

DIAGNOSIS OF THE BROILER COCCIDIOSIS IN THE DEPARTMENT BLIDA (ALGERIA)

Triki Yamani R.R., M. Bachir Pacha

*Département des sciences vétérinaires, université de Blida, Algérie; email:
bachirpacha_mohamed@yahoo.fr*

Abstract. *The culture conditions play an important role in the pathogenesis of coccidiosis. Its economic impact is serious in each farm as well as for the entire chain. Despite the frequent presence of intestinal lesions of coccidiosis (SLM <2) which can be evaluated in 45 herds, the clinical manifestation is rare. This reflects the omnipresent pressure of coccidia in livestock, but the use of anticoccidial depreciates its pathogenic effects. That portion of duodenal (E. acervulina), which is most affected to nearly (55%).*

Keywords: diagnostic, coccidiosis, Algeria

INTRODUCTION

Avian Coccidiosis is a parasitic, infectious, communicable and contagious disease. [1]. The Coccidia are ubiquitous, which make that the disease looks enzootic. They invade the epithelial cells of the lining of the intestine. The destruction of these cells is accompanied, in severe attacks, important injuries causing bleeding and ultimately death. The birds less severely contaminated never reach the objectives of growth or production [3]. The annual cost in the world of this disease exceeds \$ 800 million [4]. The various health plans are raising a frame from knowledge of the current condition and needs of poultry. Each farm is a special case and that a health farm can also be unique and should be accompanied by an excellent general hygiene and a mastery of zootechnical parameters. The aim of our study is to determine the prevalence of coccidiosis in broiler chickens in the Blida region, to identify the species of Eimeria involved, assessing lesion scores and to evaluate the influence restrictions of aging on the occurrence of coccidiosis disease.

MATERIAL AND METHOD

Our epidemiological work spans over a period of 8 months (from October 2008 to May 2009). It was conducted on 45 barns in several municipalities in the department of Blida.

Materials: To carry out the different autopsies, small equipment is needed, and sacrificed animals covered a representative sample of livestock, usually consisting of 05 live chickens.

Methods: Two visits are programmed for each livestock: on the day of establishment and, from the day minus 20. Audit of farming: The breeding practices

are studied through information recorded in a questionnaire. Data are collected from farmers and veterinary practitioners.

Autopsy of animals: Chickens are taken euthanized by dislocation of cervical vertebrae. The main organs are put out and a necropsy is done by paying particular attention to the bowels in order to develop a lesion score according to the technique of Johnson and Reid [2]. The intestinal portions (anterior, middle, and posterior caecale) are analysed. After that, a score ranging from 0 to 4 + is assigned to each of these sections depending on the severity and extent of injuries observed (0 = no lesions at 4 = very serious injuries). The average final index lesion (SLM) is calculated and the distribution of percentages is recorded.

RESULTS AND DISCUSSION

They concern two main groups of parameters, which are namely: Conduct livestock (Table 1, 2): More than half implementations takes place in February-March, a period of softening climate. The establishment of these farms is largely situated in the regions of Chiffa and Boufarik (30%). This is the statistics of less than 3,000 subjects predominate (75%); large numbers, though few, fall within state structures or large private investors. ISA-15 is the strain most commonly used (% 80). It comes from hatcheries located within 10 km (75%). However, the high mortality rate observed in cans (48.3%) and during the first 3 days of age, the chick is tied to a combination of poor quality and subject to different handling stress. Access to feeders (2 to 3 cm) and drinking (1.5 to 2 cm) is insufficient, but the level of filling 75% in the farms is correct.

The temperature is at the limit of the required standards (28 to 33 ° C) while the humidity varies from one livestock area to another (60% to 65%). The breakdown is in 75% of cases of static type (dependent on windows, the number and location are very uncertain).

Densities (individuals/m²). It is recorded in start-up (40-50), growth (10-20) and finishes (<10), they are acceptable to the required standards. Finally, the majority of farmers we have visited use wood chips as a support base of the litter. This last quality is rather poor (average <2). In addition, all buildings are located on hilly roads with surfaces and variable operating insulation made largely of hard materials (concrete and cinder block). Overall, the design and implementation are far from perfect. The food comes from the region of Blida (85%), rarely provided by neighbouring departments such as (Tizi Ouzou and Algiers = 7% = 7%). Coccidiostats (Sulfonamides or Ionophores) are incorporated in the diet as a preventive as well a curative purposes in the drinking water between J-17 and J-19. 13% of the cases do not use anticoccidials. Water quality is average (69%) because of its origin, (30% out of control) and storage (69% in tanks). Although the principle of "All full, a vacuum" is respected by farmers, preventive health measures are poorly enforced. In about 75% of farms we have visited, we have observed that they are below the required standards (lack of paddling and portals of entry, cleaning, disinfection, pest extermination, and neglect of basic hygiene rules).

