

*Leishmania infantum*:  
the first report of autochthonous case  
in Bangkok, Thailand

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# Patient data

A 66-year old Thai man

He lives in Chareonnakorn, Bangkok

**CC.** Fatigue and back pain for 6 months

**PI.** On June 26<sup>th</sup>, 2007, he presented at Somdejprapinklao Hospital with a history of malaise, itching skin, low back pain for 6 months and a significant weight loss of 25 kg.

**PMH.** He had medical treatment for his diabetes mellitus and high blood pressure in other hospital for 8 years.

# Physical Examination

## Vital signs:

T 37.5 °C, P 86/min, RR 16/min, BP 150/80 mmHg

## General appearance:

An old Thai man, good consciousness,  
moderately pale, no jaundice, no edema

**CVS:** normal S1 & S2, no murmur

**RS:** normal breath sound, no adventitious sound

# Physical Examination

## Abdomen:

soft, not tender, no guarding & rigidity,

liver – not palpable, spleen – 3 FB below LCM, not tender

**Skin:** normal

## Nervous system:

good consciousness, no disorientation

Motor power grade V/V, all extremities

Cranial nerves: normal

## Muskuloskeletal system :

no sign of inflammation, no limitation of range of motion

# Laboratory findings

## CBC:

Hb 7.4 gm/dL, Hct 21.1% (MCV 94.8)

WBC 2,400 (N56, L 24, M 15, Eo1, B 1, Var L 3)

Platelet 133,000

## Blood chemistry:

BUN 11, Cr 0.8, random plasma glucose 145 mg/dl

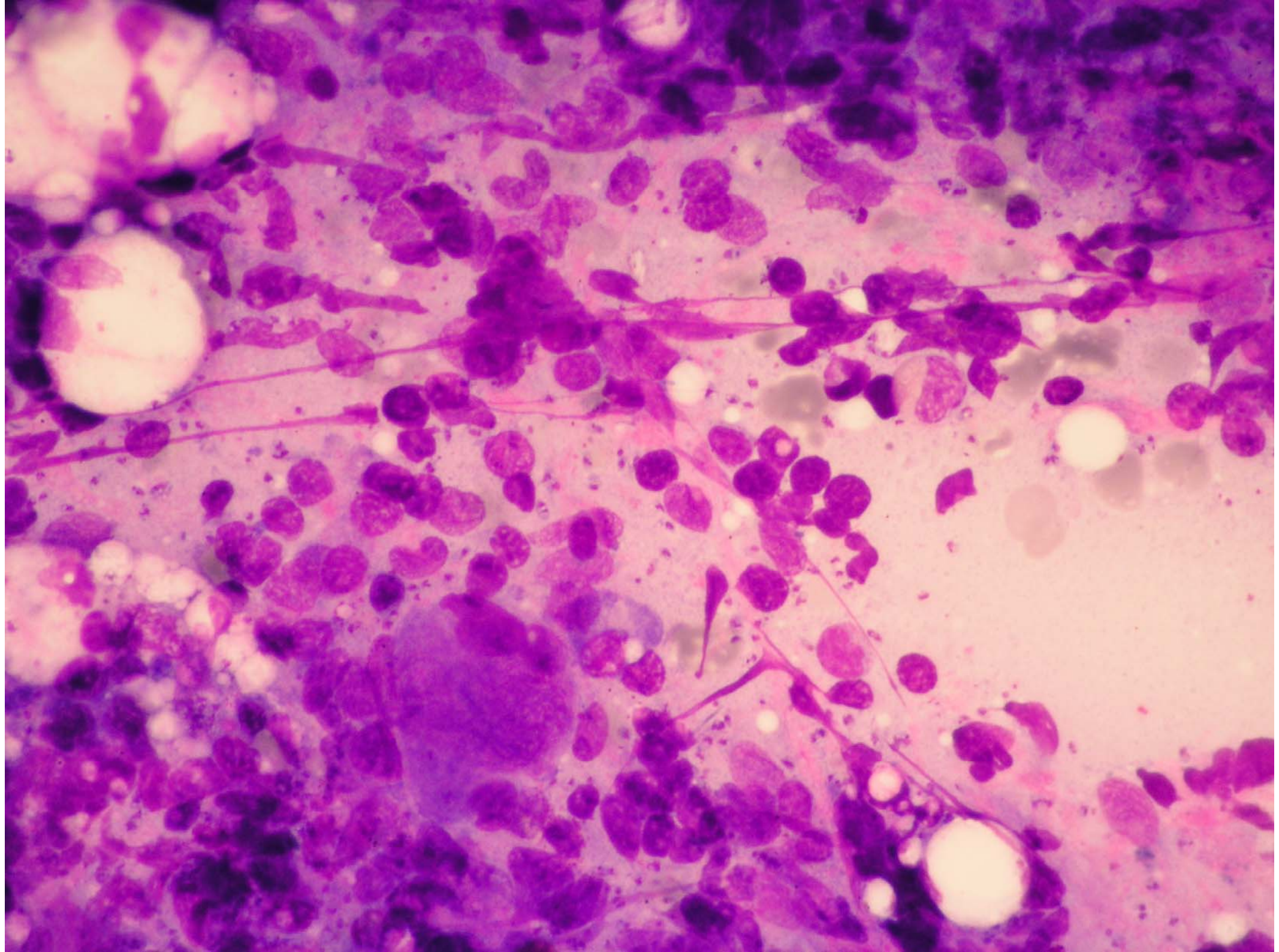
## Liver function test:

