

ESVCP Case Summary

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Anicura Värmdä Djurklinik

SPECIMEN: Aspirate from a 3.5 cm structure (thought to be an enlarged salivary gland) in the throat of a dog.

SIGNALMENT: A 6-year-old, male Gonczy Polski (Polish hunting dog).

HISTORY AND CLINICAL FINDINGS:

The dog came to Sweden from Poland three years earlier. There were no clinical signs. CRP was normal.

Cytological findings:

See photomicrographs.

Questions

1. What is the cytological diagnosis?
 - a. Abscess
 - b. Pyogranuoma
 - c. Granuloma
 - d. Squamous cell carcinoma
 - c. Salivary gland adenoma
2. What is/are the organisms in the sample?
 - a. Yeast
 - b. Amoeba
 - c. Algae
 - d. Protozoa
 - c. No organisms are seen.

Figure 1

Photomicrograph of a May Grunwald Giemsa stained smear of a FNA the structure. Use erythrocytes (about 6 μm) for size comparison.

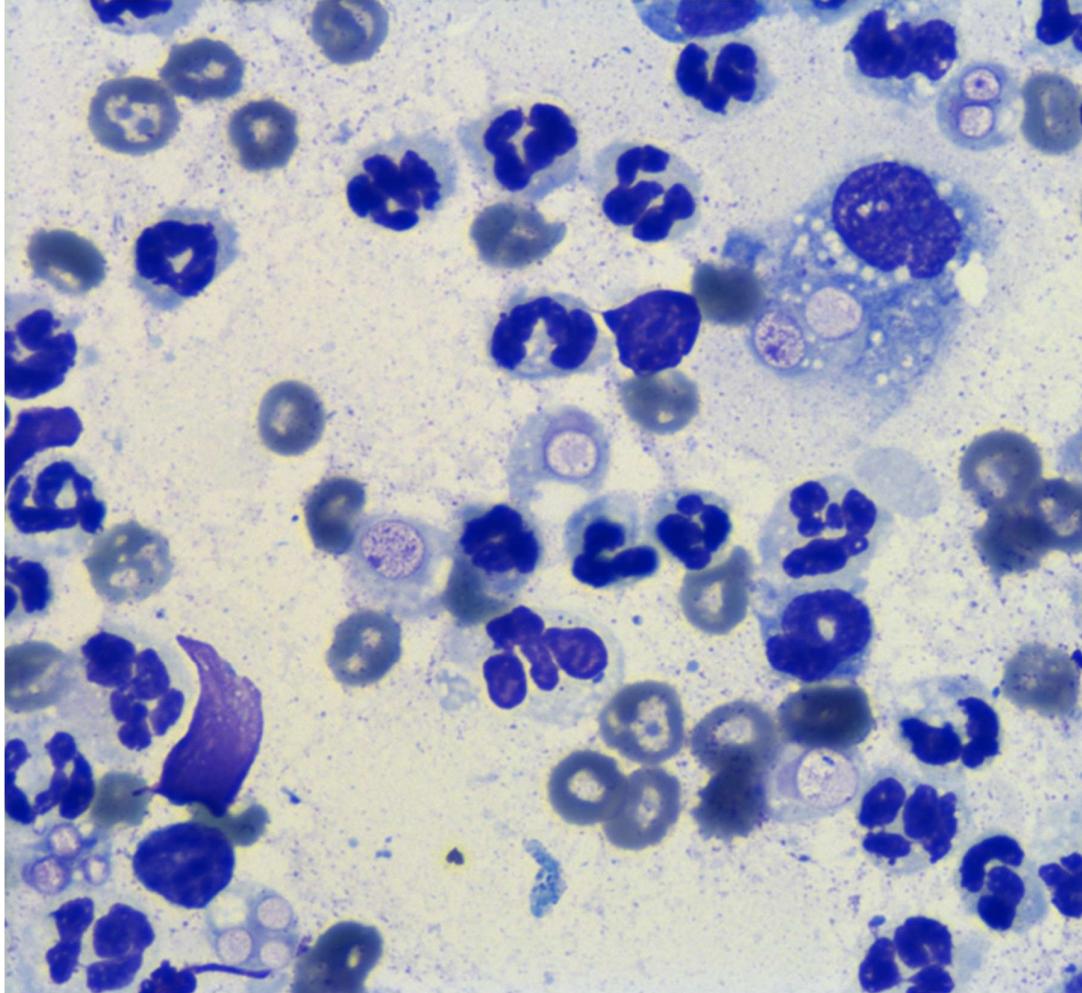


Figure 2

Photomicrograph of a May Grunwald Giemsa stained smear of a FNA the structure. Use erythrocytes (about 6 μm) for size comparison.

