

FOCUS New Perspectives on Xenotransfusion



Xenotransfusion, a potential life-saving option when compatible feline blood is not available for anemic cats, was examined in this review of 4 studies and 1 case report involving transfusion of canine blood to 62 cats. In most cases, testing before transfusion did not reveal any agglutination or hemolysis of canine RBCs when mixed with feline serum or plasma. Acute severe adverse reactions were not reported in cats

receiving a single transfusion of whole canine blood, likely because cats do not appear to have naturally occurring antibodies to canine RBCs. However, within 4–7 days of transfusion, the cats seemed to develop these antibodies, causing delayed hemolytic reaction. Repeat transfusion of canine blood 4–6 days after the first transfusion caused an acute severe reaction, often fatal. Transfused canine RBCs do not last >4 days in feline patients, whereas transfused feline RBCs can last up to 30 days.

A single transfusion of canine blood to a cat can be safe and effective in an emergency, but compatible feline blood is always recommended over canine blood.

■ Commentary

Transfusion technology has progressed to wider availability of blood products, but little thought seems to be given to possible alternatives when specific products are unavailable.

At first glance, the title of the study concerned me: I considered xenotransfusion to be ethically wrong with no place in modern veterinary medicine. But, after reading on, I revisited this conviction. Of available blood products, feline RBCs are more difficult to procure, have a short expiration date, and are not commonly stocked by general practices, perhaps because they are relatively expensive. Transport to a specialty practice may not be affordable or feasible for owners. Without an alternative (eg, hemoglobin-based oxygen carrier), a critically anemic feline patient could die from lacking immediate access to feline blood products. Based on this review, it may be time to ruminate on how a single infusion of canine blood into a cat may be life-saving with few long-term consequences.—*Elke Rudloff, DVM, DACVECC*

■ ■ Source

Xenotransfusion of canine blood in the feline species: Review of the literature. Bovens C, Gruffydd-Jones T. *J FELINE MED SURG* 15:62-67, 2013.



Patching Leaks in the Small Intestines

Enterectomy is a common procedure with 3%–28% incidence of intestinal leakage. Supplemental techniques to decrease leakage risk were described, but objective supporting evidence was limited. One technique is serosal patching, or placement of a healthy segment of intestine in direct serosal-to-serosal contact, effectively creating full-thickness intestinal coverage.

Leakage and maximum intraluminal pressures of intestinal anastomoses with and without serosal patch supplementation were compared in healthy small intestinal segments from 2 euthanized dogs. Intestines were sectioned to create 6 controls, 6 enterectomies with anastomoses alone, and 6 with anastomoses plus serosal patches. The patch was created by placing a single section of intestine perpendicular to the anastomosis, providing protection to 60%–70% of the anastomotic circumference.

An infusion catheter system with a microtip pressure transducer was used to measure the pressure at which leakage was first detected and the points of catastrophic failure, pressure plateau, or maximum pressure of the sensor. Mean leakage pressure was significantly higher for the segments with the serosal patches than for those with anastomoses alone. Maximum intraluminal pressures did not differ significantly. These findings, although performed on cadaveric tissues that may behave differently than live tissue, provide evidence that serosal patching could protect against postsurgical intestinal leakage and its associated complications.

■ Global Commentary

After intestinal surgery, intestinal leakage or dehiscence is the most common and serious complication associated with high morbidity and mortality. Intestinal serosal

patch technique can provide support and extra sealing of intestinal incisions at risk for leakage or dehiscence. Further evidence was offered concerning the mechanism of patching of intestinal anastomoses in canine cadavers within the first 24 hours of surgery and revealed that intestinal anastomoses reinforced by serosal patch may withstand significantly higher pressures than nonreinforced anastomoses. Intestinal anastomoses at risk for leakage or dehiscence may benefit from serosal patch reinforcement.—*Lysimachos G. Papazoglou, DVM, PhD, MRCVS*

■ ■ Source

Evaluation of serosal patch supplementation of surgical anastomoses in intestinal segments from canine cadavers. Hansen LA, Monnet EL. *AM J VET RES* 74:1138-1141, 2013.

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