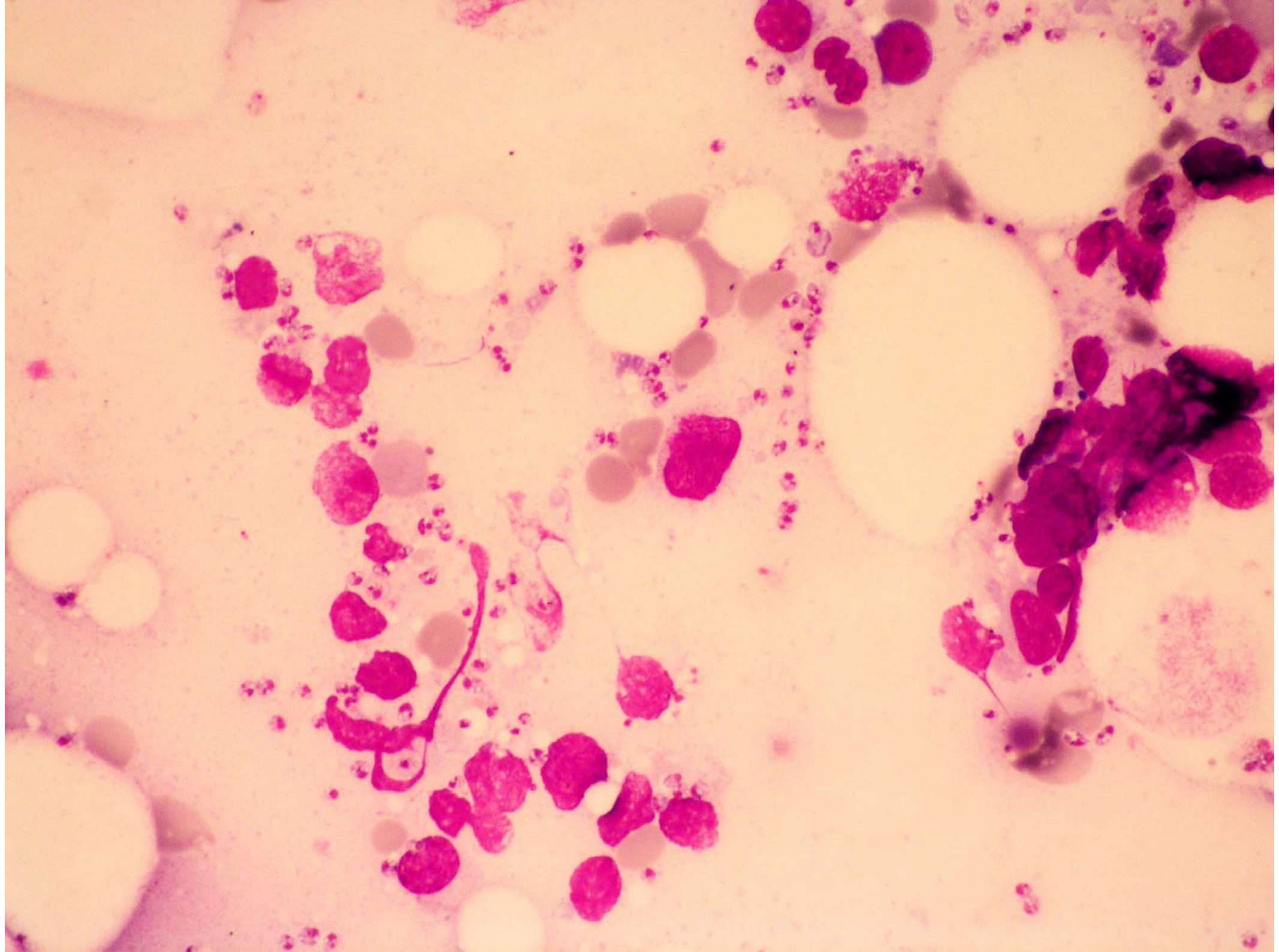
AST 28, ALT 16, Alk phosphatase 218,

Albumin 1.5, globulin 8.0 g/dl, Total bilirubin 0.14,  
direct bilirubin 0.49 mg/dl

