

## Homeopathic Treatment in a Puppy with Immune-mediated chronic rheumatic polyarthritis and Anemia due to *Ehrlichia* sp. and *Babesia* sp.

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### ABSTRACT

**Introduction:** Babesiosis and canine Ehrlichiosis are often associated. Transmitted by the tick *Rhipicephalus sanguineus*, they parasitize cells such as neutrophils and erythrocytes, causing severe anemia, apathy, weight loss, anorexia, epistaxis, fever, petechiae, among other clinical manifestations.

**Aim:** report the evolution of homeopathic treatment in a case of hemoparasitosis.

**Methodology:** An 8-month-old female dog, weighing 6kg, was treated in the municipality of Ribeirão Pires – SP, Brazil. She arrived with a 4-month history of chronic anemia and was being monitored by a colleague with allopathic therapy, which had no effect. When the condition worsened, she was referred for homeopathic treatment. On clinical examination, the patient was prostrate, with tick infestation, moderate dehydration, pale mucous membranes, increased respiratory amplitude and reactive lymph nodes, joint stiffness, decreased range of movement, limping of the four limbs, inability to stand or walk, moderate secretion in both eyeballs and epistaxis. In laboratory blood analysis, a reagent for *Babesia* sp. serology was identified and the IgG serology test for *Ehrlichia canis* and changes in the blood count that subsequently followed collections every seven days. The homeopathic treatment lasted ninety days, *Arnica montana* 200cH and *Lachesis muta* 100cH were used in a single dose, *Phosphorus* 30cH twice a day for ninety days, *Symphytum officinale* complex + *Rhus toxicodendron* and Calcarea Complex (Carbônica, Fluorica and Phosphorica ) 6cH for sixty days, *Arnica montana* 30cH and *Pyrogenium* 12cH for forty five days.

**Results:** after starting treatment, the patient exonerated due to hyperthermia 40°C and uveitis in the left eyeball, followed by an improvement in laboratory tests, hematocrit from 24% to 29%, platelets from 40 thousand to 286 thousand and leukocytes from 41 thousand to 23 thousand in an interval of 21 days. There was clinical improvement in terms of general condition and ambulation, the animal relapsed during treatment.

**Conclusion:** Laboratory tests (blood count) prove that the homeopathic therapy adopted was effective for hemoparasitosis.

**Keywords:** anemia, hemoparasitosis, homeopathy, Phosphorus, polyarthritis, ticks.

### INTRODUCTION

Hemoparasitoses are common in small animal clinics and cause serious, even life-threatening illnesses. They can be caused by protozoa or bacteria and are transmitted to animals through the bite of ectoparasites, such as fleas and ticks. *Ehrlichia* sp. and *Babesia* sp. are the pathogens that stand out most for the damage they

cause to animal health (LOPES *et al.*, 2016).

Canine ehrlichiosis is caused by *Ehrlichia canis*, an obligate intracellular parasite of hematopoietic cells, transmitted by the tick *Rhipicephalus sanguineus* (RIKIHISA, 1991; BREMER *et al.*, 2005). The agent multiplies in organs of the mononuclear phagocytic system (liver, spleen and lymph nodes) resulting in hyperplasia of this cell lineage and organomegaly (BORIN *et al.*, 2009).

In Brazil, *E. canis* can manifest itself clinically in three aspects: acute, subclinical and chronic. The acute phase is characterized by anorexia, apathy, hyperthermia, mucopurulent ocular-nasal secretion, epistaxis, pulmonary crepitus/wheezing, dyspnea, liver failure, renal failure, and also neurological signs such as convulsions and ataxia (SUSAN, 2010). In the subclinical phase there is no clinical signs. Dogs unable to mount an effective immune response develop the chronic phase of the disease (BREITSCHWERDT, 2004). The most common symptoms of chronic disease are depression, apathy, chronic weight loss, emaciation, pale mucous membranes, pneumonia, polyuria/polydipsia, stomatitis, fever, peripheral edema (legs and scrotum), glomerulonephritis, polyarthritis (immune-mediated) and hemorrhagic diathesis (ALMOSNY, 2002). Blood loss is usually evidenced in the form of epistaxis, melena, hematuria, hematemesis, hyphema and meningeal hemorrhage (HARRUS *et al.*, 2006; FERREIRA *et al.*, 2017).

The diagnosis is based on the association of clinical, hematological signs, cytological and serological findings and polymerase chain reaction (PCR) (LEITÃO *et al.*, 2011).

Canine babesiosis is a disease transmitted by the bite of ticks, such as *Rhipicephalus sanguineus*, vector of *Babesia vogeli*, a hemoprotozoan. This protozoan parasitizes erythrocytes, causing hemolysis. The infected animal may present fever, lethargy, anorexia, anemia, pale or jaundiced mucous membranes, hematuria and hepatosplenomegaly. The presumptive diagnosis of canine babesiosis can be based on history, anamnesis or physical examination, but confirmation is obtained through parasitological examination (ARAÚJO *et al.*, 2022).

