

SEPTICAEMIA IN TWO PYGMY MARMOSETS (*CEBUELLA PYGMAEA*) ASSOCIATED WITH *KLEBSIELLA PNEUMONIAE*

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INTRODUCTION

Klebsiella pneumoniae (*Enterobacteriaceae*) is ubiquitous and is also found in primate oral and faecal microbiota¹.

Pathotypes² Classical (infection immunocompromised individuals)
Hypervirulent (systemic infections in healthy individuals)

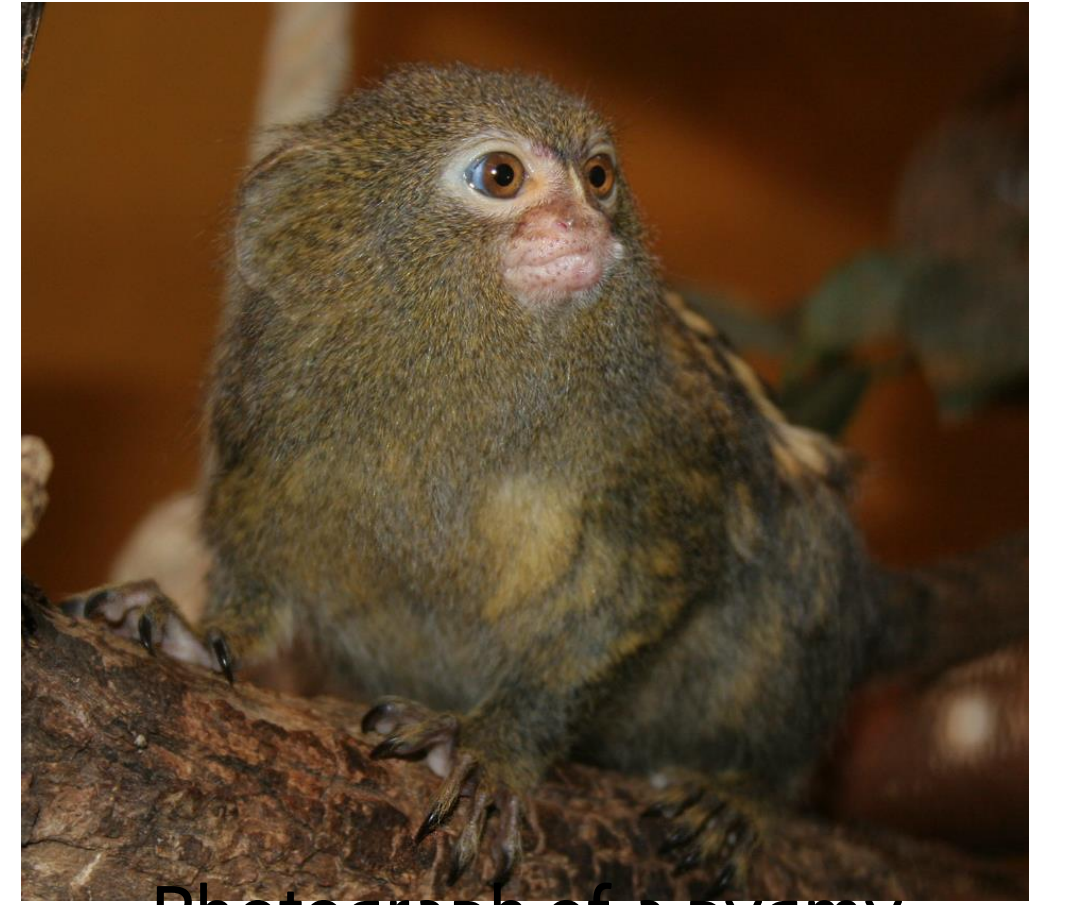
Common lesions: pneumonia, enteritis, pleuritis, peritonitis, systemic abscess formation and/or septicaemia¹.

CLINICAL HISTORY

Within a period of one week, two pygmy marmosets from a family group of 8 animals in the zoo of Barcelona died suddenly.

- First case: female, 9 years
- Second case: female, 4 years

Simultaneously, a rat infestation is detected in the facility.



