Middle-East Journal of Scientific Research 22 (6): 924-927, 2014
ISSN 1990-9233

DOI: 10.5829/idosi.mejsr.2014.22.06.9131

Epidemiological Survey of Fasciolosis among Cattle in Region of Annaba, Algeria

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Abstract: An epidemiolocal survey of bovine Fasciolosis was realised during five successive years, from 2008 to 2012.The present study concerned 5985 cattle (local race) that were sacrificed in the slaughterhouse of seybouse Annaba.The results showed that the prevalence of Fasciolosis during the years 2008, 2009, 2010, 2011 and 2012 was 29.79%, 33.51%, 20.04%, 27.08% and 21.92%, respectively. The high rate of prevalence was observed in spring and autumn seasons.

Key words: *Fasciola hepatica* · Cattle · Season Of The Year · Annaba · Algeria

INTRODUCTION

Fasciolosis is an important trematode infection of herbivores worldwide with increasing evidence of prevalence as a disease of humans [1]. Fasciolosis in ruminants, caused by infection with the parasite *F. hepatica* (Temperate liver fluke), causing significant economic loss to rural agricultural communities and commercial producers [2, 3].

It had been shown that the prevalence ofbovine fasciolasis varied from one region to another [4]. In Algeria, the epidemiological investigation conducted by khal-Falah [5] showed that fasciolosis in ruminants was observed throughout the country, but with uneven distribution and its infection was done by ingestion of encysted metacercariae.

It imposes direct and indirect economic impact on livestock production
[6].

Different researchers conducted and reported variable prevalence rate of bovine fasciolosis in different localities of the country [7]. Even though the disease was highly prevalent in North Eastern Algeria, there was lack of well documented information on this regard in the study area. Thus, the study was designed to determine the prevalence of bovine fasciolosis throughout five successive years in region of Annaba.

MATERIALS AND METHODS

Study Area: Annaba is one of the main town in Algeria. This region is situated in North Eastern Algeria. It benefices of mediterranean climatewhich is famous of its hot and humid summer as well as mild and humid winter. The rains are abundant, it extend over an area of 1412Km^2. (Figure 1)

Animals Used: A total of 5985 heads of cattle local race, aged of (1 to 5) years were subjected to post-mortem examination in the slaughter house of Annaba (seybouse) for a period of five successive years (2008-2012). Slaughtered cattle were inspected by trained veterinary technical officers and supervised by a veterinarian. Post-mortem examination was carried out by visual inspection, palpation, incision and olfaction. Data on the number of liver infected partially or totally condemned was recorded.

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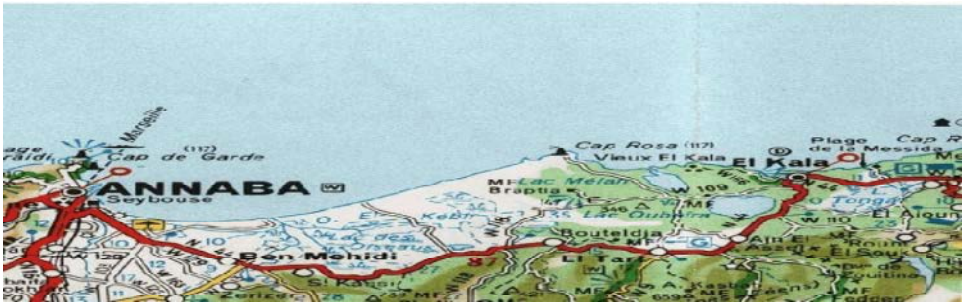

Fig. 1: Geographic situation of the town of Annaba (north-east of Algeria)

Statistical Analysis: The statistic alanalysis was realized using the SOFTWARE MINITAB (Version 13.31, PA State College, USA).

RESULTS

The Prevalence Fasciolosis in Slaughtered Cattle: As shown in Table 1, the prevalence of Fasciolosis during the five years ranged from 20.04% to 33.51%. It reached the maximum during the year of 2009.

However no significant difference was recorded between the five years.

The Season Evolution of Prevalence: Table 2 indicated the seasonal evolution of this parasitosis .It showed what rate of infection that was very variable according to the season. The prevalence was high in spring and autumn, but reduced in winter and summer (during the five years).

The results obtained showed that the variation of the seasonal prevalence of Fasciolosis was highly significant ($p<0.001$) during five years.

