

Peste dos "Polmões"

by

DR. OCTAVIO MAGALHÃES

(With Plates 52—55.)

This is undoubtedly one of the most interesting problems of animal pathology in this country.

In 1919, in November, I wrote my first note on the subject (1).

I had just seen a panzootic. My opinion had undergone a change. I saw before me a whole chapter of pathology, as yet unexplored, in which the disease, which had seemed unimportant, limited, developed into a disease-complex of the most widespread and severe for the Country.

In 1923 I published my 2nd. note (2).

Finally in the same year there appeared the complete work on the subject (3). It could be seen, however, that it was not final. The last note proved this. After the two first ones there appeared the communication of the emi-

nent research-worker HENRIQUE MARQUES LISBOA (4).

He confirmed our research with definite experiments.

Right from the outset we had said that «peste dos pulmões» was one of the expressions (the cutaneous) of a disease very much more complex in its clinical features.

The diarrhea, or as it is usually called, the pneumoenteritis of calves was a form (the intestinal) of the disease, just as the «Peste de Seccar» (Shrivelings-Disease) was the toxic form, besides the acute and aberrant forms which also belong to the disease.

All this was proved and controlled by me in successive transformations in the laboratory and by observations in the field. I showed that the only cause of the disease was a filterable virus associated with varions and numerous

(1) *Brasil Medico*, Feb. 21, 1920, p. 123.

(2) *Brasil Medico*, V. I, n. 1, p. 6 n. 37; 1923.

(3) *Memorias do Instituto Oswaldo Crnz*, 1923; V. XVI, n. 71, p. 71.

(4) *Brasil Medico*, Oct. 7, 1922, n. 40, Year XXXVI Vol. II, p. 203.

bacteria according to the region, the form of the disease and even to the individual animals.

My observation and experience, today more extensive, has confirmed all this and has added new facts, which however were already foreseen in the earlier papers. Firstly, as to the agents; secondly, as to the lesions.

Agents.

In the final article, in the MEMORIAS DO INSTITUTO OSWALDO CRUZ (op. cit.). I did not go into details as regards the bacteria found in the disease and in other respects very well known (*B. pyocyaneus*, pus-cocci etc.).

A detailed description was given of those thought to be new or of importance in the disease.

Thus 16 microorganisms were spoken of, without mentioning the group of the coli and typhoid bacilli. Of course in this case I should have had to take into consideration *B. coli communis*, *B. typhosus*, the paratyphoid bacilli, especially paratyphoid B, *B. enteritidis* GAERTNER. The following were also pointed out: *B. proteus*, Micrococci, *B. abortus*, and diplococci.

This year I isolated for the first time a *Pneumococcus* from the blood of a calf with the classic *Pneumoenteritis*.

Thus there would be 24 different microorganisms, without counting strains, which often show subtle differences.

This would not help the exposition of the work.

It must be pointed out, however, that it is not possible (as I had opportunity enough of certifying myself) to isolate any visible micro-organism from the blood, in spite of a great number of inoculations on the most varied aerobic and anaerobic culture-media.

In the paper in the *Memorias do Instituto Oswaldo Cruz*, I attempted to make clear that an etiologic importance could not be attributed to any

micro-organism isolated from cases of the disease, just because of its showing some virulence.

VRIBURG's bacillus is, to a certain extent, illustrative of this fact. I say, to a certain extent, because even in virulence it is deficient. In the pathology of the known diseases there was already a striking instance of this in the case of Hog-Cholera. It is not enough that a micro-organism should be pathogenic, that it should cause some-disease. Pathogenicity must be specific, it must reproduce *the disease*.

Among the micro-organisms pointed out in my paper is *Diplococcus polymonis* var. *b*.

This organism does indeed possess a high degree of pathogenicity for all the animals tested, including cattle. It is an «associated» germ of great importance in the clinical complex, specially in one of the forms of the disease.

Its importance in the disease has already been shown in the article quoted (*Memorias do Instituto Oswaldo Cruz*).

Here is yet another proof, in the accompanying microphotography, of the lung of a mixed case of «*Peste dos pulmões*» (*Enteritis* and «*Polmões*»).

It is pneumonia in which *Diplococcus B* is found pure, in enormous numbers, in the lung-tissue.

LESIONS.

In the second preliminary note and in the paper in the memorias I mentioned the so-called «Internal Polmões» (inflammatory foci or abscesses) which could be: *in cavities* or *parenchymatous*. In the second group I had already shown locations in a) lungs; b) bones; c) muscles. In the former a) abdominal and b) articular localisations.

I may add yet another observation, the «liver-polmão».

Already in the *Memorias* I had remarked that it was surprising that internal abscesses should not be more frequent in the disease. The connective tissue which envelops the *polmões* (abscesses) would explain this fact.

The case was a recent one, at first a typical case of *pneumoenteritis*, in a calf coming from the West of *Minas Geraes*, where the disease had been very prevalent.

The cutaneous abscesses were the last to appear.

They were not numerous but made up in extension for their scarcity. They undermined great tracts of skin. The lack of barriers to limit them would explain the septicaemia. There were foci in the articulations which prevented locomotion and made even standing impossible.

Necropsy showed, besides the usual lesions of *Pneumo-enteritis*, typical *polmões* (cutaneous abscesses) and a purulent arthritis (the articulation was reduced to a purulent mass) with necrotic osteitis, as has been already described (paper in the *Memorias do Instituto Oswaldo Cruz*).

It was a mixed form.

What is most interesting is that the liver was honey-combed with abscesses of varied size and with a caseous appearance. They reminded one of tuberculous caseous foci.

Direct examination as well as cultures from the pus, showed, as in the case of skin and joints, enormous quantities of *Diplococcus pulmonis* var. *b*, and the absence of acid-fast bacilli. In

histologic sections (double and treble staining and Mac Callum process) the liver was seen very congested (as described in the article of the *Memorias*) and honey-combed with abscesses, real «*Polmões*» at the stage of caseification. The invasion of the liver was from the blood which is explicable, considering the skin abscesses had no connective tissue barriers.

The «*Polmões*» in the liver, were made up of a central zone of caseification, amorphous, indistinct or slightly granular; and a peripheric part, round the former, made up chiefly of polymorphonuclears with more or less degenerate liver-cells.

At the periphery a third zone, a barrier of fresh connective tissue infiltrated with leucocytes around this the liver tissue, congested, infiltrated (with leucocytes and connective tissue) and degenerated. In some places the abscesses were so plentiful that their connective-tissue envelopes touched but did not mingle.

In histologic sections, as in smears from this pus, only *Diplococcus pulmonis* var. *b* were to be seen, but so plentifully that they took up the whole field.

Not infrequently in the sections the mass of pus drops to pieces so that there remains a gaping cavity surrounded by a fine ring of pus and by the other zones.

These are no reactive process resembling tubercles.

Blood-vessels of the liver, especially near the abscesses are full of *Diplococci*.

EXPLANATION OF MICRO-PHOTOGRAPHS:

1. Section of Lung (Mac Callum). Calf. Pneumonia. Chronic form, cutaneous. «*Diplococcus pulmonis*», var. *b*. Ocular 4, Objective A.
2. Same section. Ocular 4; Obj. 1/12, immersion. The numbers and

forms of diplococci are clearly seen.

3. Liver-abscess. Mixed form (Intestinal, cutaneous and articular).
 4. Liver-abscess. Mixed form (Intestinal, cutaneous and articular). Another appearance.
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