

Effect of Peritoneal Lavage in Dogs with Septic Peritonitis

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In the Literature

Marshall H, Sinnott-Stutzman V, Ewing P, Bracker K, Kalis R, Khorzad R. Effect of peritoneal lavage on bacterial isolates in 40 dogs with confirmed septic peritonitis. *J Vet Emerg Crit Care (San Antonio)*. 2019;29(6):635-642.

FROM THE PAGE ...

Septic peritonitis is an infection of the peritoneal cavity and often occurs secondary to a ruptured abdominal viscus. Recommendations for treatment have been extrapolated from human medicine and include prompt antimicrobial intervention, surgical treatment for source control, and peritoneal lavage (200-300 mL/kg) to remove/dilute the infectious organisms.¹⁻³

Forty dogs diagnosed with first-time septic peritonitis between 2011 and 2015 were enrolled in this prospective study evaluating bacterial isolate type, susceptibility, and change in resistance between pre- and postlavage samples. Culture samples were collected intraoperatively before and after lavage. Swabs contacted both the body wall and affected viscera during collection. Prelavage samples were collected on entry to the abdomen, and postlavage samples were collected before closure following sterile glove change. All swabs were submitted for aerobic and anaerobic culture testing.

Empiric antimicrobial therapy was instituted in all dogs preoperatively, with 39 out of 40 (97.5%) receiving appropriate antimicrobials based on pre- and postlavage culture results. Prelavage cultures were positive in 37 out of 40 (92.5%) cases, whereas postlavage cultures were positive in 35 out of 40 (87.5%) cases. Forty-six new isolates were identified in 20 out of 40 dogs; however, a decrease in total number of bacterial isolates was noted in postlavage cultures. The most common bacterial isolates included *Escherichia coli*, *Clostridium perfringens*, and *Enterococcus faecalis*. There was no significant difference in overall resistance between pre- and postlavage

samples, although multidrug resistance was identified less commonly post-lavage. Survival to discharge occurred in 35 out of 40 (87.5%) dogs, including 1 dog that received inappropriate empiric antimicrobial therapy.

Peritoneal lavage has an effect on both the number and type of bacteria isolated in patients with septic peritonitis. In this study, source control and lavage successfully reduced the overall number of bacterial isolates between pre- and postlavage samples. However, new isolates identified postlavage likely represent mobilization of bacteria during lavage that were not accessible at the time of prelavage sampling. The reduction in multidrug-resistant isolates between pre- and postlavage samples is attributed to source control and lavage, as these were the only interventions performed between sample collections. Early empiric antimicrobial therapy must be initiated for all cases of septic peritonitis; however, critical use of culture results for rapid de-escalation of antimicrobial therapy is paramount. Overall survival (87.5%) to discharge for septic peritonitis was higher than previously reported.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Clinicians should continue to follow previous recommendations for septic peritonitis, including prompt antimicrobial intervention, surgical treatment for source control, and peritoneal lavage.
- 2** When collecting culture swabs, clinicians should ensure swabs contact not only the abdominal fluid but also the body wall and affected viscera.
- 3** To guide appropriate de-escalation of antimicrobial therapy, clinicians should consider collecting both pre- and postlavage samples to ensure all bacterial isolates are identified. If the pet owner has financial constraints, pooling pre- and postlavage samples can be considered to reduce cost while not compromising the identification of bacterial isolates.

References

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2. Dellinger R. The surviving sepsis campaign 2014: an update on the management and performance improvement for adults in severe sepsis. *Consultant*. 2014;54(10):767-771.
3. Bentley A, Holt D. Drainage techniques for the septic abdomen. In: Bonagura JD, Twedt DC, eds. *Kirk's Current Veterinary Therapy*. 15th ed. Philadelphia, PA: Saunders; 2014:e9-13

Suggested Reading

- Guiou LV, Bersenas AM, Brisson BA, et al. Evaluation of peripheral blood and abdominal fluid variables as predictors of intestinal surgical site failure in dogs with septic peritonitis following celiotomy and the placement of closed-suction abdominal drains. *J Am Vet Med Assoc*. 2016;249(5):515-525.
- Kaafut SR, Schwartz P, Currao RL, Levien AS, Moore GE. Comparison of initial and postlavage bacterial culture results of septic peritonitis in dogs and cats. *J Am Anim Hosp Assoc*. 2018;54(5):257-266.
- Martiny P, Goggs R. Biomarker guided diagnosis of septic peritonitis in dogs. *Front Vet Sci*. 2019;6:208.



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