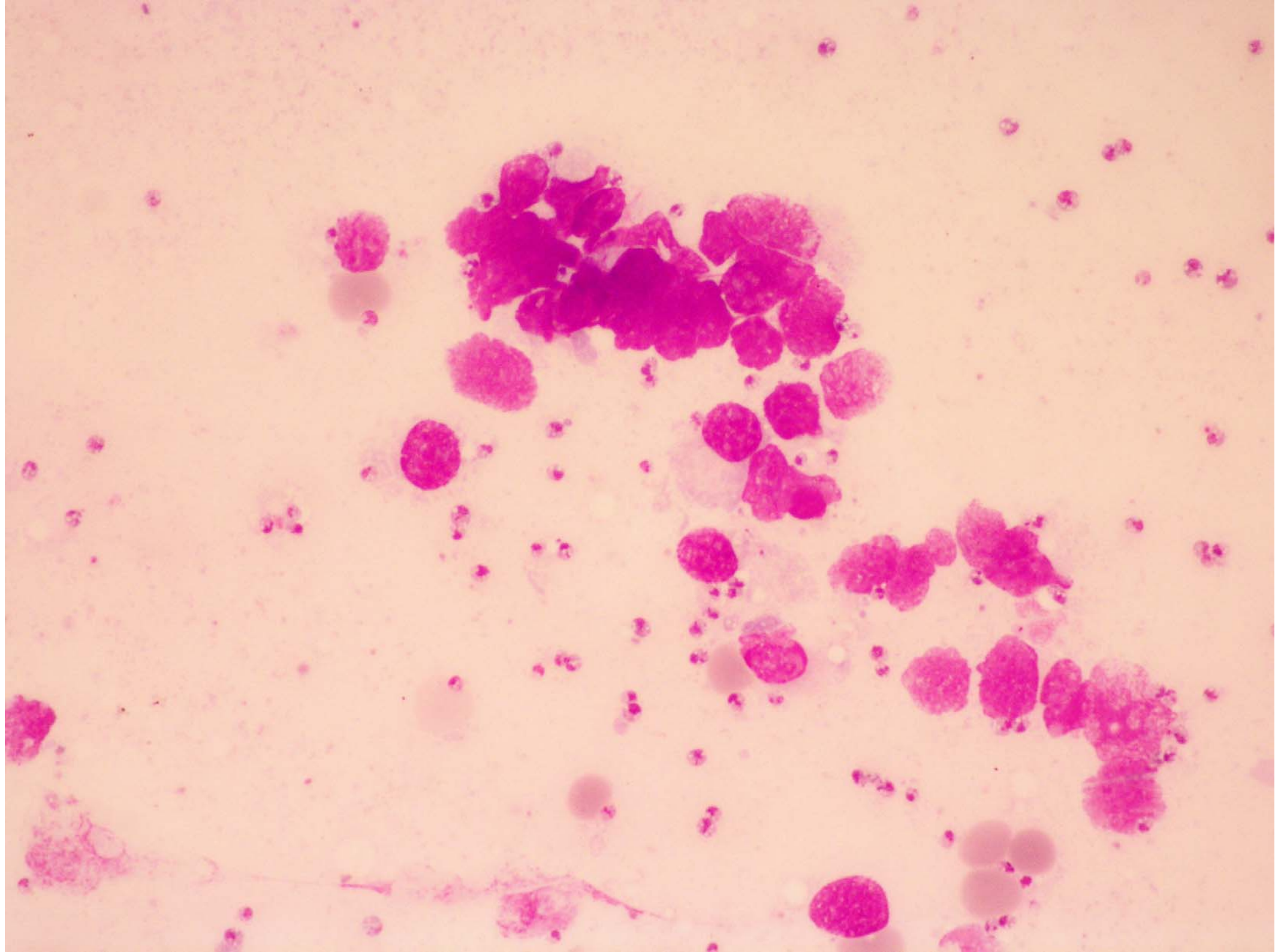
## Protein electrophoresis: polyclonal gammopathy