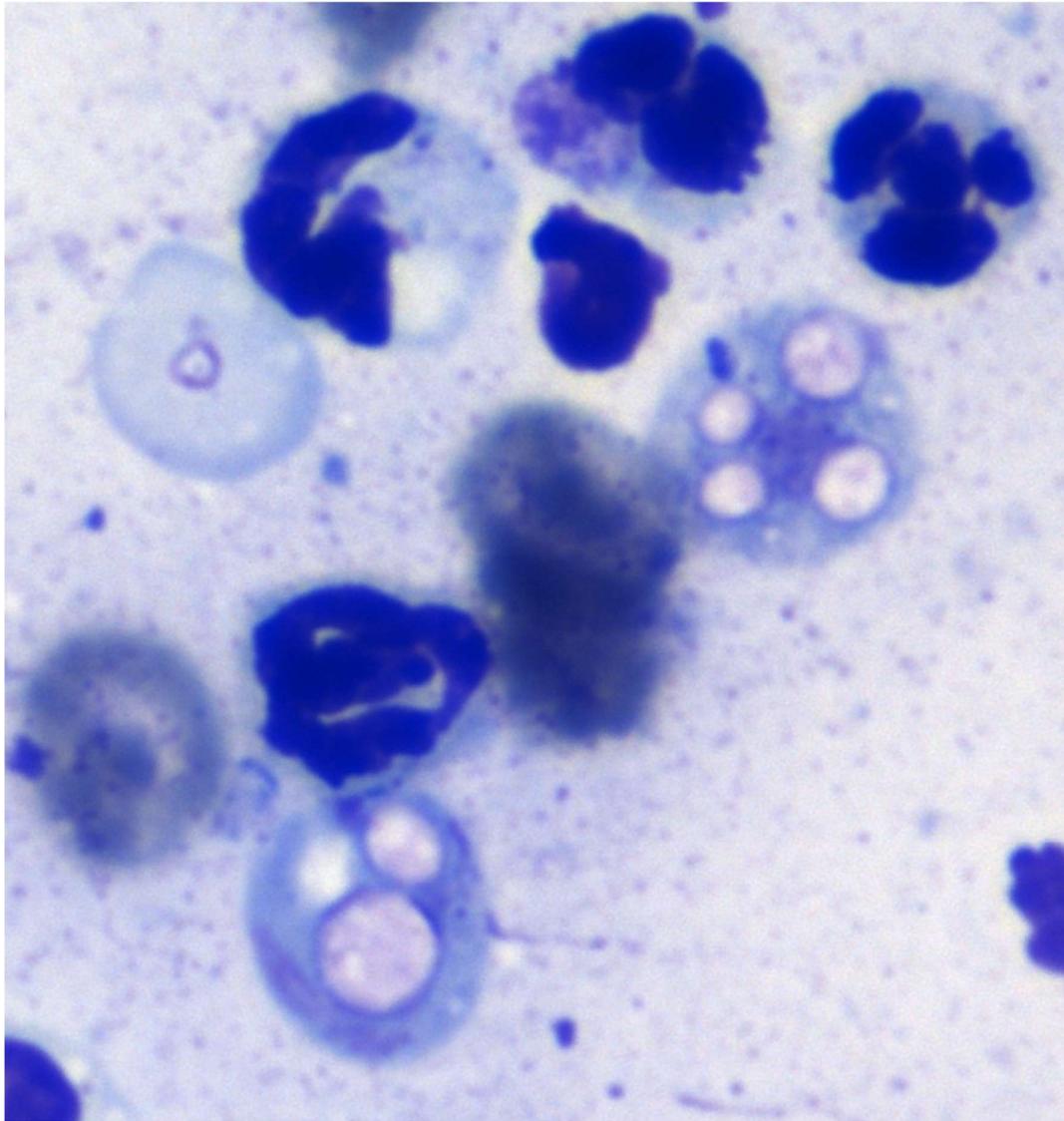
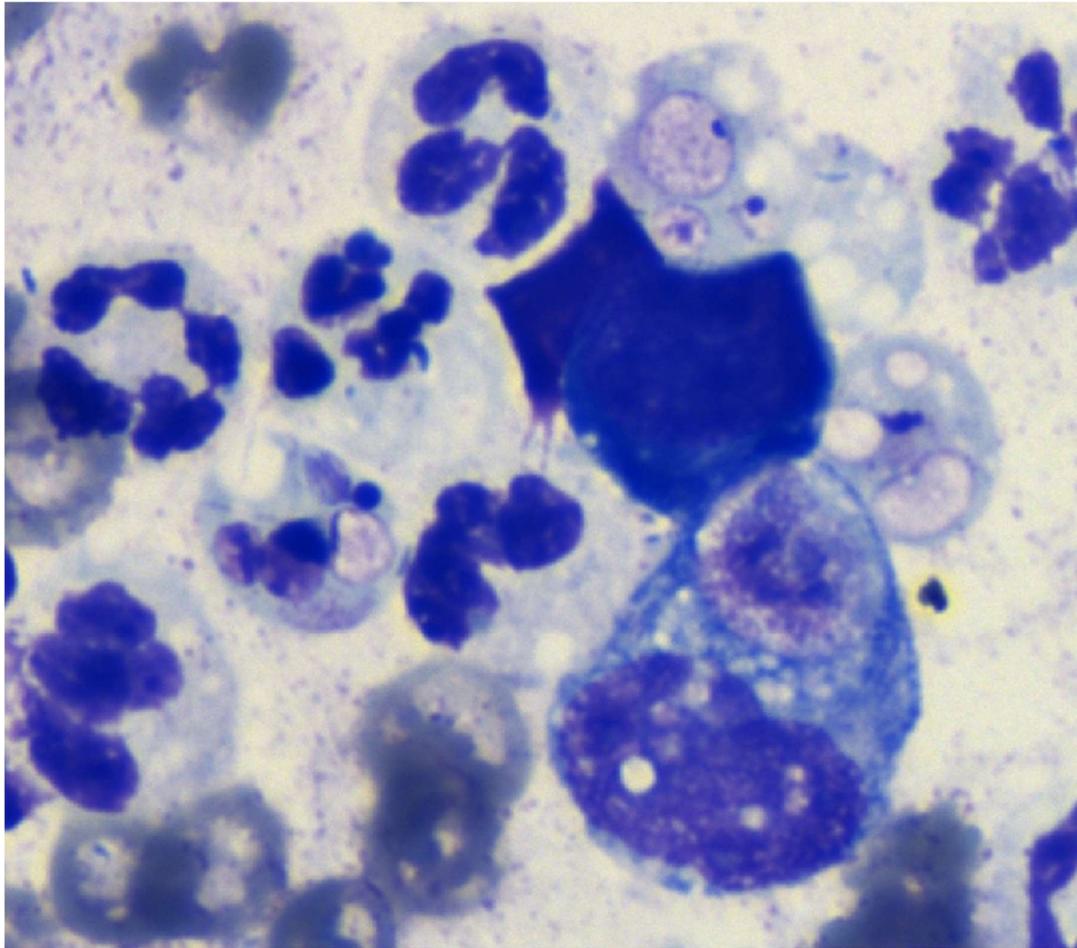


Figure 3

Photomicrograph of a May Grunwald Giemsa stained smear of a FNA the structure. Use erythrocytes (about 6 μm) for size comparison.



