

# Babesia microti: A study of 38 Cases



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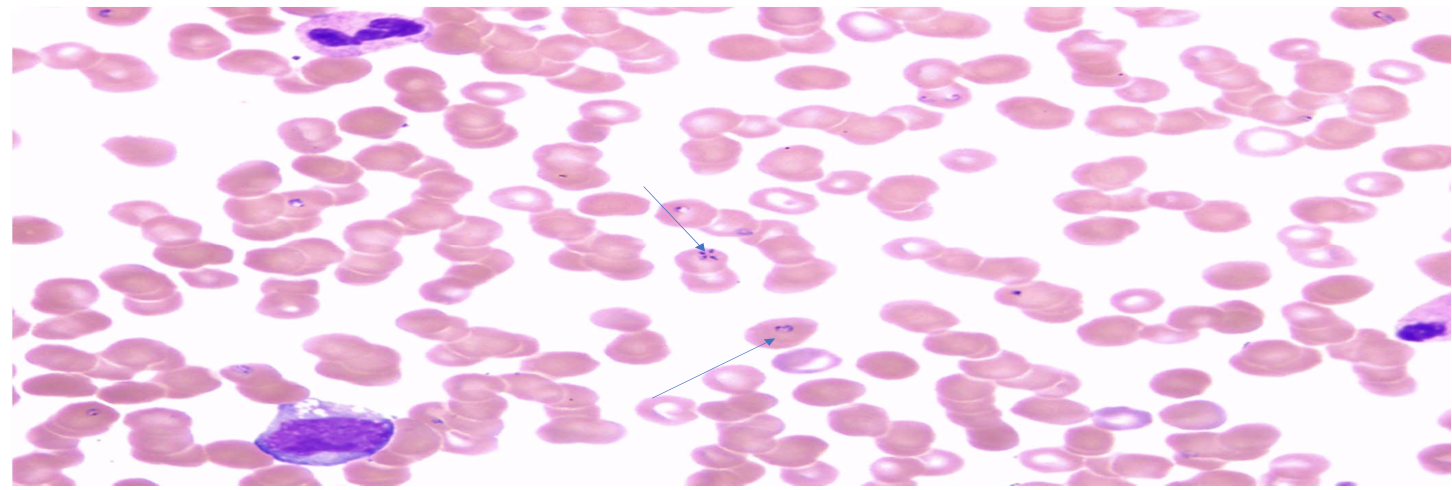
## Background

Babesiosis is an anthro-po-zoonotic tick-borne disease. *B. microti*, *B. divergens*, *B. duncani*, *B. venatorum* and a *B. crassa* like pathogen are known to cause human disease. In Eastern United States babesiosis is caused by *B. microti* transmitted by *Ixodes scapularis*. Same tick also transmits *Borrelia burgdorferi* ss, *Anaplasma phagocytophilum* (AP), *Borrelia miyamotoi* and Powassan virus [1,2]. Mixed infections are common but often missed [3].

## Methods

We evaluated charts of 38 patients, either smear or serology positive for *B. microti* during a 3 year period in 10 hospitals in our health network. The patients were from Eastern Pennsylvania and adjacent Warren county New Jersey. There were 20 males and 18 females. The age range of patients was 09-84 with a median age 63.

## Babesia Blood Smear Showing Intra-erythrocytic Parasites



## Results

<i>B. microti</i> infections Smear positive	12
Serology positive	26
<i>B. burgdorferi</i> ss [Western blot positive]	9
Erythema migrans [Lyme serology negative]	2
<i>A. phagocytophilum</i> [PCR positive]	2

## Mixed Infections Involving B microti

Single infections ( <i>B. microti</i> only)	25 (4 had fever)
Double infections <i>Borrelia burgdorferi</i> (Western blot positive or erythema migrans) <i>Anaplasma phagocytophilum</i> (PCR positive)	11 (8 had fever) 2 (both had fever)

## Clinical Features

Fever (smear or serology positive for <i>B. microti</i> )	14/38
Thrombocytopenia <140,000	11/19 (37,000-138,000)
Leukopenia (<5000)	8/19 (1226-3700)
Anemia (Hgb below 12)	10/19
Erythema migrans	2/38
History of tick bite	1/38
Leukocytosis (>10,000)	0/19
Elevated AST/ALT	10/19

## Patients Presenting with Fever (14)

Sex	Age	Smear/L/AP	IGG	IGM	WBC	HGB	PLT	AST	ALT
F	68	T 39.2C, Asplenia	+ 3%	1:320	1:10	2670	11.0	158,000	26 48
M	77	T 38.5C, headache, weak, joint pain	+ 5%	1:80	<1:10	3140	9.9	37,000	60 74
M	81	T 38.3C, encephalopathy	+ 14%			6230	7.5	116,000	64 65
M	63	T 38.1C, weakness	+ Lyme+			2880			
M	61	T 39.4C, headache, delirium	+ Lyme+			3020			
M	31	Fever, headache, diarrhea, Abn. ECG	+0.4%Lyme+			6850	11.6	384,000	43 89
F	84	T 39.8C, Fever x 2 weeks, L flank pain, weight loss, N/V,D	+ Lyme+	1:320	1:320	2700	8.5	47,000	65 70
F	63	T 39.2C, Fever x 2 weeks, L flank pain, spleen 16cm (AP), tiredness	+ Lyme+	1:320	1:160	3700	11.4	38,000	187 219
M	60	Fever x 2 weeks, headache	AP+	1:160	1:140	5410	14.9	109,000	66 73
M	76	T 38.9C, encephalopathy	+2% Lyme+	1:10	1:80	8560	8.3	170,000	46 31
F	65	Fever x 3 months		1:40	1:10				
M	71	T 39.61C, erythema at site of tick bite	Lyme+AP+	1:40	1:10	7860	12.8	322,000	30 70
M	49	T38.4C, headache, vomiting	Lyme+	1:160	<1:10	2360	15.2	138,000	466 604
M	16	Fever, malaise, erythema migrans	Lyme+	1:160	<1:10				

## Summary

The most common co-infection was *B. burgdorferi* followed by *A. phagocytophilum*. Smear positivity and mixed infections were significantly associated with fever. The degree of parasitemia had no correlation with serology titers. **Only 1 patient reported a tick bite.** Two patients who presented with left flank pain were initially misdiagnosed as left pyelonephritis. A patient admitted for a drug overdose and accidentally found to have a 5.8% parasitemia had normal laboratory findings with an increased platelet count [538,000]. In tick endemic areas physicians must be vigilant to avoid misdiagnosis of tick-transmitted infections.

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## References

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