

CHLAMYDIOSIS IN BREEDING RABBITS

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S U M M A R Y

CHLAMYDIE are known to be involved in the pathology of reproduction of many species but until today, only scarce information is available for the rabbit. Presented in this paper, are the results of an investigations into the importance of this disease in some large commercial rabbit farms from the area of Treviso (North East Italy). Whenever a farmer reported problems with reproduction, careful study of the symptoms was carried out. For each case two does in poor condition were slaughtered for autopsy and their uterus sent to a specialised laboratory for research and identification of the Chlamydie. Results of this research prove that Chlamydia psittaci was present in numerous farms where problems of reproduction were reported. In the rabbit, Chlamydiosis concerns mainly the does during the first and the last week of pregnancy and the young rabbits during the first week of life. Males are infected but without visible symptoms. The main symptoms are:

For the females

- * No mating acceptance
- * Low fertility
- * Embryonic reabsorption
- * Ante or post partum haemorrhages

For the young rabbits

- * Low litters size
- * Birth mortality
- * Hydrocephalus
- * Sensibility to septicemias and diarrhoeas

The symptoms generally last for 10 to 30 days.

Chlamydia psittaci is very sensitive to tetracycline and a treatment of 0.5 g. of this antibiotic (active product)/liter of drinking water during 6-7 days is generally very efficient.

So it has been demonstrated that Chlamydia psittaci is one of the infective agents involved in the pathology of reproduction in the rabbit.

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I - INTRODUCTION

During the last years, different types of infection by pathogenic agent belonging to the family of Chlamydiae have been described (MARDH et al. 1982, SCHACHTER and CALDWELL 1980). Chlamydiae are obligatory parasites as virus but with the difference that they contain the two nucleic acids (RNA and DNA). On the other hand, in contrast with bacteria, Chlamydiae depend on the host cell for metabolisable energy necessary for their biosynthesis. Chlamydiae are involved in some pulmonary diseases (Psittacosis, ornitosis, pulmonary disease of bovine, sheeps, goats, rats) and also genital infections (vagina infection in woman, veneral lymphogranuloma abortion in beef and sheep...).

The Chlamydiosis is also responsible for some sub-clinical infections in poultry and of a severe form of respiratory disease in parrots.

In the rabbit and the hare, Chlamydia psittaci has been shown to cause hepatitis, nephritis, meningoencephalitis and other sudden mortalities (FLATT 1974; LLEONAR ROCA 1989). Some cases of abortion and mortality at birth have also been described (PARKER et al. 1966; LLEONARD ROCA 1980).

But, the number of reported cases is very low and, the zootechnical meaning and importance of this disease on commercial farms has not been clearly described.

In this paper, we present our clinical findings on Chlamydiosis infection in Italian commercial rabbit large farms.

II - METHODS

This work has been carried out at the Zooprohylactic Institute of Treviso which surveys health situation of about 200 large commercial rabbit farms. Any time that reproduction problems have been reported, (low fertilities, abortions, small litters...) a precise diagnosis of the disease was carried out. In each case, two does in poor condition were brought to the autopsy laboratory, slaughtered, and their uterus were immediatly sent to a specialised laboratory (Laboratory of Microbiology, Hospital of Treviso).

The diagnosis was carried out by the method of Chlamydiazine which is a solid phase immuno-enzymatic method based on antigen-antibody immune reaction. This is highlighted through an optical colorimetric reaction and evaluated by spectrophotometry. When a Chlamydia infection was detected, an antibiotic therapy was applied using tetracycline.

III - RESULTS

a) Generalities

The analysis performed demonstrated the presence of Chlamydia psittaci in many of the farms where problems of reproduction occurred. For example, during the 6 first months of 1990, in the province of Treviso, 11 confirmed cases of Chlamydiosis have been found.

b) Symptoms

1) Generalities

Field and clinical anatomy observations demonstrated that Chlamydiosis appears to affect particularly does during the first and the last week of pregnancy and young rabbits during the first week of life. In adults males Chlamydiosis appears to be asymptomatic.