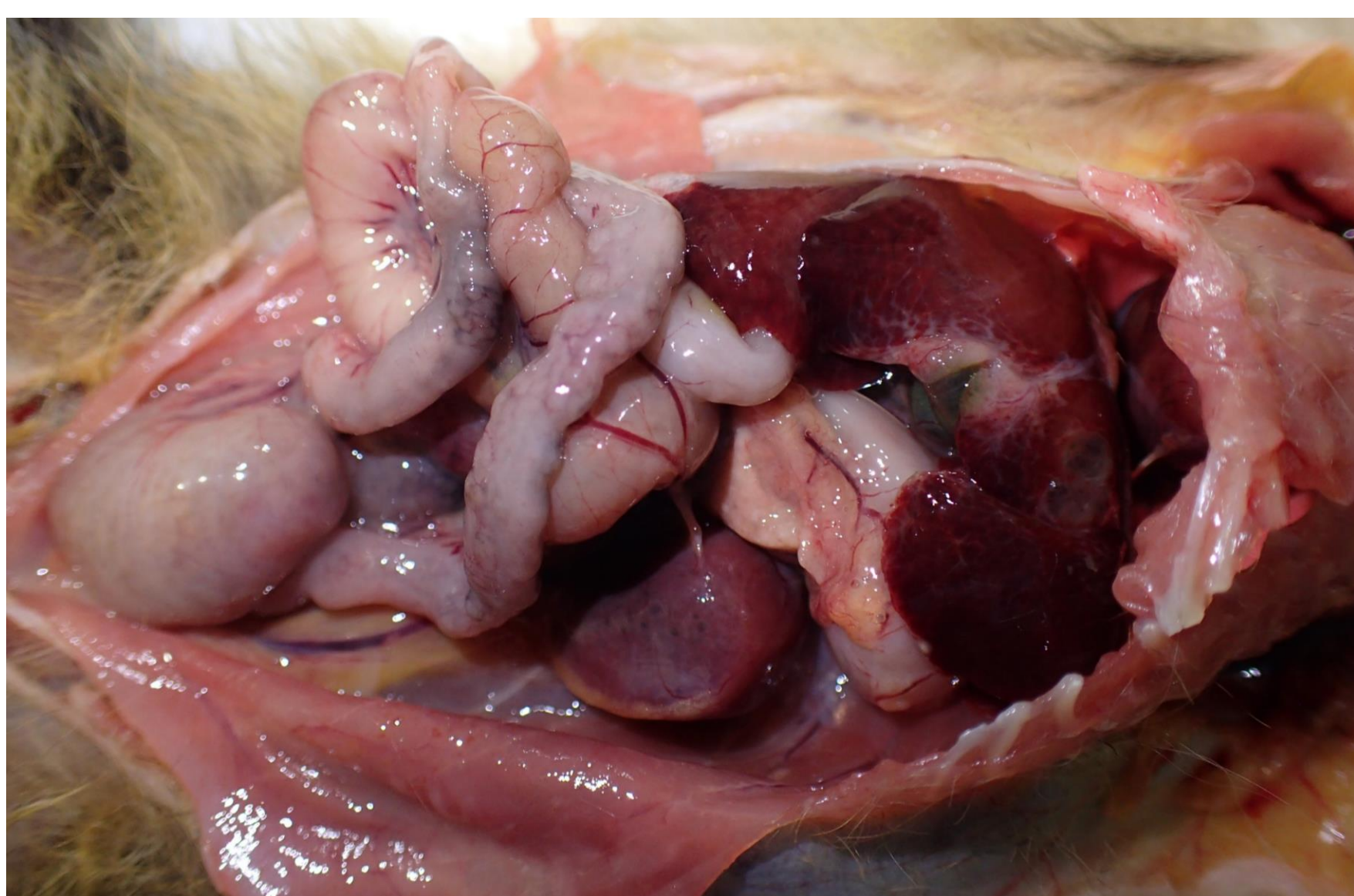
Photograph of a pygmy marmoset.
Source: Barcelona Zoo

FIRST CASE (A):

SECOND CASE (B):

MACROSCOPIC FINDINGS:

A: Mild fibrinosuppurative peritonitis



A. Abdominal cavity. Presence of scarce yellowish fibrillar material, imperceptible in the picture.

B: Haemoperitoneum; diffuse hepatic lipidosis with multifocal hepatic fissures



B. Abdominal cavity. Presence of moderate amount of free clotted blood inside the cavity.

B: Ulcerative skin lesion (compatible with a rodent bite wound)



B. Right scapular region. Ulcerative, focal, rounded, ulcerative skin lesion, 1 cm in diameter.

MICROSCOPIC FINDINGS:

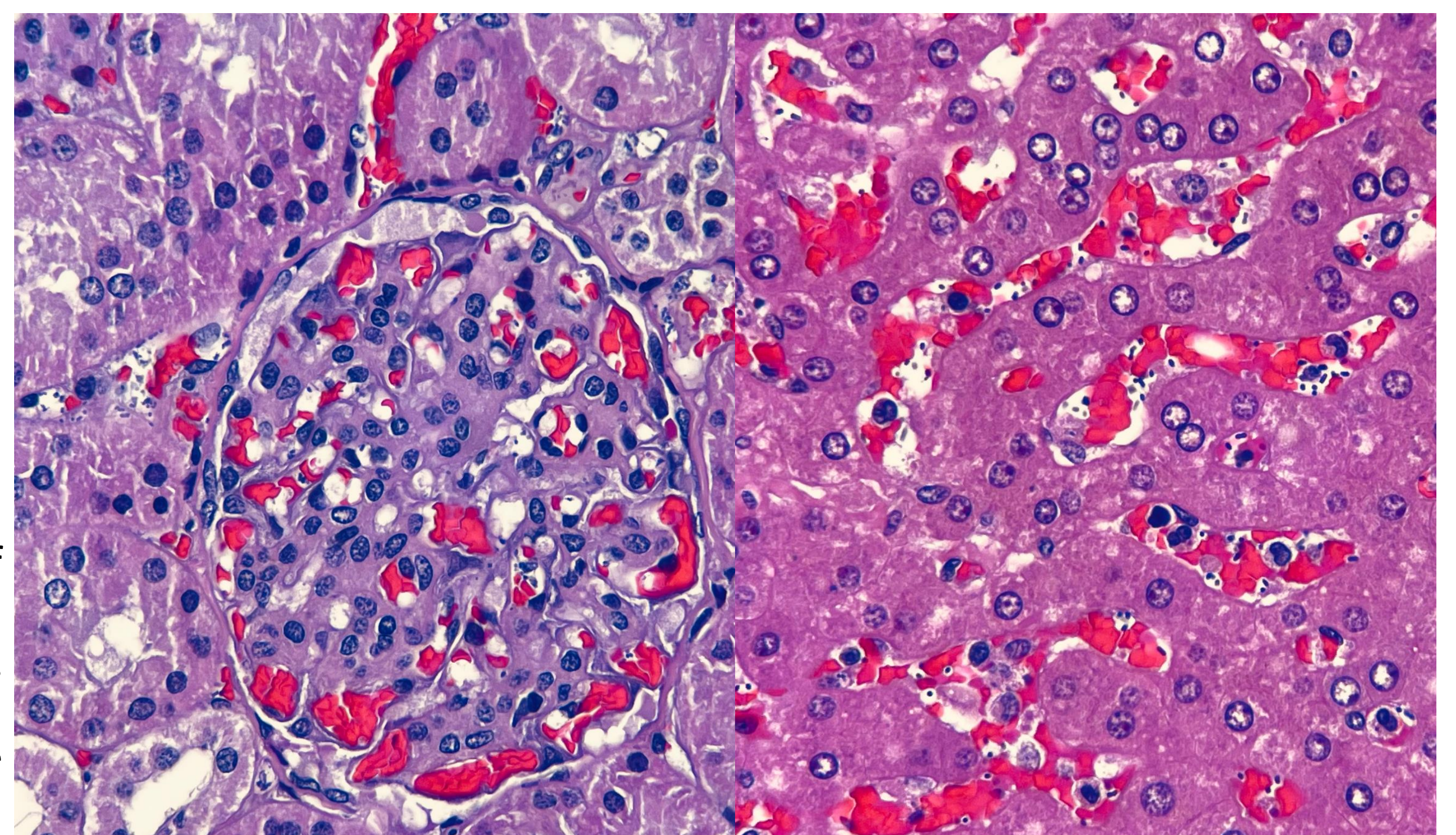
A: Diffuse enteritis

Intestine (HE). Intense diffuse lymphoplasmacytic and less neutrophilic and histiocytic enteritis. It is associated with the presence of abundant bacillary bacteria forming a biofilm that adhered to mucosa, submucosa and serosa.

A,B: Septicaemia

Left: Kidney (HE). Presence of intravascular bacteria.

Right: Liver (HE). The sinusoids are expanded by circulating inflammatory cells and a large amount of bacillary bacteria.