Table 1

Results of the survey of livestock in the departement of Blida

CONDUCT LIVESTOCK				
building	Implantation	Hill (55%)	Mountain (45%)	-
	Surface	< 200 m2 (34,5%)	> 200 m2 (65,5%)	-
	Insulation	Concrete (40%)	Cinderblock (43,3%)	Other (16,6%)
Aliment	Origin	Manufacturer(20,8%)	Cooperative (24%)	Regions(55,2%)
	ATC	Preventive (31%)	Curative (55,2)	Sans (13,8%)
water	Potability	Good (31%)	average (69%)	-
	Origin	Well (24,1%)	Tap (69%)	Probe (5,9%)
	Storage	Tank (69%)	Tarpaulin (10,3% °	Ferry (20,7%)
livestock	Périod	Oct-Janv (41,(%)	Feb-Apr (54,1%)	May (0%)
	place	Bouinan (11,4%)	Boufarik (13,6%)	Chiffa (13,6%)
Pets	effective	< 2000 (47,7%)	2000-3000 (25%)	> 3000 (27,3%)
	strain	ISA-15 (79,3%)	Arbore Acres (20,7%)	-
	Quality	< 2 (20,6%)	3 (50,7%)	4 - 5 (27,7%)
	Mortality in the box	< 10 (58,3%)	10 - 20 (38%)	> 20 (3,4%)
	Mortality Day-1 to Day-3	< 50 (89,6%)	50-100 (7%)	100-300 (3,4%)
Feeders	Access (Cm)	< 2 cm (41,1%)	> 2 cm (57,9%)	-
	Filling	Half (23,3%)	3/4 (50%)	Total (23,3%)
Drinkers	Access (Cm)	< 1,5 cm (34,4%)	> 1,5 (55,6%)	-
	filling	Half (44,8%)	3/4 (31%)	Total (24,2%)
Ambiance	Temperature	< 30°C (64,3%)	> 30°C (35,7%)	-
	Humidity	50-55 (11%)	60-70 (68%)	80-85 (21%)
	Ventilation	Statistical (76,6%)	Dynamic (16,6%)	-
Density (subject/m2)	start-up	< 40 (89,3%)	> 40 (10,7%)	-
	growth	< 20 (82,8%)	> 20 (17,2%)	-
	finishing	< 10 (78,6%)	> 10 (11,4%)	-
litter	Type	Wood chip(79,4%)	Mixture (20,6%)	-
	Quality	1 (17,3%)	2 (51,7%)	3 (31%)

The vaccination protocol is almost the same in all farms except for Newcastle disease case in which some farmers practice 2 reminders. Vaccination against infectious bronchitis is rare, and it is nonexistent against coccidiosis (despite the availability of Paracoxi ®). The vitamin therapy (B, C, D, E), Selenium and antibiotics (Sulfonamides, Colistin, Oxytetracycline quinolones) are misused without respect timeout. The incidence of respiratory diseases is increased during the cold period, while digestive diseases are rather frequent during mild periods of the year.

Despite the frequent presence of intestinal lesions of coccidiosis (SLM <2), its clinical manifestation (SLM > 2) is rare. The use of anticoccidial confers some

protection despite the failure of the control parameters of breeding. Especially the proximal portion of the intestine (*E. acervulina*), which is the most affected (55%). This form, although less dramatic than clinically with *E. tenella*, it however, affects more severely because it occurs in a very important part where is where the absorption of nutrients occurs: the duodenum.

Table 2

Results of the measures of the sanitary and medical prophylaxy

PROPHYLAXIE				
Footbath	Steps Health	yes (38%)	No (62%)	
Entry lock		yes (27,6%)	No (72,4%)	
Disinfectant		Absent (62,1%)	Lime (20,7%)	produits (17,1%)
Held Breeder		yes (20,7%)	No (79,3%)	
Cleaning		Water (27,6%)	Detergent(72,4%)	
Disinfection		Water (20,7%)	Produit (79,3%)	
Deworming		yes (20,7%)	No (79,3%)	
Extermination		yes (27,6%)	No (72,4%)	
Drinkers (clean)		Good (17,2%)	Average (65,5%)	Bad (17,2%)
Feeders (clean)		Good (41,4%)	Average (58,6%)	
Duration vacuum		10-15 days (41,4%)	15-20 days (44,8%)	20-30 days (13,8%)
Vaccination		Measuring Medical	N-C (100%)	B.I (24%)

Zootechnical Review: The quantity of food which is consumed varies depending on number and age of animals. The showdown takes place between the ages of 50 to 60 days with an average weight of 2 to 2.5 kg and a speed increasing 40g/jour (60%). The IC is always greater than 2. Although seizures in slaughterhouses remain very limited, mortality is high (5%) Finally, we can say that the loss in the farms visited is important (20%) compared to the normal rate that is around (<3%) (Table 3).