Diagnosis:

The lesion was interpreted to be pyogranulomatous inflammation with an amoeba-like organism. There was no evidence of salivary gland.

Additional testing:

A researcher (Jessica Ögren) with Länssjukhuset Ryhov in Jönköping, Sweden, who studies *Entamoeba*, analyzed a second fresh sample taken from the dog with a PCR-panel for *Entamoeba histolytica*, *Entamoeba dispar*, *Dientamoeba fragilis*, *Giardia intestinalis* and *Cryptosporidium*. All results were negative, so we know the organism was not any of them. The diagnosis is “amoeba-like” organism tentative based on morphology alone.

Discussion

Amoebiasis, or amoebic dysentery, is one of the most common protozoal infections of people. Amoebiasis is caused by *Entamoeba histolytica*. This is often asymptomatic in the intestines but can cause severe diarrhea.

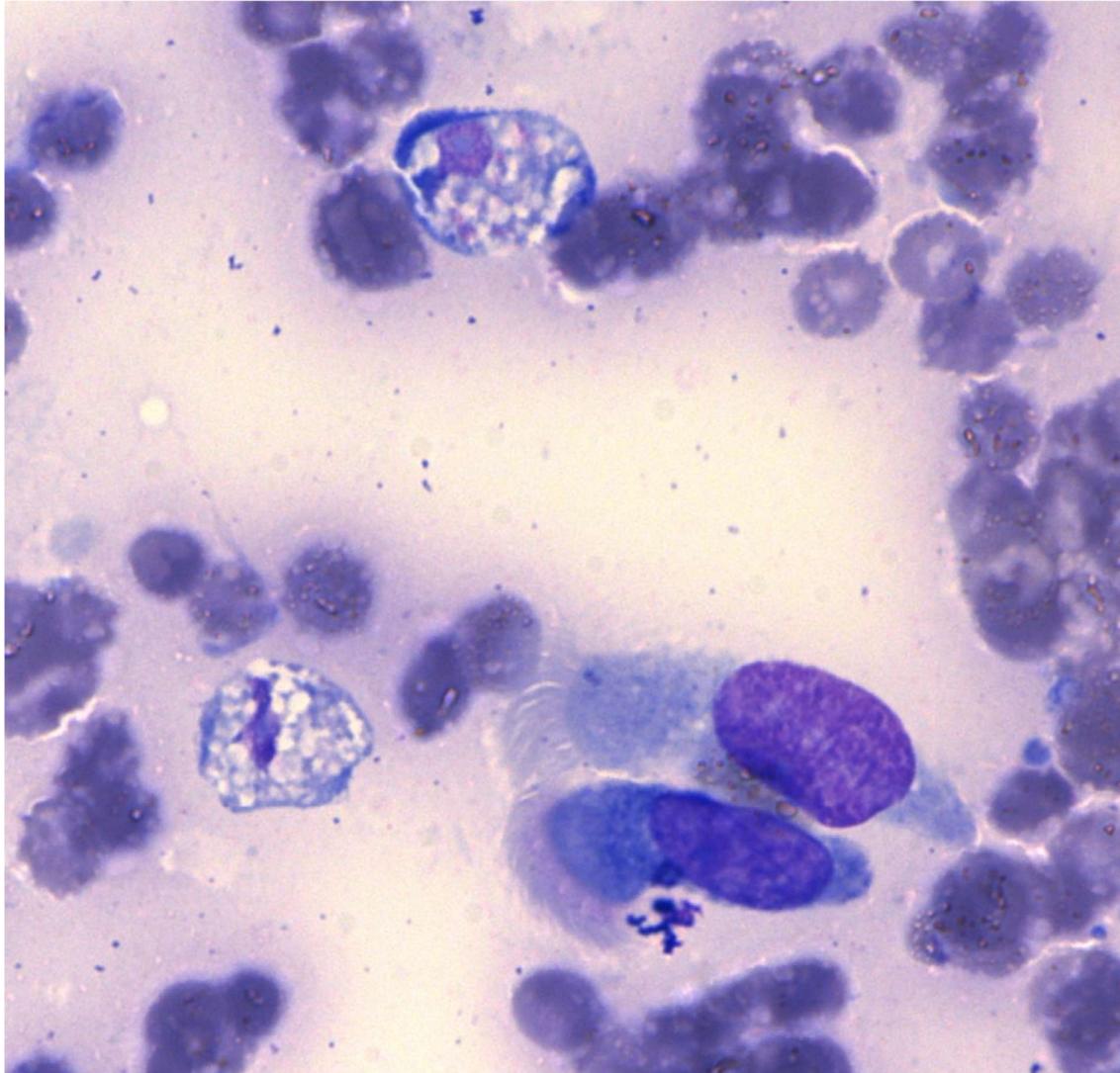
Various amoebae may cause disease in animals and people. These include *Acanthamoeba*, *Balamuthia*, *Naegleria* and *Sappina* spp. We suspect the organism may be a type of *Acanthamoeba*. *Acanthamoeba* spp. are found commonly in water, air, and soil environments. *Acanthamoeba* and *Naegleria* are termed amphizoic because they exist both as free-living amoebae and as parasitic pathogens. Free-living amoebae belonging to the genus *Acanthamoeba* are the causative agents of granulomatous amoebic encephalitis and amoebic keratitis. Amoebic keratitis has been associated with the use of contact lenses, swimming in a lake and poor lens hygiene.

