The same protocol was followed, and due to the presence of Gram positive bacilli with morphology similar to *C. difficile* in 8/10 examined smears, immunochromatography tests identified the pathogen and the toxin A only in 1/10 case (a 4-year-old female, European breed, with profuse diarrhea, streaks of blood, fever). Concerning cats, out study revealed a prevalence of 10%.

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SCREENING OF CLOSTRIDIUM DIFFICILE INFECTIONS IN PETS – PILOT STUDY

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Abstract: *Clostridioides (Clostridium) diificile* is an opportunistic toxigenic bacterium involved in mild or severe digestive infections in animals and humans. This condition is often associated with prolonged antibiotic treatment or with immunocompromised patients. In pets, the main reservoir for this microorganism is largely represented by dogs and cats with clinically disease, asymptomatic carriers or contaminated external environment. In this pilot study we tested the presence of toxigenic *Clostridium difficile* in 35 feces samples collected from dogs (n=25) and cats (n=10) with enteritis. A Combo immunochromatography test was used to detect glutamate dehydrogenase (GDH), an antigenic marker of the bacteria proliferation, and, most important, the toxins A and/or B. The results revealed the presence of *Clostridium difficile* in feces samples from 5/25 dogs and 1/10 cat, but in canine samples only 2/5 revealed to be toxigenic, toxin A being identified in both cases.

Key words: *Clostridium difficile*, pets, Combo immunochromatography, GDH, A/B toxins.

• Introduction

- ✓ *C. difficile* is a spore-forming, gram-positive toxigenic or non-toxigenic bacteria
- ✓ **Strains that lack genes encoding for TcdA, TcdB, and CDT are considered nontoxigenic and clinically irrelevant, but can** acquire the PaLoc from toxigenic strains through horizontal gene transfer

Infection sources

- **direct contact with the feces of animals with clinical signs**
- **ingestion of food or water contaminated with spores**
- **asymptomatic animals can be a much greater source of infectious spores than symptomatic animals that eliminate the vegetative form**

- ✓ In humans is considered responsible for the majority of **nosocomial antibiotic - and health care - associated infectious diarrhea cases**
- ✓ it is a common cause of enteritis in various animas species
- ✓ considered a **complication of extensive antibiotic treatments**
- ✓ real challenge for **immunocompromised patients**
- ✓ community - acquired infections became more common than hospital - acquired infections

The purpose of this pilot study was to evaluate the presence of the toxigenic strains of *C. difficile* in pets (dogs and cats) with clinically expressed enteritis, some of them recurrent.

• Material and method

Animals with enteritis from shelters and with owners: **fresh feces samples**

- ➢ **25 dogs aged 2 weeks-12 years (22 adults, 3 puppies)**
- ➢ **10 cats aged 3 weeks-12 years (9 adults, 1 kitten)**

Rapid Combo test Clostridium difficile GDH (Glutamate-Dehydrogenase produced by toxigenic and non-toxigenic strains**) + Toxin A + Toxin B** Dr. Smart

• Results and discussions

Microscopic examination (Fig. 1) - Gram positive bacilli with clostridium-like morphology in **17/25 smears (dog samples) and 8/10 smears (cat samples)**