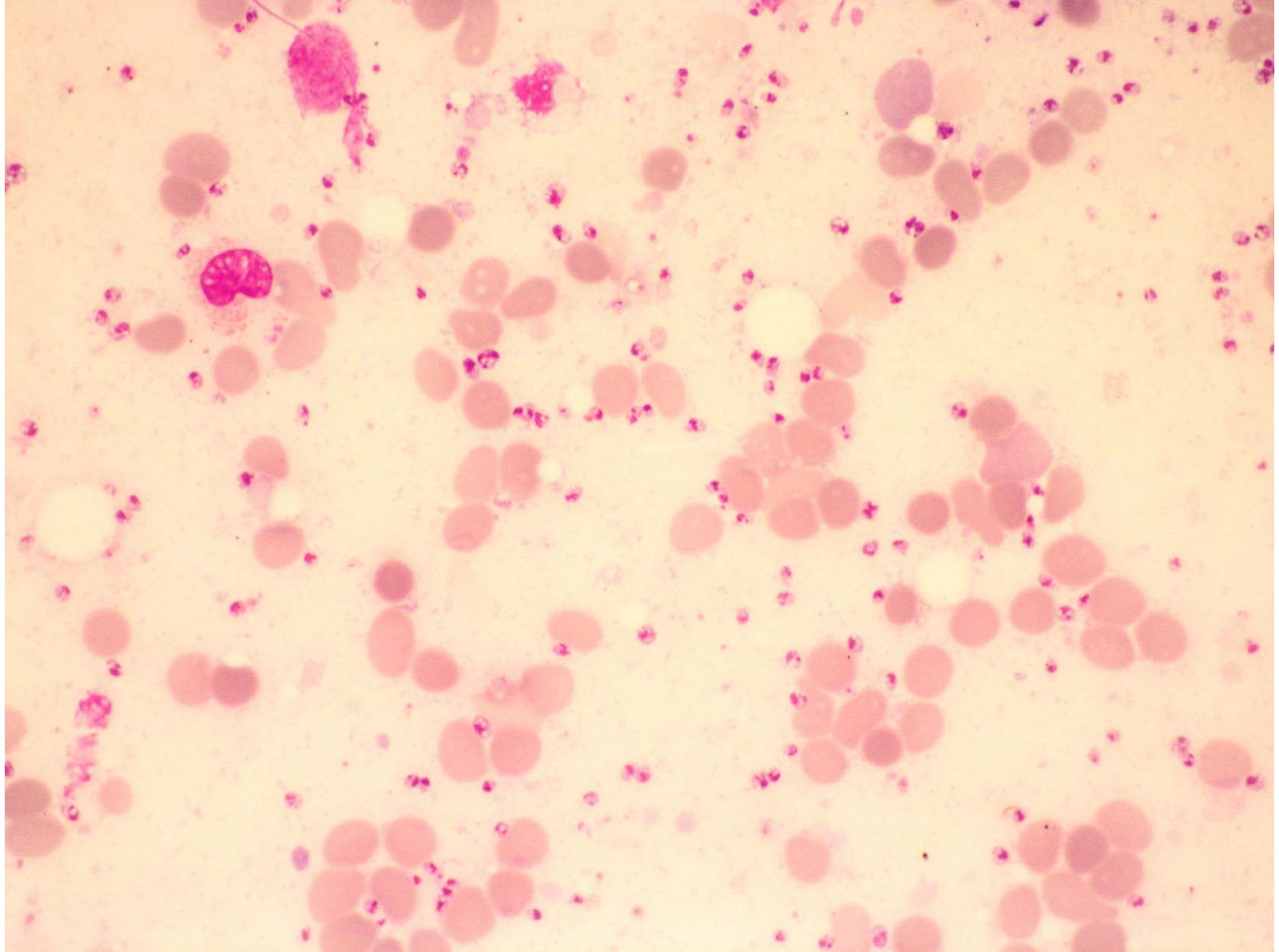
# Bone marrow study

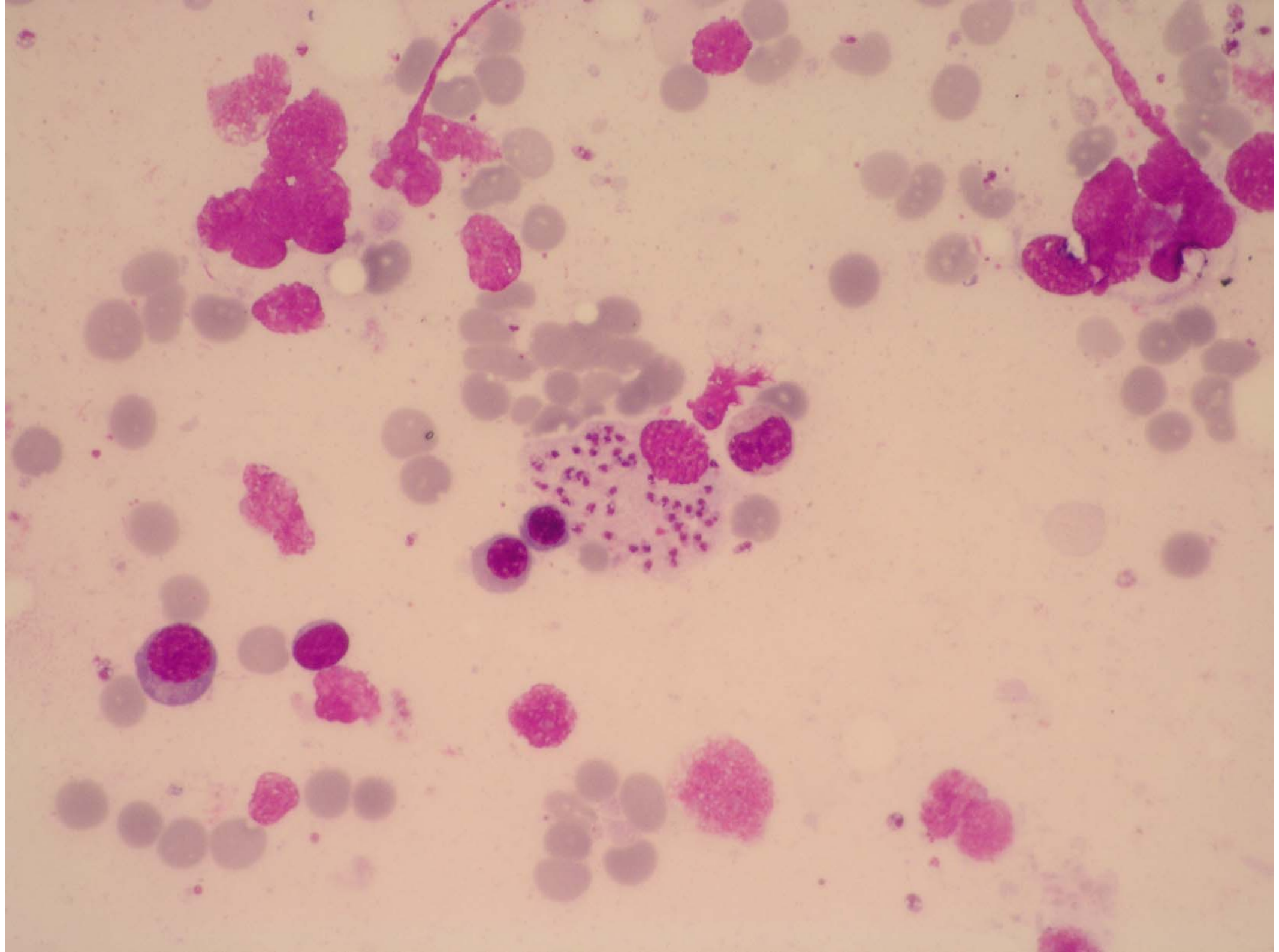


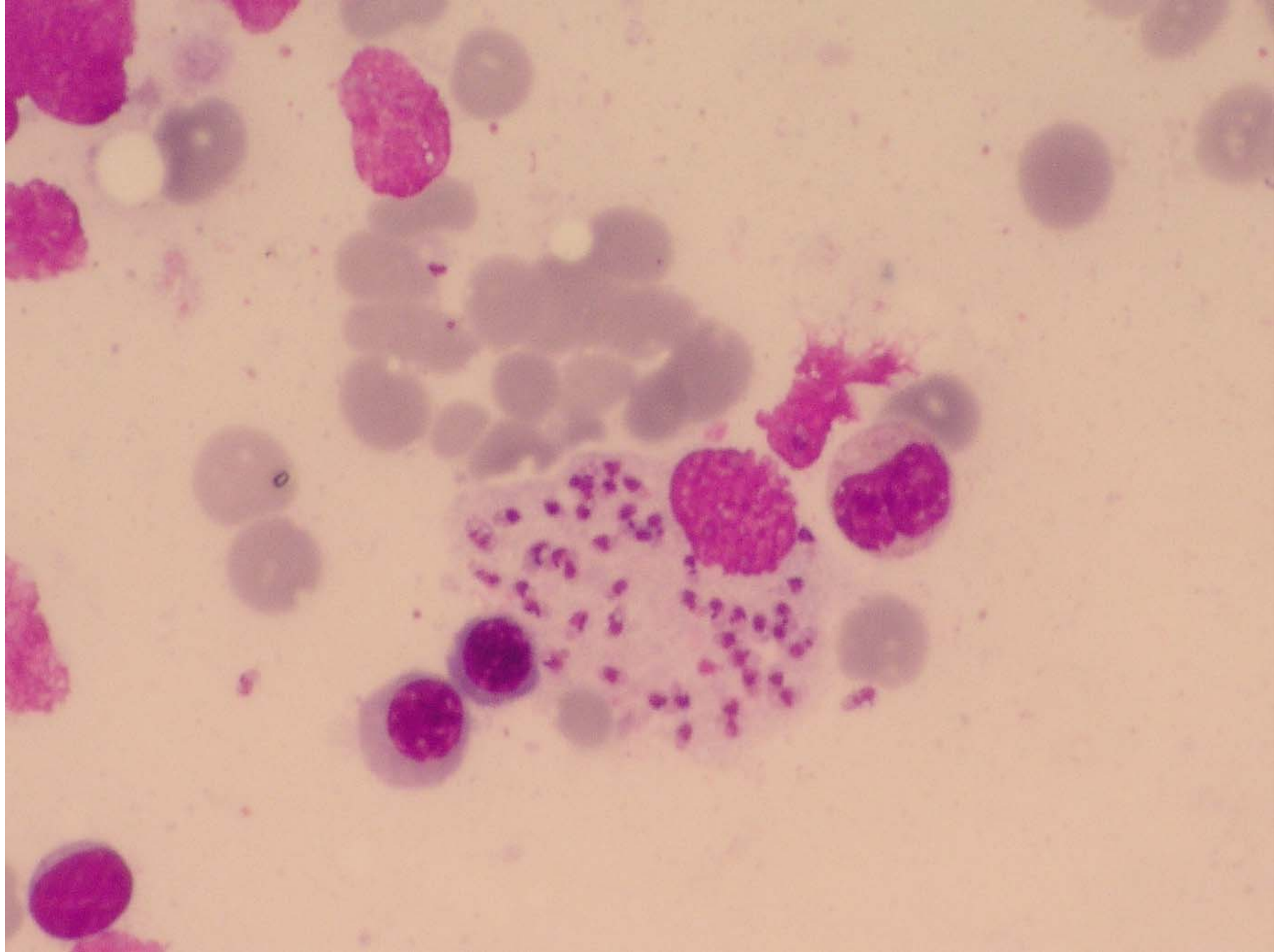












# Bone marrow study

## Bone marrow aspiration (June 20, 07)

Clot marrow, adequate megakaryocyte, no increase blast, increase plasma cell

Presence of organism, both free cell and intracellular form, small size, round or oval shape with cytoplasmic vacuoles (morphologically consistent with *Leishmania* spp.)

## Bone marrow culture: (June 20, 07)

Growth of *Leishmania* spp. (promastigote form) in NNN medium

# Ultrasonography

- Hepatosplenomegaly, no abdominal lymph node enlargement
- No space-occupying lesion of the liver

# Serology and identification

- Antibody against leishmaniasis was performed using the direct agglutination test (DAT) which showed the titer of 1:3200.
- *Leishmania* identification was determined using PCR of both ribosomal internal transcribed spacer 1 (ITS1) of SSU-rRNA gene and the mini-exon gene from a Giemsa stained bone-marrow smear.

# Serology and identification

- To confirm species identification, PCR-RFLP of the mini-exon gene (434 bp) was performed using *EaeI* endonuclease, resulted in the following sized fragments, 326 and 108 bp \*, \*\*
- Sequence analysis showed 100% identity to those of *Leishmania infantum*

