ZOONOSES ARE THE LEADING CAUSE OF MYALGIC ENCEPHALOMYELITIS/CHRONIC FATIGUE SYNDROME (ME/CFS). BASED ON THE RESULTS OF 383 BLOOD SMEARS MICROSCOPIES AND THE THERAPEUTIC RESPONSE TO ANTIMICROBIALS AGAINST THE IDENTIFIED PATHOGENS.

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INTRODUCTION AND BACKGROUND.

Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is a chronic acquired illness reported in significant numbers in countries in Europe, North America, Australia, parts of Asia, and South Africa. Being an acquired illness, ME/CFS is most likely caused by environmental or external agents, primarily pathogenic microorganisms that frequently cause persistent infections.

The aforementioned countries are endemic areas for several persistent zoonotic infections and zoonoses, that is, infections transmitted from animals.

Regarding tests to detect zoonotic infections, most can be identified through a peripheral blood smear. An optical microscope with a magnification of 2000x or more is used to visualize the microorganisms.

Optical microscopy is a basic, inexpensive examination, but its results depend heavily on the observer's experience. Among the main advantages of viewing blood under a microscope is that it allows direct visualization of the pathogen, confirming the presence of an active infection. Furthermore, the severity of the infection, the microbial load (the number of pathogens), and the involvement of blood cells can be observed. In addition to bacteria and parasites, optical microscopy allows for the identification of fungi. Viruses cannot be identified, and Toxoplasma and Rickettsia are virtually impossible to detect by optical microscopy.

MATERIALS AND METHODS.

A peripheral blood smear was examined using optical microscopy. The inclusion criteria were: 1) that the patient's primary diagnosis be ME/CFS or CFS or ME, 2) that they not have been diagnosed solely as Long COVID (if they had ME/CFS before Long COVID, they do meet the criteria), and 3) that they have submitted a properly prepared peripheral blood smear slide for visualization.

The search for bacteria, parasites, and fungi was performed by veterinary medical expert Walter Tarello, who has over 30 years of experience in microscopy.

RESULTS.

A total of 383 blood smears received between 2024 and 2026 met the inclusion criteria, of which at least one active pathogenic microorganism was identified in 354 (92.4%) by optical microscopy. The patients came mostly from European countries (81%), as well as North America (10% from USA and Canada), Australia (4%), Asia (4% from Russia and Turkey) and South Africa (1%).

Table 1 shows the pathogenic microorganisms identified with their corresponding percentages for each one, taking the total of 383 smears (100% = 383).

The two most frequently identified microorganisms were the bacterium Bartonella (henselae, others) in 65.8% (observed in 252 of the 383 cases); and the parasite Babesia (microti, divergens, venatorum, duncani, others), found in 65.3% (in 250 of the total of 383 patients). The next two bacteria in frequency were Mycoplasma at 26.9% (in 103 of 383 samples) and Borrelia (burgdorferi, mayonii, garinii, afzelii, miyamotoi, hermsii, others) at 21.1% (in 81 of 383). Microsporidia followed at 5.2% (20 of 383). Anaplasma was at 4.2% (16/383).

Micrococci (corresponding to Staphylococcus) and Ehrlichia each accounted for 3.1% (14 of 383). Malassezia was at 2.9% (11 of 383), and Candida at 2.3% (9 of 383). Plasmodium (vivax, falciparum), fungal hyphae (mold), and other organisms were observed in less than 2% of samples each.

No pathogen was identified in 7.6% (29 of 383 samples).

Table 1. Pathogenic microorganisms identified* in 383 ME/CFS patients by Microscopy of Peripheral Blood Smears

Pathogenic microorganisms	%
BARTONELLA (bacterium)	65.8
BABESIA (parasite, type protozoan)	65.3
MYCOPLASMA (bacterium)	26.9
BORRELIA (bacterium, type spirochetes)	21.1
MICROSPORIDIA (fungus, that parasitizes)	5.2
ANAPLASMA (bacterium)	4.2
STAPHYLOCOCCUS (bacterium, Micrococci)	3.7
EHRLICHIA (bacterium)	3.7
MALASSEZIA (fungus)	2.9
CANDIDA (fungus)	2.3
Others: Plasmodium, Mold, others.	2.1
NO PATHOGENS VISUALIZED	7.6

* Viruses, Toxoplasma and Rickettsia are not detected by optical microscopy.