2) Breeding females

On breeding does, all or some of the following symptoms could be observed:

- * no mating acceptance or big difficulties for mating acceptance;
- * low fertility;
- * early abortions;
- * embryonic reabsorptions;
- * early or delayed parturitions;
- * ante or post partum haemorrhages;
- * vaginal mucous discharge or filamentous exudation during the parturition;
- * reduced milk production during the third lactation week (generally when abortions occur) with young rabbits in poor condition as a consequence.

3) Young rabbits

Young rabbits are also affected by Chlamydiosis, either directly, or as a consequence of the poor state of the mothers:

- * low litters-size;
- * neonatal mortality and low birth weight;
- * hydrocephalies at birth;
- * lack of vitality and reduced suckling avidity;
- * sensibility to septicaemias or diarrhoeas;
- * perhaps, conjunctivitis and pneumonias (unconfirmed).

4) Males

Males do not show any symptoms, but can be carriers of chlamydia and infect females.

5) Evolution of the disease

The disease appears to last 10 to 30 days. During this period does are nervous, they eat less and have a shaggy fur. Immunity after natural infection is short lasting and reinfection is common even after adequate antibiotic treatment.

c) Therapy

Chlamydia psittaci is very sensitive to tetracycline. Therapy is effective and recover animals fast although this is only a clinical improvement.

After this treatment, the disease generally returns striking harder the young does which do not has immunity.

Therapeutically, tetracycline has to be used at 0.50 g/liter of drinking water (active product) during 6-7 days.

Simultaneously males should be injected with a 200 mg dose of long acting Terramycine (active product).

Within a short time, reproduction activities will return to normal, abortions and hydrocephalies will stop and fertility will return to a physiological level.

d) Prevention

Vaccinal prophylaxis is not possible since no vaccine is available for rabbit does.

In the breeding units where Chlamydia has been isolated, a periodic use of tetracycline is the only efficient prevention on the basis of a 4-5 day treatment of 0.4 g of tetracycline (active product)/liter of drinking water.

IV - DISCUSSION

As already mentioned (LEONARD ROCA 1980; PARKER et al. 1966; FLATT 1974), Chlamydia psittaci can be involved in pathological problems in the rabbit. These infections general have a genital localisation (PARKER et al. 1966; LEONARD ROCA 1980).

It has been demonstrated here that these last ones are not isolated cases but can be involved in many reproduction problems in the rabbit, particularly in large breeding units. The symptoms are however, less evident than in sheep where the abortions are more numerous and can reach 65% (MARDH et al 1982). It has been demonstrated that Chlamydiosis should be suspected for cases of chronic or acute difficulties of reproduction. When its presence is confirmed, an antibiotic treatment can be successful in solving the problems. For the moment, prevention by vaccine is not possible. The same applies for human where this type of infection is widespread (MARDH et al. 1982; SCHACHTER and CALDWELL 1980). On the contrary, an efficient vaccine exists in sheep. However, many points have still to be investigated.

- Do the does have a sufficient level of antibodies after a clamidiosis outbreak?
- Is Chlamydiosis able to provoke rhinopharyngitis possibly followed by pneumonias in newborn rabbits ?
- Is conjunctivitis in young rabbits induced exclusively by Staphylococci, or could Chlamydia psittaci be involved as well?
- Could Chlamydia psittaci be the cause of a male sex organ inflammation?
- What is the exact percentage of hydrocephalus caused by Chlamydiosis. It has already been demonstrated that some hydrocephalus can be provoked by a Vitamin A excess (CHEEKE 1987). It has been mentioned too that the hydrocephalus due to the Chlamydiosis is less accentuated than this one provoked by an Vitamin A excess (LEONARD ROCA 1980). It is necessary to know the exact importance of the two causes and whether other agents can provoke this syndrome.
- Could fertility of does be improved by a better control of chlamydiosis when artificial insemination is carried out with strict hygienic conditions for sperm collecting? (and with a preventive injection of males with long action terramycine?).

Further research needs to be carried out to answer these questions and to further understand this disease in the rabbit.

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