\* Schonian G, Nasereddin A, Dinse N, Schweynoch C, Schallig HDFH, Presber W, et al. Diagn Microbiol Infect Dis. 2003;47:349-58.

\*\* Marfurt J, Nasereddin A, Niederwieser I, Jaffe CL, Beck HP, Felger I. J Clin Microbiol. 2003;41:3147-53.



		10	20	30	40	50	60	70	80	90	100
X69453 <i>L. donovani</i> I		TAT TGGTA TCGAAACTT CCGGAACCTG TCTTCGGCAACAT TTTGGANGCGCGCAGC GTCC TTTTTTTTGTGTGCGTGTGTGTGG CGGC GGGCCCC									
X69456 <i>L. donovani</i> II		TAT TGGTA TCGAAACTT CCGGAACCTG TCTTCGGCAACAT TTTGGANGCGCGCAGGAG CTC TTTTTT GTGTGTGCGTGTGTGTGG CGGC GGGCCCC									
X69443 <i>L. donovani</i> III		TAT TGGTA TCGAAACTT CCGGAACCTG TCTTCGGCAACAT TTTGGANGCGCGCAGC GTCC TTTTTTTTGTGTGCGTGTGTGTGG CGGC GGGCCCC									
Patient sample							AGGCCTT TTTTTTTTGTGTGCGTGTGTGTGG CGGC GGGCCCC				
		110	120	130	140	150	160	170	180	190	200
X69453 <i>L. donovani</i> I		CTGCGGTCCCGCGCGGTCGCCGGCGGCTTCCGTAGCGGTGGCCCGCGCGCG									
X69456 <i>L. donovani</i> II		CTGCGGTCCCGCGCGGTCGCCGGCGGCTTCCGTAGCGGTGGCCCGCGCGCGCGAGGGGGCCGCCGCGCGGGCGGGGCAGGCGTCCCC AGGCGCCGCG									
X69443 <i>L. donovani</i> III		CTGCGGTCCCGCGCGGTCGCCGGCGGCTTCCGTAGCGGTGGCCCGCGCGCGCGCGAGGGGGCCGCCGCGCGGGCGGGGCAGGCGTCCCCA AGGCGCCGCG									
Patient sample		CTGCGGTCCCGCGCGGTCGCCGGCGGCTTCCGTAGCGGTGGCCCGCGCGCGCGCGAGGGGGCCGCCGCGCGGGCGGGGCAGGCGTCCCCAAGGCGCCGCG									
		210	220	230	240	250	260	270	280	290	300