The percentages shown in the Table 1 add up to more than 100% because in 62.9% of the blood smears (241 of 383) 2, 3, 4 or 5 pathogens were identified in the same patient, that is, coinfections.

Table 2 shows the number of pathogenic microorganisms identified in a single patient with ME/CFS in 383 peripheral blood smears. The most frequent coinfection was Babesia and Bartonella. Of the cases in which Borrelia was detected, at least one coinfection was identified in 98.8% (80 of 81). Coinfections were detected in 84.5% (87 of 103) of Mycoplasma cases. For Bartonella, it was in 73.0% (184 of 252), and for Babesia, in 68.8% (172 of 250) had coinfections.

Table 2. Number of pathogenic microorganisms identified in the same patient with ME/CFS in 383 Peripheral Blood Smears

Number of pathogenic microorganisms identified	Nro of smears	% of smears
0, no pathogen identified	29	7.3
1 pathogen identified	113	29.5
2 pathogens identified	129	33.7
3 pathogens identified	91	23.7
4 pathogens identified	18	4.7
5 pathogens identified	3	0.8

Table 3 shows the pathogenic microorganisms identified with their corresponding number and percentage, taking as a total the 354 patients with ME/CFS in whom at least one pathogen was visualized in the peripheral blood smear by Optical Microscopy.

Table 3. Pathogenic microorganisms identified in 354 ME/CFS patients by Microscopy of Peripheral Blood Smears

Pathogenic microorganisms	Nro	%
BARTONELLA (bacterium)	252	71.2
BABESIA (parasite, type protozoan)	250	70.6
MYCOPLASMA (bacterium)	103	29.1
BORRELIA (bacterium, spirochetes)	81	22.9
MICROSPORIDIA (fungus)	20	5.6
ANAPLASMA (bacterium)	16	4.5
STAPHYLOCOCCUS (bacterium)	14	4.0
EHRLICHIA (bacterium)	14	4,0
MALASSEZIA (fungus)	11	3,1
Others: Candida, Plasmodium, Mold	17	4,8

A direct correlation was observed between symptom severity and a higher number of coinfections. Therefore, bedridden patients diagnosed with severe or very severe ME/CFS frequently had more than two coinfections. A direct correlation was also observed between symptom severity and a higher microbial load (greater quantity) and the higher percentage of blood cells affected by pathogens.

Patients received treatment against the identified pathogens. For Babesia alone, Atavaquone plus Azithromycin or Tafenoquine was prescribed, sometimes with the addition of Clindamycin. If only Bartonella was present Doxycycline plus Rifampicin or Azithromycin or clarithromycin plus Houttuynia was given. For coinfections with Borrelia, Bartonella, and Babesia, the addition of Dapsone and Pyrazinamide was proposed, sometimes with the addition of Ceftriaxone; allicin, Cryptolepis sanguilenta, resveratrol, baicalin, cinnamon, Polygonum c., Artemisinin; supplements such as Leucovorin, Vitamin D, Glutathione, Methylene blue, Probiotics for SIBO; and fibrinolytics such as Lumbrokinase.

Treated patients experienced improvement in their symptoms, but those most severely affected and with the highest microbial load required several treatment cycles over several months. Microscopic examinations were performed on a group of patients. It was observed that as the severity of the infection and the microbial load decreased, the symptoms of ME/CFS improved.

USE OF THE ASYMPTOMATIC GENERAL POPULATION AS AN IMPLICIT CONTROL GROUP.

As a implicit control group in this observational study, we used the asymptomatic general population, particularly blood donors from these endemic areas, since they represent healthy and immunocompetent individuals. In this regard, the prevalence rates of active infections with these zoonotic pathogens in the asymptomatic general population range from 7 to 15 %. Prevalence is the proportion of a population that exhibits a specific characteristic. In this case, the characteristic is the identification of at least one active pathogenic microorganism in the blood, that is, parasitemia or bacteremia detectable by optical microscopy, cultures, or other specialized tests.

It is therefore observed that the identification of at least one active blood pathogen in 92.4% of the ME/CFS patients evaluated contrasts markedly with the prevalence rates in the general population (7 to 15%), which reinforces the specific association between persistent zoonotic infections and ME/CFS disease.

It is important to know that these infections are not only transmitted through ticks, but also from cats, dogs, rabbits, guinea pigs, horses, cattle, birds, and other animals.