A colleague (Erica Corda) suggested the organism could be *Entamoeba gingivalis*. This is found in the mouth of most people with gum diseases and it was described in a pet during an ASVCP online round.

The owners did not want further testing because the dog had no other clinical signs. Our dog was not treated for amoeba and the lump decreased in size. Therefore, we did not firmly identify what the organism was. The cytologic and histopathologic morphology of *Acanthamoebiasis* was presented by Meichner at the 2015 ASVCP slide session. That was well documented with testing (PCR and indirect IF) done at the Centers for Disease Control and Prevention (CDC) in Atlanta, USA. *Acanthamoeba* spp. In that case the *Acanthamoeba* were about 10 to 25 μm in diameter.

Amoebae in Figure 4 were about 2.5 times an erythrocyte in diameter. *Acanthamoeba* are in two forms. An endocyst ranges in size from 13 to 20 μm . The trophozoite varies in size from 25 to 40 μm (Marciano-Cabral). The organism in our Gonczy Polski dog often appeared smaller. Amoeba feed on bacteria, algae, and yeast in their environment and have various sized round food vacuoles which gives a complex internal structure so that it is difficult to identify their nucleus. They have various shapes and sizes.

Figure 4 Tvedten's photo of an impression smear of the lung of a dog with disseminated Acanthamoebiasis, from Case 2 of the 2015 ASVCP slide set presented by Meichner. There are two Acanthamoeba. The upper has a distinct nucleus.



References

Marciano-Cabral F, Guy Cabral G: Acanthamoeba spp. as Agents of Disease in Humans. Clin Microbiol Rev. 2003:273–307

Chomicz L et al. Emerging Threats for Human Health in Poland: Pathogenic Isolates from Drug Resistant Acanthamoeba Keratitis Monitored in terms of Their In Vitro Dynamics and Temperature Adaptability BioMed Research International 2015, Article ID 231285, <http://dx.doi.org/10.1155/2015/231285>.

Meichner K. Disseminated Acanthamoebiasis in a dog Case 2 ASVCP slide set 2015