X69453 <i>L. donovani</i> I		TGACTGGCGCACCGGGCACGGG CCTGCGTGGCGCGCGCCGTTTCCGTCTCCG GGGCG GCCCGCCGCGGTGTGTGCCAGGGCGCGGGCGCCCCGAC									
X69456 <i>L. donovani</i> II		TGACTGGCGCACCGGGCACGGG CCTGCGTGGCGCGCAGCCGTTTCCGTCTCCG GGGCGGCCCGCCGCGGTGTGTGCCAGGGCGCGG									
X69443 <i>L. donovani</i> III		TGACTGGCGCACCGGGCACGGG CCTGCGTGGCGCGCAGCCGTTTCCGTCTCCG GGGCGGCCCGCCGCGGTGTGTGCCAGGGCGCGGGCGCCCCGAC									
Patient sample		TGACTGGCGCACCGGGCACGGG CCTGCGTGGCGCGCAGCCGTTTCCGTCTCCG GGGCGGCCCGCCGCGGTGTGTGCCAGGGCGCGGGCGCCCCGAC									
		310	320	330	340	350	360	370	380	390	400
X69453 <i>L. donovani</i> I		CGCCCGCGC GAGGCGAGCCCGGTGCGCGGCCATGGTGGTGACGCGCGGGCCCGTGC CGCGAGAAC ATCCGCCCG CGGAATGCGGGC TGTGGGTGTGAC									
X69456 <i>L. donovani</i> II											
X69443 <i>L. donovani</i> III		CGCCCGCGC GAGGCGAGCCCGGTGCGCGGCCATGGTGGTGACGCGCGGGCCCGTGC CGCGAGAAC ATCCGCCCG CGGAATGCGGGC TGTGGGTGTGAC									
Patient sample		CGCCCGCGC GAGGCGAGCCCGGTGCGCGGCCATGGTGGTGACGCGCGGGCCCGTGC CGCGAGAAC ATCCGCCCGCGGAATGCGGGC TGTGGGTGTGAC									
		410	420	430							
X69453 <i>L. donovani</i> I		GGCTTGCAACTAACGCTATATAGTATCAGTTTCTGT									
X69456 <i>L. donovani</i> II		GGCTTGCAACTAACGCTATATAGTATCAGTTTCTGT									
X69443 <i>L. donovani</i> III		GGCTTGCAACTAACGCTATATAGTATCAGTTTCTGT									
Patient sample		GGCTTGCAACTAACGCTATATAGTATCAGTTTCTGT									

