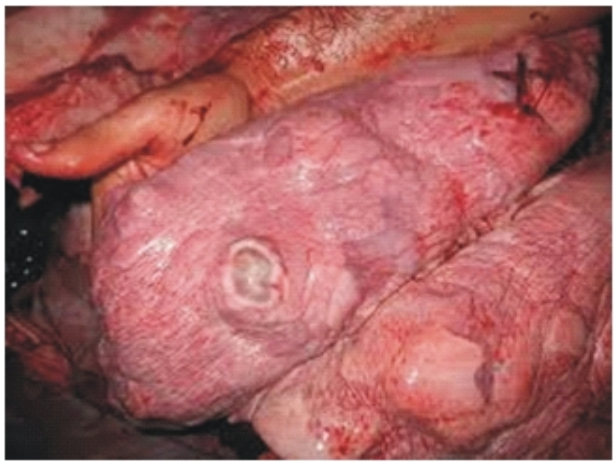

**Fig. 1.** *Hydatic cyst* in lung.

**Fig. 2.** *Dictyocaulus viviparus* in lung.

**Fig. 3.** *Linguatula serrata* Isolated from lung.

## DISCUSSION

Hydatidos is causes considerable economic loss in livestock due to the condemnation of organs. Therefore, it is justifiable to find reliable data for monitoring epidemiologic aspects of disease and prepare baseline data for future comparison (Garedaghi *et al.,* 2011 and Dawit and Abdu, 2012). Although abattoir surveys have limitations, they are an economic way of gathering information on livestock disease (Kadir and Rasheed 2008). It is suggested that an efficient meat inspection service should function as an important monitor of animal disease, being particularly valuable in the field of chronic and ill-defined conditions which are not apparent to either the stock owner or his veterinary surgeon. But which must be of considerable economic and animal health significance (Soulsby 1982 and Dalimi and Motamedi, 2002). Also, a feedback from the slaughterhouse to the individual farm is of great value in the field of preventive medicine. In the current study, the prevalence of Hydatic cyst in cattle lungs was higher than that in buffalo. Many studies have evaluated the prevalence of Hydatic cyst in livers or lungs of livestock. Eslami *et al.* (1999) found that the infection was mostly in the lungs in sheep. In contrast, the infection was spread predominantly in the livers in cattle. In pigs, infection was spread equally in lungs and in livers. In a five-year survey by Tavakoli *et al.*, (2007) in Shiraz (Southern Iran), the condemnation of lungs in cattle, sheep and goats (2%, 2.5% and 1.5%, respectively) was higher than the condemnation of livers in those animals (1.3%, 1.3% and 0.4%, respectively). In a study in Kashan (Central Iran), Arbabi and Hooshyar, (2006) found that the rate of lung infection in sheep and goats (2.8% and 3.9%, respectively) was higher than the rate of liver infection in those animals (1.7% and 2.3%, respectively). In cattle, in contrast, the infection rate in livers was higher than that in lungs (4.4% instead of 3.7%). In a five-year study in 28 Iranian provinces, the average rate of Hydatic cyst infection in lungs in cattle, sheep and goats was 1.8 times greater than that in livers in those animals (Tajik and Tavassoli, (2006), Eerola *et al.*, (2010) and Ploeger and Holzhauer 2012).

*Dictyocaulosis* in cattle is widely present in temperate and subtropical areas. It is very common in regions with a moist temperate with mild climate and high rainfall Eslami, (1999) and Soulsby (1982), Ploeger *et al.* (2012) confirmed the presence of Lungworm infection (*D. viviparus*) in dairy cattle farms in tropical highlands of Tanzania. This infection is also recognized in certain areas of Ethiopia and Kenya in areas characterized by high altitudes (Ploeger and Holzhauer, 2012). An analysis of variance of the study results showed that the disease is significantly present in high altitude region of Tabriz city with a high rainfall and the prevalence varies depending on the altitude and age.

Tow studies of *L. serrata* in domestic bovids from northwest of Iran (Urmia) have revealed different results. One has found the infection with a prevalence as high as 44% in native cattle (n = 110) from Slaughter- house of Urmia. (Tajik, Tavassoli, Dalirnaghadeh, 2006). A prevalence of *L. serrata* infection in cattle slaughtered at Kerman slaughterhouse (south-east of Iran) has found 16.22% in mesenteric lymph nodes and 6.66% in their mediastenal lymph nodes and lung (Garedaghi 2011). Based on results of the present study, the prevalence rate of *L. serrata* infection in cattle and buffaloes in north-west area of Iran seems to be like to rate of the infection in cattle from Kerman (southeast of Iran).

## CONCLUSION

by comparing of these results with our research results can be conclude that infection rate to pulmonary worms in Tabriz city of Iran is almost high and must be take measures in prevention and treatment fields.

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