CONCLUSIONS:

- **In approximately 92% of patients evaluated with ME/CFS, bacteria, parasites, and/or fungi were identified by optical microscopy of peripheral blood smears, which contrasts sharply with the prevalence rates in the general non-sick population (7 to 15%).**
- **The most frequently identified pathogens microorganisms were Babesia, Bartonella, Mycoplasma and Borrelia, with coinfections being common (62.9%).**
- **Given that most of the pathogens identified in the blood smears are zoonoses, that is, infections transmitted from animals, we can conclude that persistent zoonotic infections are the main cause of ME/CFS in patients from Europe, North America, Australia, and Russia.**
- **A peripheral blood smear, performed by an experienced professional, is a test that should be conducted on all patients with ME/CFS. This is in addition to serological and PCR tests for the specific detection of pathogens.**

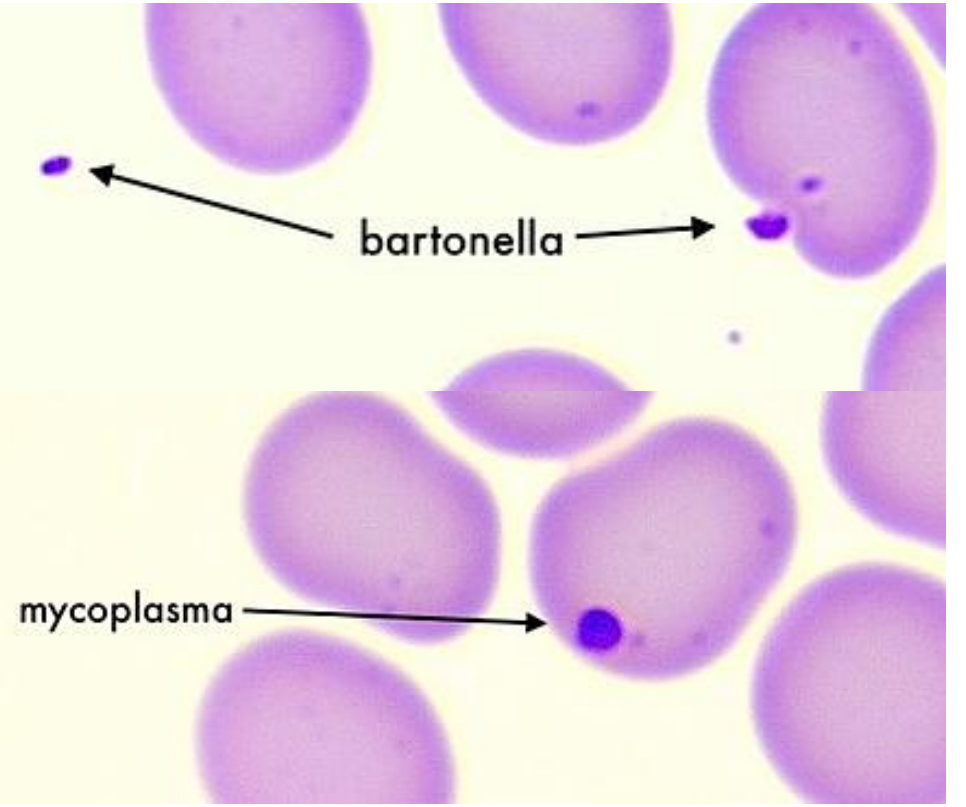
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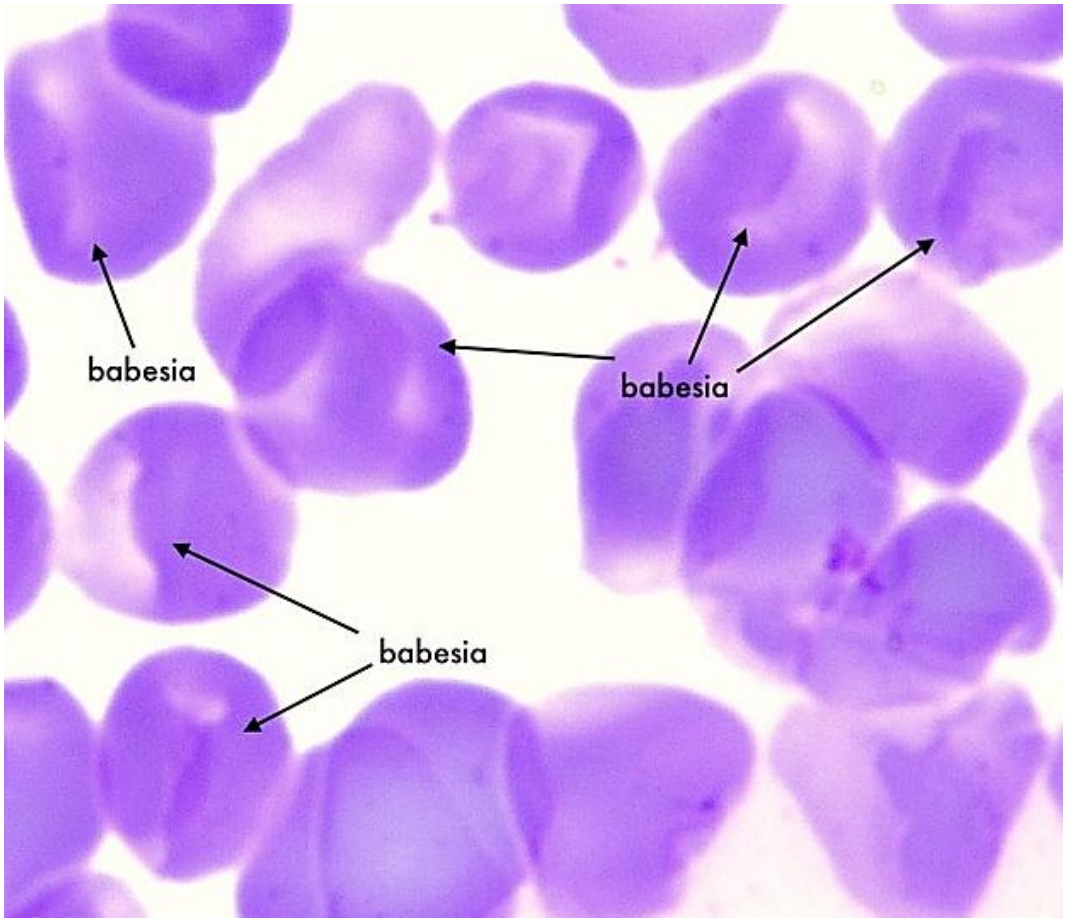
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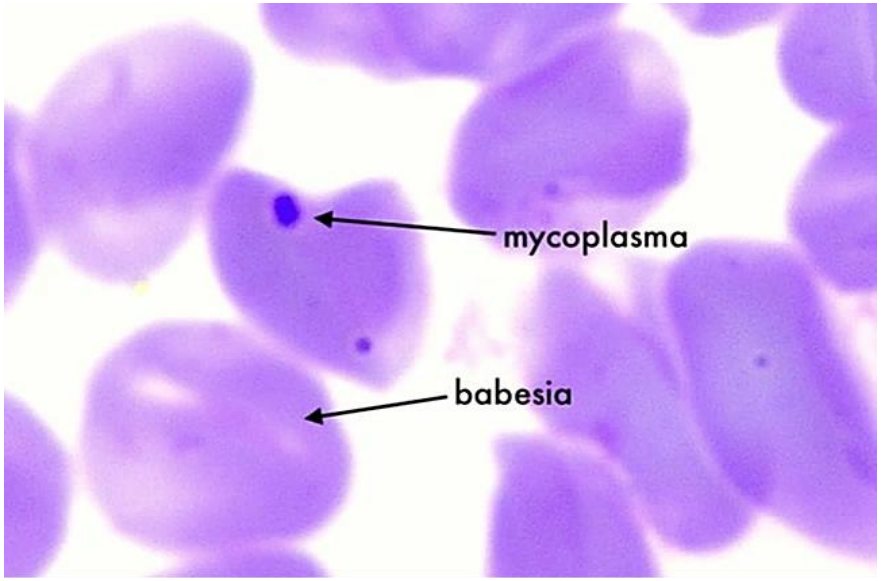
APPENDIX 1: OPTICAL MICROSCOPY PHOTOS OF PERIPHERAL BLOOD SMEARS FROM PATIENTS WITH ME/CFS.