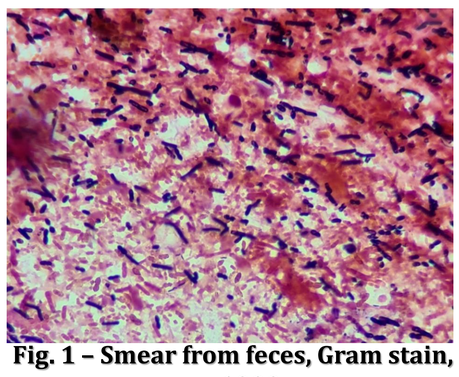


Fig. 1 – Smear from feces, Gram stain, x1000

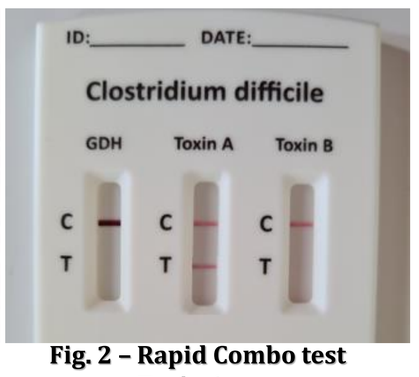


Fig. 2 – Rapid Combo test Toxin A +

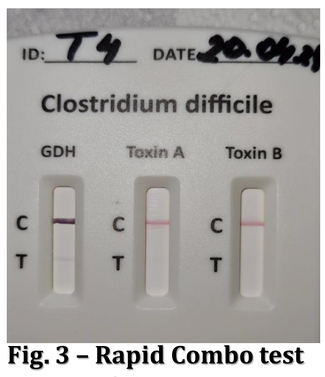


Fig. 3 – Rapid Combo test GDH +

Immunochromatography test:

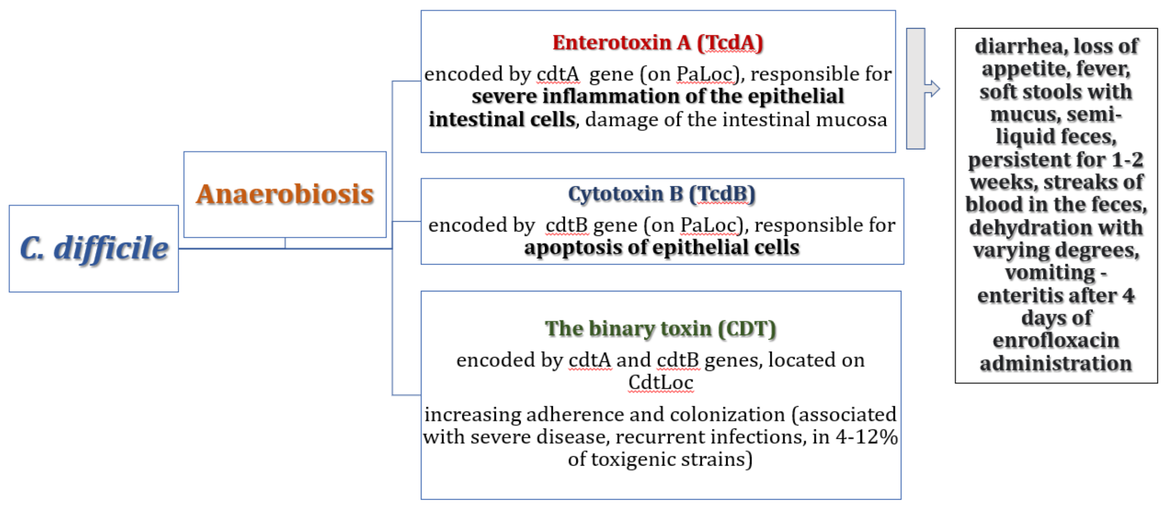
DOGS: positive for **5/25 cases** – prevalence of 20%

3/5 (12%) half-breeds (a 12-year-old male, a 10-year-old female and a 6-week-old female) - **only the GDH antigen (Fig. 3)**

2/5 cases (8%) (2 males aged 6 and 8 years) - **toxin A (Fig. 2)**

CATS: positive for **1/10 cases** - prevalence of 10%.

identified the pathogen and the toxin A : 4-year-old female, European breed, with profuse diarrhea, streaks of blood, fever



• Conclusions

It is very easy to observe that *Clostridiodes (Clostridium) difficile* is a very intriguing bacteria, with a lot of resources to survive and to adapt to new hosts, finding breach and making individuals susceptible. Pets can retain spores on various external or internal body surfaces and spread it to owners, or the reverse. Animals are potential infectious reservoirs, being able to create carriers or to infect humans and other animals. It is important to evaluate the presence of the toxigenic and non-toxigenic *C. difficile* strains in ill or healthy animals.