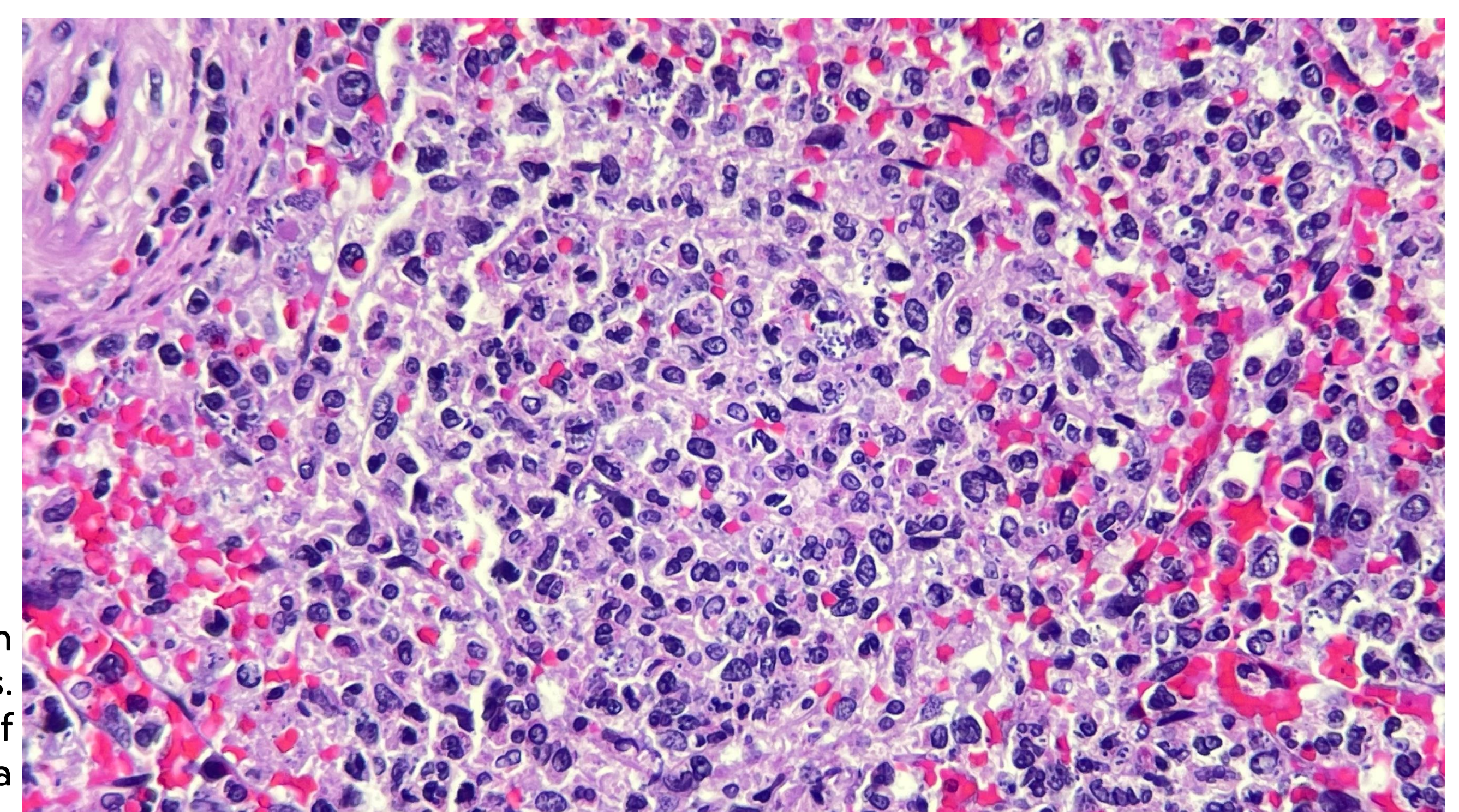


A: Fibrinosuppurative peritonitis

Intestine (HE). Serosa expanded by a mononuclear and neutrophilic infiltrate with abundant intralesional bacteria.

B: Granulomatous splenitis

Spleen (HE). Moderate increase in the number of macrophages. Highlight the presence of intracytoplasmic bacillary bacteria (phagocytosis).



BACTERIOLOGICAL EXAMINATION

A: Frozen liver sample: isolation of *K. pneumoniae* string test + (hypermucoviscous phenotype).
B: Fresh liver sample: isolation of *K. pneumoniae*

REFERENCES:

- 1: Terio, McAloose, D., & St. Leger, J. (2018). Pathology of wildlife and zoo animals / edited by Karen A. Terio, Denise McAloose, Judy St. Leger. (Terio, D. McAloose, & J. St. Leger, Eds.). Academic Press, an imprint of Elsevier.
2: Russo, T. A., & Marr, C. M. (2019). Hypervirulent *Klebsiella pneumoniae*. Clinical microbiology reviews, 32(3), e00001-19. <https://doi.org/10.1128/CMR.00001-19>

CONCLUSIONS

The lesions in both pygmy marmosets were similar to those described in other primate species.
We suspect that rodents may have played a major role in the origin of the infection.



Photograph of a rodent in the nest of a pygmy marmoset.