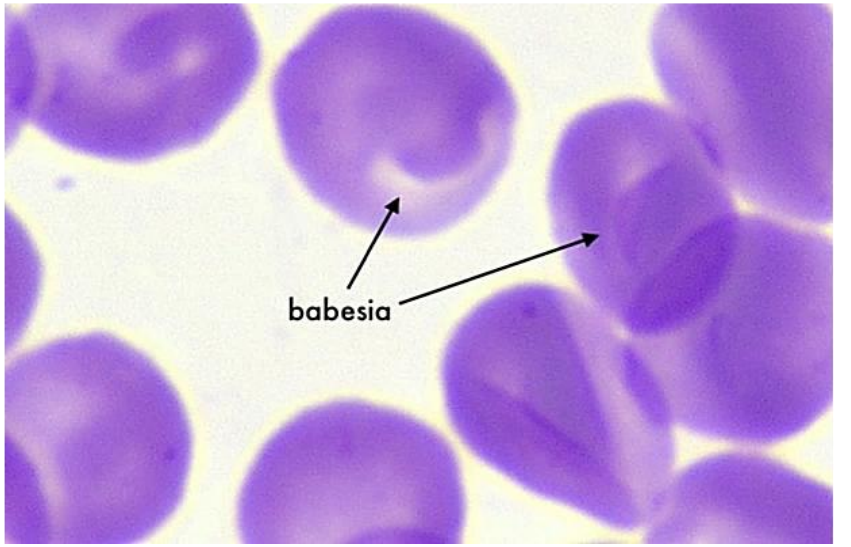
Case 1: Country: Switzerland. Sex: Female. Diag.: CFS
Pathogens identified by optical microscopy:
Bartonella, Mycoplasma and Babesia.



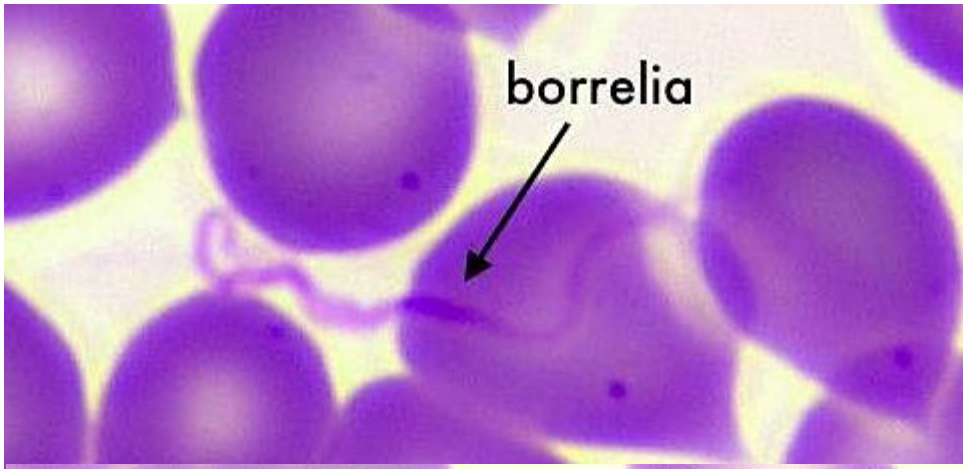
<u>Case 3</u>: Country: USA. Sex: Female. Diagnosis: ME/CFS
Pathogens identified by optical microscopy:
Babesia (grade 4) and Mycoplasma (grade 2)