Although people cannot acquire hemoparasitosis by handling an infected canine, they can serve as a reservoir, transmitting vectors throughout the environment, with indirect participation in the disease in humans, with lesions being considered emerging zoonoses by the World Health Organization (MEGID, 2016).

## **CASE PRESENTATION**

An animal of the canine species, SRD, female, eight months old, weighing 6kg (cachectic) was treated in Ribeirão Pires – SP, Brazil, five months after being rescued from the street.

In the anamnesis, a history of apathy, anorexia, locomotor difficulties, joint stiffness, decreased range of movement, claudication of the four limbs, inability to stand or walk, joint effusion and arthralgia, manifestations of pain throughout the body, secretion mucopurulent in moderate quantity in both eyeballs and epistaxis.

The animal was undergoing allopathic treatment due to chronic anemia for 4 months. They administered the antibiotic doxycycline and it had no effect.

Upon clinical examination, the patient was found to be debilitated, with tick infestation, moderate turgor deficit, pale mucous membranes, heart rate 160 bpm (regular, without murmur), respiratory frequency 40 mrpm increased respiratory amplitude, reactive lymph nodes and joint edema in all four limbs.

To confirm the suspected diagnosis, an immunoenzymatic ELISA assay was performed to detect anti-Ehrlichia canis antibodies, the result of which was negative. Therefore, PCR for Ehrlichia and PCR for distemper were performed, both of which were negative.

In the serological analysis of antibodies, Babesia sp. (in the IgG serology test) and Ehrlichia canis (IgG - Titration score 4).

In addition, a control blood count was carried out weekly in the first month, spacing the intervals in the remaining months. Biochemical measurement of urea, creatinine, alanine aminotransferase and alkaline phosphatase at the beginning and end of treatment (Table 1); other tests consisted of cytological analysis of synovial fluid and radiography of the affected joint (Figure 1).

The blood count showed significant thrombocytopenia 42,000 platelets, mild normochromic normocytic anemia, hypoalbuminemia and leukocytosis with left shift, moderately increased alkaline phosphatase.

In the cytology of the synovial fluid, moderate cellularity was observed, represented by some large mononuclear cells, which sometimes present vacuolated cytoplasm, some neutrophils, rare lymphocytes, some red blood cells and amphophilic dense amorphous material at the bottom of the slide, sometimes the cellular components

are present lined up horizontally. Synovial fluid consistent with inflammatory joint disease.

The radiographic examination showed an increase in soft tissue volume in the bilateral femurotibiopatellar joint, suggestive of joint edema, in the right and left thoracic limbs: radio/ulna/carpals showing irregular periosteal proliferation in the cortical region of both ulnas on the cranial and caudal surfaces, suggestive of bacterial osteomyelitis.

Table 1: laboratory tests used to analyze the general picture

Date	Erythrocytes	Hemoglobin	Hematocrit	Platelets	Leukocytes	Alkaline phosphatase
17.04	3,62	7,1	23	204	27	
22.04	3,33	6,7	18	263	25	149
11.08	5,1	11,6	37,9	32	24	
31.08	3,72	8,1	24,5	40	41	488
07.09	3,78	8,6	25,8	50	73	
14.09	3,78	8,5	24,8	40	55	
21.09	4,4	9,6	29,2	286	23	
28.09	4,19	9,6	27,5	100	21	
11.10	4,26	9,9	28	140	19	
11.11	4,31	9,6	28,5	206	35	144

\* Reference values of the factors evaluated: Erythrocytes (6.0 to 7.0 million/mm<sup>3</sup>), Hemoglobin (14.0 to 17.0 g/dl), Hematocrit (40 to 47%), Platelets (200 to 500 thousand/dl) mm<sup>3</sup>, Leukocytes (8.0 to 15.0 thousand/mm<sup>3</sup>), Alkaline phosphatase (up to 156.0 U/L).

Source: Barbosa, 2024.

Figure 1: X-ray examination of the thigh (dorsal ventrum) and thoracic limbs (plantar dorsal) showing osteomyelitis and increased volume of soft tissues.

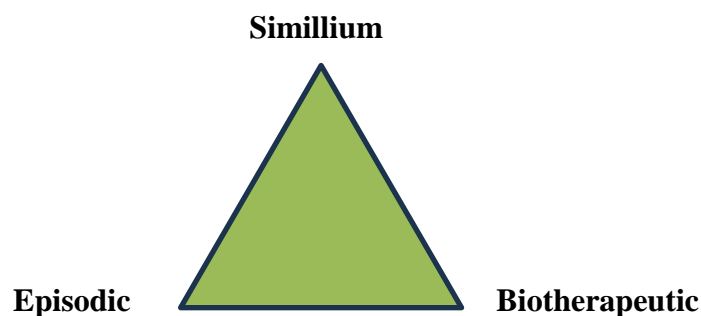


Source: Barbosa, 2024.