Table 1: The prévalence of cattle infection by Fasciolosis during the study period:

Year	Number of liver examined	Number of liver lagged	Prevalence of infection (%)
2008	1141	340	29.79
2009	1092	366	33.51
2010	1405	290	20.64
2011	997	270	27.08
2012	1350	296	21.92

Table 2: Seasonal evolution of the prevalence of Fasciolosis of cattle during the five years.

Season/Year	Winter	Spring	Summer	Autumn
2008	13.79	60.64	09.30	40.14***
2009	11.53	48.88	12.63	58.02***
2010	10.55	32.36	12.21	28.00***
2011	10.98	40.56	12.64	45.41***
2012	08.23	31.61	10.43	38.09***

NB :***($p<0.001$) *variation in the same year.

Table 3 : Determination of the infested cattle according to the age classes.

		Age		
Year	Number	1-2 years	3-4 years	> 4 years
2008	340	202	98	40
2009	366	211	103	52
2010	290	143	111	46
2011	270	161	70	39
2012	296	187	81	28

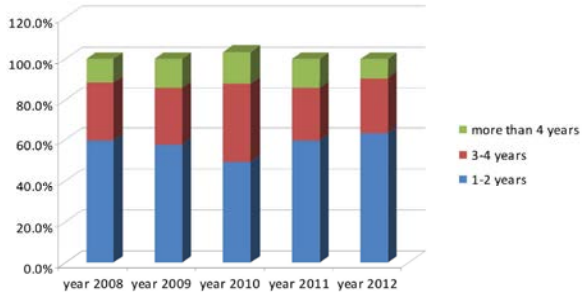

Fig. 2: Prévalence of Fasciolosis in cattle according to age classes.

Age: Table 3 and Figure 2 illustrated the prévalence of this infection according to the age.it turned out that the highest prevalence during the study period (2008-2012) was concered cattle of 1-2 years old (59.41%, 57.65%, 49.31%, 59.62% and 63.17%, respectively).

The prévalence decreased to 28.82%, 28.14%, 38.27%, 25.92% and 27.36%, respectively, in cattle of 3-4 years old..The lowest prevalence was recorded in cattle of more than four years old (11.76%,14.20%, 15.86%, 14.44% and 9.45%, respectively).

DISCUSSION

The prevalence of bovine fasciolosis in the region of Annaba during the five successive years (2008-2012) varied between 33.51% and 20.64%. It was considered as average on comparing to that was recorded by Sedraoui *et al.* [8]

Also, the results of this study appeared to be in line with Al Atrakji [2] who recorded the prevalence of bovine fasciolosis at the slaughterhouse of Skikda, Jijel and Constantine, in the region of El taref (42.80%, 33% and 28.57%, respectively).

Additionally, Kayouche [9] showed a prévalence of 5.77% in the région of Setif in Algeria. Gimard [10] on his side, a survey in the slaughterhouse of cattle in the countries of loire noted an infection rate of 7%.

In 2012, in Ethiopia the overall prevalence of bovine fasciolosis was20.3% in Addis Ababa abattoir but in Haiti, the prevalence was between 40%and 60% [11].

The overall prevalence of fasciolosis in the study of Yemisrach and Mekonnen [12] in Debri Zeit in Ethiopia was proved to be 21% in 2011.

The analysis of these values showed a great variability of the prevalence that could be correlated with many factors, as the climate, the biotope and the age as well as the absence of control programm.

In this study, the résults of seasonal evolution of the prevalence showed an indicative value of periods of high risk.It showed that during the five years of the study period, the highest prevalence was observed during the spring and autumn. In this sense, Mekroud *et al.*[13] reported two cycles of *Fasciola hépatica* during the year.

In this study, young cattle appeared to be more susceptibe to infection with fasciolosis than adult. These results were consistent with Mekroud [14] and Sedraoui *et al*. [8] who reported that the young cattle (<two years) were most infested and the results of Ladakh region of jammu and Kashmir state aggreed with our results.

CONCLUSION

Our survey of bovine fasciolosis was realised during five successives years from 2008 to 2012 in slaughterhouse of seybouse Annaba has led to following conclusions:

- The prevalence of fasciolosis during the five successive years (2008-2012) varied between 33.51% and 20.64%.
- The highest prevalence was observed during the spring and autumn seasons.

Young Cattle Are Infested: Annaba is a town were high humidity, this helpin the spread of the disease. Deplus, our study is spread over a period of five years, confirmed that no means of fighting efficase is used against this infestation.

So it is necessary to apply a control strategy at local and national level against this dangerous scourge(disease)for animal husbandry and the national economy.

It is useful also to undertake surveys of seroprevalence in different parts of the country to better understand the situation on a national scale.

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