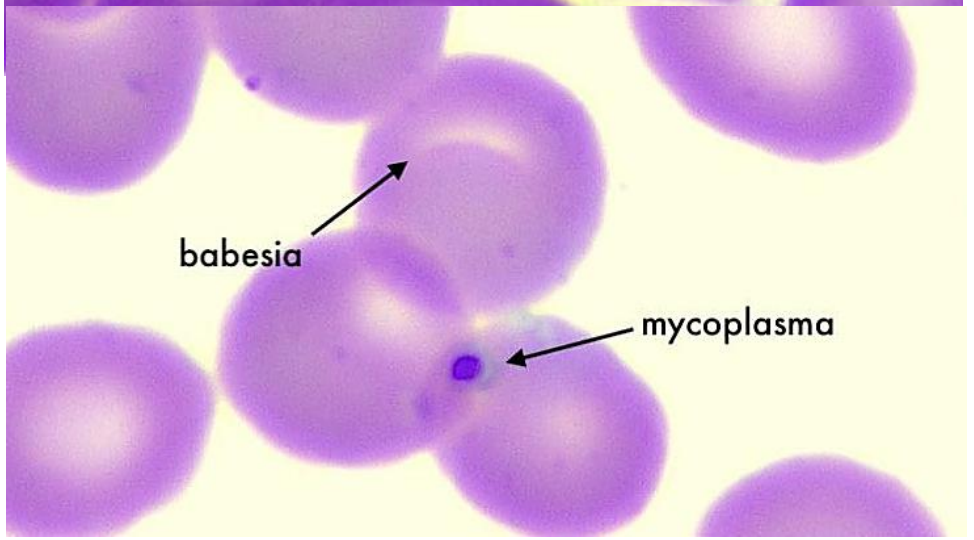




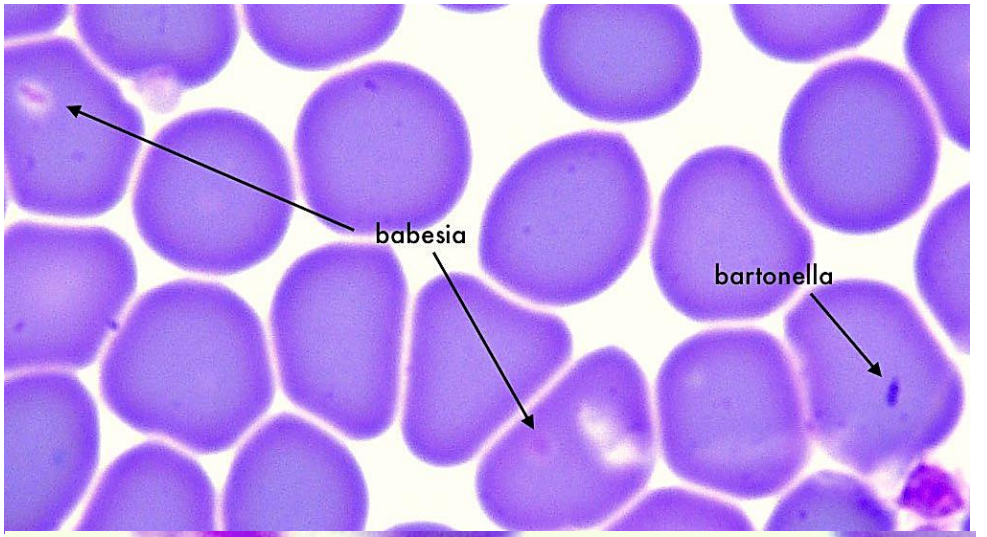


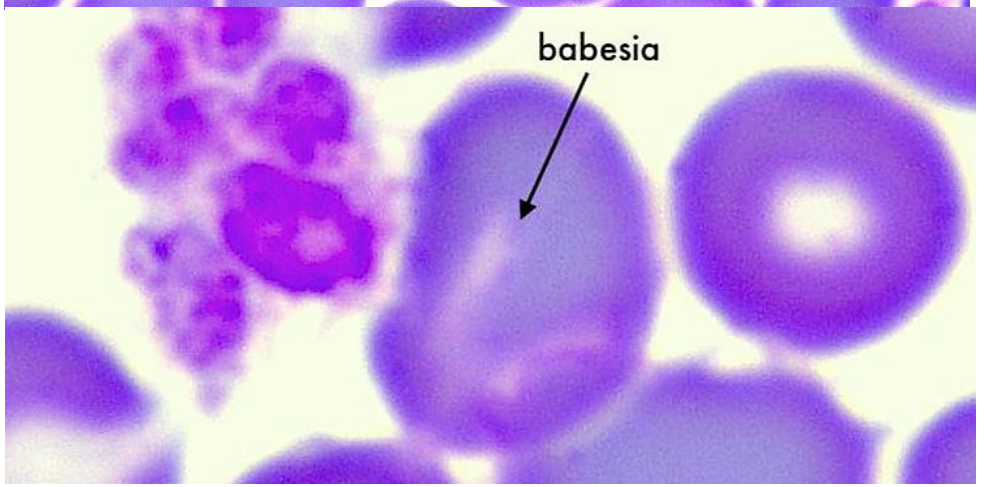
Case 4: Country: Turkey. Sex: Female. Diagn: ME/CFS
Pathogens identified by microscopy:
Babesia, Borrelia, and Mycoplasma. Serologically positive for Borrelia and Toxoplasmosis.