Given these laboratory parameters, it is concluded that the patient has chronic rheumatoid immune-mediated arthritis secondary to ehrlichiosis and hemolytic anemia secondary to babesiosis and ehrlichiosis.

Initially in the emergency clinic, episodic homeopathic medicines were used: *Arnica montana* 200cH, five globules in a single dose, then *Arnica montana* 30cH, three globules twice a day and *Lachesis muta* 100cH five globules in a single dose, *Phosphorus* 12cH three globules twice a day for ninety days, *Pyrogenium* 30cH three globules twice a day for forty-five days, *Symphytum officinale* complex 6cH + *Rhus toxicodendron* 6cH, three globules twice a day for sixty days. The electrolyte balance was restored with fluid therapy and food was offered to the animal.

Figure 2: Homeopathic treatment



Source: Barbosa, 2024.

Through the repertorization of the main symptoms: anemia, leukocytosis, arthritis, physical pain, weakness, inflammation, we had the most scored medications, considered simillium: *Phosphorus* and the Calcare Complex (*Calcareo Carbonica*, *Calcareo Flourica* and *Calcareo Phosphorica*).

Episodic: *Symphytum officinale* 6cH + *Rhus toxicodendron* 6cH, *Pyrogenium*; Simillium: *Phosphorus*; Biotherapeutic: 30cH blood (Figure 2).

On the first three days of homeopathic treatment, a plus of the *Symphytum* + *Rhus* 6cH complex and *Calcareo* 6cH complex were administered (five globules diluted in 100ml of water, with 10 ml of the dilution being administered every ten minutes for one hour). The pathology was exonerated by generalized muscle tremors, a maximum fever of 40.5°C and intermittent vocalization. Patient avoided walking and spent most of

the time withdrawn. Eating a high-calorie diet to gain weight, drinking water from a syringe.

On the tenth day, blood biotherapy 30cH was administered once a day for thirty days.

On the twelfth day of treatment, the patient developed anterior uveitis of the left eyeball (Figure 3). Moxibustion therapy in the ocular region with isolation of the area with walnut shells after infusion of barba timão inhibited the symptom after being applied once a day for three days.

Figure 3: uveitis in the left eyeball due to deposition of the ehrlichia bacteria immune complex.



Source: Barbosa, 2024.

On the twenty-fifth day of treatment, when the laboratory results were within normal limits, the patient had weakness in her hind limbs, compromising her mobility until physiotherapy and acupuncture were introduced. The improvement was evident after the first session. Hemopuncture was carried out for appropriate purposes in VG14, and three more acupuncture and physiotherapy sessions every fifteen days.

During the second month of treatment, the patient again presented paralysis of the pelvic limbs, this time with greater severity, selective appetite and oligodipsia, hemochesia.

In the third month of treatment, the animal had an episode of hematochesia.

After these events, the animal was stable, with mobility, appetite and preserved blood markers returning.

## **DISCUSSION**

There is enormous difficulty in confirming a diagnosis when the clinic matches a certain disease, but laboratory tests considered key cases (PCR) are negative.

During the study period by LOPES *et al.* (2016), Ehrlichiosis was the main hemoparasitosis that affected dogs treated at the Veterinary Hospital -FIMCA, in Porto Velho, state of Rondônia, Brazil.

PCR allows the detection of all *Ehrlichia* sp. sequences, however, during the chronic phase of the disease, there is less sensitivity due to the reduction of the agent in the blood sample. An important percentage of dogs with pancytopenia are serologically positive and present negative PCR in chronic cases, when the cells are reduced due to damage to the bone marrow and the presence of *E. canis* in the tissue (LEITÃO *et al.*, 2011).

As a differential diagnosis of the reported case, distemper (negative) and babesia (positive) were investigated.

Normally, the presentation of thrombocytopenia in conjunction with anemia characterizes *Ehrlichia* sp. infection associated with *Babesia* sp., even without finding traces of the protozoan on slides (ARAÚJO *et al.*, 2022).

The chronic phase of *Ehrlichia* resulted in uveitis. In a study in dogs with positive serology for *Ehrlichia canis*, there were reports of uveitis, distributed in iridocyclitis, posterior uveitis and panuveitis; uveitis and secondary glaucoma (VELOSO *et al.*, 2018). Therapy with moxibustion in walnut shells for eye disease was reported to be effective in 3 days of treatment, as described in the literature regarding its applicability (FILHO, 2015) and there were no secondary conditions (glaucoma, hyphema, intense pain) to uveitis.