Table 3

Average results of the zootechnique survey of the visited livestock in the department of Blida

REVIEW ZOOECHNIQUE				
Age slaughter (Day)		50-55 (47%)	55-60 (47%)	> 60 (6%)
P.V moyen (Kg)		1,8-2 (20%)	2-2 à 2,5 (63,4%)	2,5 à 2,8 (16,6%)
GMQ (g)		25 - 35 (13,8%)	35 - 45 (58,6%)	45 - 60 27,6%)
I.C		< 2 (96,5%)	> 2 (3,5%)	
Mortality (%)		> 5 (27,6%)	< 5 (3,5%)	
Saisie (%)		0 - 1 (86,2%)	1 - 2 (13,8%)	

The building affects livestock disease control and the level of technical and economic performance. The basic hygiene measures are not met. In addition, there is often a lack of paddling and pest-rodent control. This is essential in the fight against vectors of diseases [3]. Rats are often predators of young chickens, as it is evidenced

by the discovery of dead bodies with visible traces of bites. The poor distribution, limited access to water troughs and exaggerated filling, contributes to the making of the wet litter which promotes sporulation of oocysts which is the greater threat of an outbreak of coccidiosis in chickens. In addition, the animal concentration (density > 10 chickens / m²) does not only promote the accumulation of heavy gases (ammonia), but also it leads to biological contamination (microbial and parasitic). The mortalities recorded in box during the first 3 days of life are due to handling stress in the hatchery, transportation and installation in buildings. The high mortality recorded (mean > 5%) darken the final yield. They are the result of a failure to control the conduct of livestock. In medical prophylaxis, vaccination is becoming more and more room for chemoprevention because of the ban in incorporation of additives in food. Thus vaccination was imposed at high speed in the poultry industry more than any other sector. It is known that vaccination with live strains (Gumboro), and all intercurrent infections (Colibacillosis, omphalitis, Lameness, enteritis, RCM) cause immunosuppression and favors the occurrence of coccidiosis. The effectiveness of the duration of the crawl space was not really a direct link with the outbreak of coccidiosis (SLM-like), but rather due to the quality of disinfection. Although belonging to different drug classes, anticoccidials studied have practically the same efficiency. However, wrong dosage and their continuous use over many years promotes the installation of "usury" or even resistance. This is one major reason that explains the "resurgence" of coccidiosis disease. There is a delicate balance between animals, the environment and the parasite (ecosystem). This imbalance is quickly broken by a multitude of factors, such as poor choice of strain of broiler, litter moist anticoccidial, poor protection (defect prevention). The high temperature (31-33 ° C) may reduce the protection obtained by some anticoccidial when the SLM > 1.45 [5].

The avian strain used (ISA-15), seems to have no effect on coccidiosis. It has nonetheless huge losses (20%). These findings are similar to those obtained by Chermette et al., [1]. Almost all of the parameters characterizing the breeding and behavior, influence the appearance of lesions of coccidiosis are similar to the SLM.

The time and place of breeding, effective strain, the physical quality of chicks, transport, mortality in box, size and fill level of drinking and using insulation and the parameters of atmosphere (temperature, humidity, density, breakdown of litter quality, drinking water and food) all of them determine the increase in the SLM. All information collected on preventive health measures (keeping the farmer, cleaning and disinfection of the building, clean the feeders and drinkers, no foot bath, crawl space) and medical prophylaxis (chemoprevention, immunizations), and pathologies observed (digestive, respiratory and other) influence the rise of the SLM.

The elevation of the SLM is reflected by the increase in age at slaughter, reduced ADG, increased IC, and economic losses. Finally, in terms of economic returns, all slaughter traits have undergone a negative effect (CI > 2, drop = ADG from 35 to 25 g / d, falling PV = 1.8 to 2 pounds), giving a poor productivity (IP) index.

CONCLUSIONS

As a conclusion, we can say that Coccidiosis is an omnipresent parasitic intestinal disease, whose conditions of occurrence are favored by the breakdown of the ecosystem "Coccidia-Host-Environment. We have also noticed that poor control of breeding conditions combined with inadequate control measures are the main contributing factors to its spread. The poor results livestock is the best indicator of this imbalance. The region of Blida, is recognized as a major center of poultry farming, it has huge reserves of productivity. However, it is sufficient to correct all errors for breeding management for a better profitability.

REFERENCES

1. Chermette R., Bussieras J., 1992, Parasitologie vétérinaire vol II Protozoologie – Imprimerie du cercle des Elèves ENVA- 42-58 et 160-168.
2. Jhson.J et Reid.W.M, 1970, Anticoccidial drugs: lesion scoring techniques in battery and floor-pen experiments with chickens. Exp. Parasitol, 28, 30-36.
3. Saville P., 1999, Coccidiose aviaire –Santé An Fiche Tech N°3. Communauté pacifique.
4. Williams R. B., 1998, Epidemiological aspects of the use of live anticoccidial vaccines for chickens; Int. J. parasitol.28, 1089-1098.
5. Yvore P., M. NacirI, L. Conan, R. Mancassol, 1993, Essai de vaccination avec le paracox® dans le contrôle de la coccidiose chez le poulet jaune. Revue de Médecine Vétérinaire.144 (3) :p.197-200.