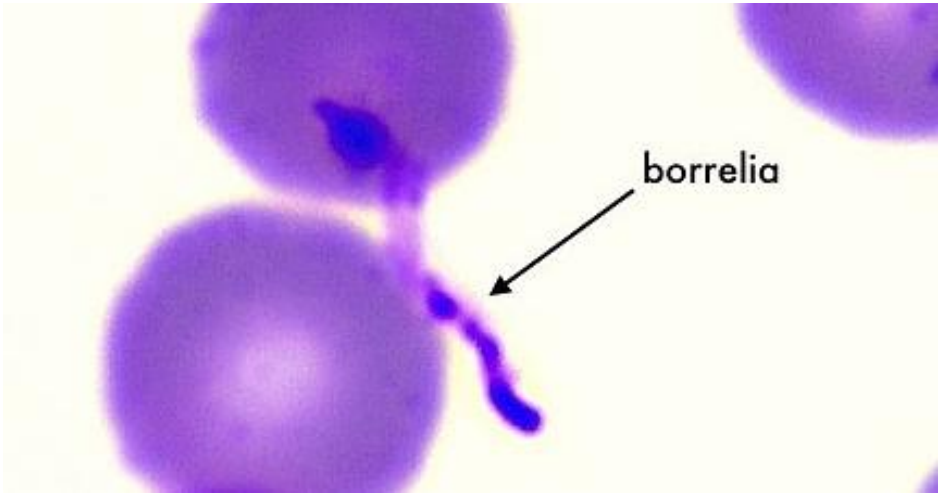


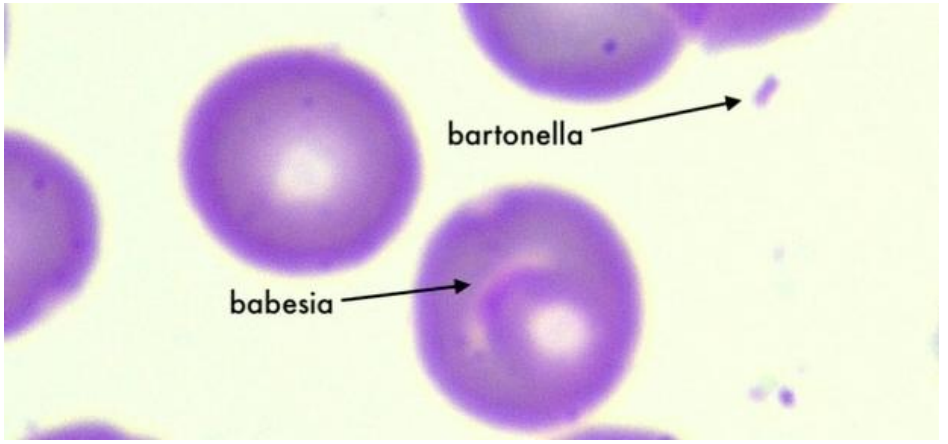
Case 3: Country: United Kingdom. Sex: Male. Diagnosis: CFS
Pathogens identified by Microscopy:
Babesia and Bartonella (grade 3).





Case 4: Country: France. Sex: Female. Diagnosis: CFS, POTS, tinnitus, joint pain, blurred vision. Pathogens identified by microscopy: Bartonella, Borrelia, and Babesia..





ANNEX 2:

HOW TO PERFORM PERIPHERAL BLOOD SMEAR MICROSCOPY WITH DR. WALTER TARELLO.

Optical microscopy is a quick and inexpensive technique, but its results depend heavily on the observer's experience.

Dr. Walter Tarello has been performing this test on humans and animals for over 30 years, which he details in his book titled: Chronic Fatigue (https://www.amazon.com/-/es/Chronic-Fatigue-Forgot-Epidemic-revived/dp/1662946813).

To arrange the shipment of your blood smear, you must write to your personal mail: wtarello@yahoo.it he is located in Dubai, United Arab Emirates. The video at the following link explains how to perform a proper blood smear:

https:youtu.be/bd4eAM5MOik

The slides for observation under a microscope are sold in pharmacies. Buy between 4 and 5 sheets. No need for small object cover sheets, just the sheets.

Smears from patients with Long COVID, Post-Vaccination Syndrome, MIS-C or PIMS, POTS, Dysautonomia, EDS, rheumatoid, juvenile and psoriatic arthritis, autoimmune, rheumatological, neurological and psychiatric diseases are also examined under a microscope.