The pathophysiological mechanisms by which systemic infections can lead to uveitis are through direct destruction of uveal tissues by infectious agents or the presence of immune-mediated events by infectious agents, including classic hypersensitivity responses I, II, III and IV (FISCHER *et al.*, 2002).

Many endogenous causes of uveitis have been recognized such as bacterial, fungal, parasitic, protozoal, viral, idiopathic, neoplastic and paraneoplastic, metabolic disorders, coagulopathy and immune-mediated disorders (POWELL, 2002).

Chronic anemia caused by hemolysis requires blood transfusion and the patient can often progress to hemolytic anemia, requiring corticosteroids to regularize the red blood series. In the reported animal, Phosphorus acted in this potential, where



laboratory tests prove that the homeopathic therapy adopted was effective for anemia and thrombocytopenia (Table 1).

*Phosphorus* is used in several pathologies where nausea, vomiting (mainly hematemesis), epistaxis, diarrhea, hepatomegaly, hematuria, lymphadenopathy and anemia occur, therefore, it was the reason for choice (AGUIAR *et al.*, 2014).

The patient's four limbs had edema in the joints, consistent with polyarthrititis (Figure 1) caused by *Ehrlichia* sp., the result of synovial fluid cytology describes an inflammatory/infectious process.

*Arnica Montana* 200 cH is well used in cases of trauma due to mistreatment of animals rescued from the street, in addition to working as a systemic analgesic. *Arnica* 30cH better targets physical pain, which together with the medications *Symphytum* and *Rhus* 6cH were effective in controlling joint pain, reducing edema and local inflammation.

To eliminate the agent from circulation, some homeopathic medicines were used. The first in this potential was *Lachesis muta* in a single dose, followed by *Pyrogenium*.

Like all snake venoms, *Lachesis* breaks down the blood, making it more fluid; therefore, it exonerates the parasite from red blood cells leading to the hematuria characteristic of *Phosphorus*, producing an image of destructive metabolism (exoneration hyperthermia for the evolution of the healing process). It causes yellow atrophy of the liver and subacute hepatitis, consistent with the presence of the agent *Ehrlichia* sp. In addition to leaving the individual prostrate, it deposits immune complexes in the synovial fluid and compromises bone irrigation, potentially causing osteomyelitis, as well as the polyarthrititis experienced by the patient.

Some signs presented by the patient were identified with the *matéria médica*, where Torro (2020) mentions: *Lachesis muta* no desire to mix with the world; *Calcarea carbonica*: swelling of the joints, especially the knee and elbow. swelling of glands, scrofulous and rickety conditions; *Calcarea phosphorica*: patient is thin, edematous, thin and never gains weight. Joint pain, anemia, intense pain in the bones during the growth period, prominent eyeball; *Calcarea phosphorica*: osteolysis.

The results obtained in a dog with babesiosis, diagnosed at an early stage of the infection, with allopathic treatment instituted, were positive. After sixty days of care, all exams were repeated and no changes were found (ARAÚJO *et al.*, 2022). To eliminate



the agent from circulation, some homeopathic medicines were used. The first in this potential was *Lachesis muta* in a single dose, followed by *Pyrogenium*.

The homeopathic treatment lasted ninety days, considered long when compared to allopathic therapy, because the more chronic the disease, the longer the treatment time with homeopathic medicines will be required.

A study with an experiment on homeopathic medicines associated with isotherapy took place in dogs positive for *Ehrlichia canis* using the SNAP 4Dx (IDEXX) test. The dogs were treated with blood nosode, at 30CH potency, from a dog with clinical-laboratory modifications compatible with canine Ehrlichiosis in association with the drug *Phosphorus* 6CH. Based on the results, means and standard deviations were obtained for all treatment times. Between five and eighteen weeks of treatment, they were cured, their data were compared to normal hematological values for healthy dogs (AGUIAR *et al.*, 2014).

## CONCLUSION

Hemoparasitoses are complex diseases and pose a risk to the animal's life. The report describes characteristics of the chronic phase of ehrlichiosis associated with babesiosis. As signs and symptoms, the canine patient presented apathy, anorexia, anemia, thrombocytopenia, leukocytosis, elevated alkaline phosphatase, polyarthritis, uveitis, hyperthermia, hematochesia. Polyarthritis and uveitis are symptoms found less frequently in clinical routine. This is a condition where the preferred treatment with antibiotics was not enough, requiring homeopathy to eliminate the agent. In association with traditional Chinese medicine therapies through the modality of moxibustion, it offered support to the climatic complaint of uveitis and acupuncture helped in the animal's locomotor return. As the only choice, the medicine *Phosphorus* is selected as a homeopathic epidemic genius for infections generated by *Ehrlichia* sp. and *Babesia* sp.

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