	10	20	30	40	50	60	70	80	90	100
X69445.1 L.infant um	TATTGGTATGCGAAACTTCCGGAACCTGTCTCCGGCAACATTTTGGAGGGCGCGCGGGCGTCTTTTTTTTTTGTGTGCGTGTGTGTGGCGGGCGCC									
AY155503 L.infant um	TATTGGTATGCGAAACTTCCGGAACCTGTCTCCGGCAACATTTTGGAAAGCGCGCAGGCCTC-----TTTTTTTTTGTGTGCGTGTGTGTGGCGGGCGCC									
Patient sample	-----AGGCCTTT-----TTTTTTTTTGTGTGCGTGTGTGTGGCGGGCGCC									
	110	120	130	140	150	160	170	180	190	200
X69445.1 L.infant um	CCCTGCGGTCCCGCGCGGTCCGCCGCGGCTTCCGTAGCGGTGGCCCCCGCGCGCGAGGGGGCCGCGACGC-----GGGGCAGGCGTCCCCCAATGGCGCC									
AY155503 L.infant um	CCCTGCGGTCCCGCGCGGTCCGCCGCGGCTTCCGTAGCGGTGGCCCCCGCGCGCGAGGGGGCCGCGACGC-----GCGGGGCAGGCGTCCCCCAAGGCGCC									
Patient sample	CCCTGCGGTCCCGCGCGGTCCGCCGCGGCTTCCGTAGCGGTGGCCCCCGCGCGCGAGGGGGCCGCGACGC-----GCGGGGCAGGCGTCCCCCAAGGCGCC									
	210	220	230	240	250	260	270	280	290	300
X69445.1 L.infant um	GCGTGA CTGNN--ACCGGGTCAAGGGGCTGCGTAGCGCGCGTTGTTTCCGTCTCCGCGGG--CGC--GCCCGCCGCGGTGTGTGCCAGGGCC--GCGCCC									
AY155503 L.infant um	GCGTGA CTGGCGCACCAGGG--CAAGGGGCTGCGT--GCGCGCGCGCGTTTCCGTCTCCGCGGGGCGCGCCGCGCGCGGTGTGTGCCAGGGCGCGGGCGCC									
Patient sample	GCGTGA CTGGCGCACCAGGG--CAAGGGGCTGCGT--GCGCGCGCGCGTTTCCGTCTCCGCGGGGCGCGCCGCGCGCGGTGTGTGCCAGGGCGCGGGCGCC									
	310	320	330	340	350	360	370	380	390	400
X69445.1 L.infant um	CGCACCGCCCGGCGTCCAGGCGTCAAGCCGGTGGCGGGCCATGGTGGTACCGCGGGCCCGTGCAGGAGAACCTTCCGCCCAGGATGCGGGCTGTGG									
AY155503 L.infant um	CGCACCGCCCGGCG--CGAGGCG--AGCCCGGTGGCGGGCCATGGTGGTACCGCGGGCCCGTGCAGGAGAACCTCCGCCCAGGATGCGGGCTGTGG									
Patient sample	CGCACCGCCCGGCG--CGAGGCG--AGCCCGGTGGCGGGCCATGGTGGTACCGCGGGCCCGTGCAGGAGAACCTCCGCCCAGGATGCGGGCTGTGG									
	410	420	430	440						
X69445.1 L.infant um	GTGTGACGGCTTTCARCTAACGCTATATAAGTATCAGTTTCTGT									
AY155503 L.infant um	GTGTGACGGCTTTCARCTAACGCTATATAAGTATCAGTTTCTGT									
Patient sample	GT-----									

# Diagnosis

- Visceral leishmaniasis (*L. infantum*)

# Treatment

- Amphotericin B deoxycholate IV administration (50 mg IV every other day for 1 month) with slightly elevated serum creatinine. \*
- No *Leishmania* amastigotes were detected in bone marrow smears after a 1-month course of amphotericin B regimen.

\*Sundar S et al. Clin Infect Dis. 2007;45(5):556-61  
Sundar S et al. Clin Infect Dis. 2004;38:377-383

# Discussion

- Thailand is a non-endemic area of leishmaniasis.
- In the past, imported cases of cutaneous and visceral leishmaniasis were reported in Thai workers who had traveled and worked in the Middle East countries <sup>1-2</sup>
- Recently, a few autochthonous cases of visceral leishmaniasis were reported in northern and southern Thailand <sup>3-4</sup>

1. Suttinont P, Thammanichanont C, Chantarakul N. Southeast Asian J Trop Med Public Health. 1987;18:103-6.
2. Viriyavejakul P, Viravan C, Riganti M, Punpoowong B. Southeast Asian J Trop Med Public Health. 1997;28:558-62.
3. Thisyakorn U, Jongwutiwes S, Vanichsetakul P, Lertsapcharoen P. Trans R Soc Trop Med Hyg. 1999;93:23-4.
4. Kongkaew W, Siriarayaporn P, Leelayoova S, Supparatpinyo K, Areechokchai D, Duang-ngern P, et al. Southeast Asian J Trop Med Public Health. 2007;38:8-12.

# Discussion

- We report herein a 66-year old non-HIV-infected Thai man, living in Bangkok, who was diagnosed of having visceral leishmaniasis caused by *Leishmania infantum*.
- This patient has been living in Bangkok, Thailand during the last 6 years.
- He was a lumber truck driver and traveled throughout the country. During his work schedules, he always spent nights on the truck without insect net but using insect repellants.
- He retired when he was 59 years old

# Outbreak Investigation

- In the past 12 months, he had never gone to anywhere else.
- There were 6 family members including himself living in the same household.

# Outbreak Investigation

- He has been living among other 20 family neighbors in the 2 story-building constructed with woods.
- He occupied a room on the 1<sup>st</sup> floor where the wood floor was built 1 ft up from wet-soil ground.
- He did not have his own pets but there were dogs and cats living around the neighborhood.
- Within 200 meters from the affected area, no immigrant workers i.e., Myanmar, Pakistan, Indian were notified.



# Outbreak Investigation

- *L. infantum* is the causative agent of both cutaneous and visceral forms of human leishmaniasis.
- Domestic dogs are known to be the most important reservoir hosts #
- Recently *L. infantum* was diagnosed in cutaneous leishmaniasis in a domestic cat in Spain \$

# Gramiccia M, Gradoni L. Int J Parasitol. 2005;35:1169-80.

\$ Martín-Sánchez J, Acedo C, Muñoz-Pérez M, Pesson B, Marchal O, Morillas-Márquez F. Vet Parasitol. 2007;145:267-73.

# Outbreak Investigation

- In this study, an outbreak investigation was also conducted to rule out other humans and animal reservoir living within a radius of 200 m. from the house of the confirmed case.
- The DAT was also performed to detect antibody against *Leishmania* infection in his neighborhoods and animals.
- Blood samples were drawn from his family members, 67 neighborhoods including 9 dogs, 1 cat, and 3 rats.
- Other human and animal sera were found negative for *Leishmania* antibody.
- Sand fly trapping was not successfully done due to the wet weather.

# Conclusion

- Our data presents the possibility of emerging leishmaniasis in Thailand which may be due to the international traveling and the migration of infected people and animals.
- Autochthonous leishmaniasis is one of our public health concerns since cases of leishmaniasis have been reported from the North, the South, and especially this case of *L. infantum* in Bangkok, central Thailand.
- In order to control this disease, intensive surveillance of human cases, reservoirs and vectors of this disease is urgently needed.

# Acknowledgement

- This work was financially supported by the Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health, Thailand.

*Thank you  
for  
Your Attention*