Clean & Disinfect Against Calicivirus in One Step

Norovirus is highly infective, as only a low dose is needed to cause disease. Infection occurs from contact with infected people, food, water, or environments. Because the virus cannot be grown in vitro, evaluating efficacy of various disinfectants has been difficult. This virus is related to feline calicivirus (FCV), however, and FCV is a suitable alternative for testing of disinfectants. In this study, surfaces were contaminated with FCV, allowed to dry, and then treated for 10 minutes with a quaternary ammonium compound (QAC) disinfectant that included dialky dimethyl ammonium chloride and appropriate controls, including 100 and 1000 ppm sodium hypochlorite solutions. After the 10 minutes, complete inactivation of the FCV on hard surfaces was achieved by the QAC. Previous studies have shown that QAC-based disinfectants are not efficacious against norovirus or FCV. However, the manufacturer of this product hypothesizes that the unique QAC combination and the high alkaline pH is what makes the product so effective. Pilot studies in this paper revealed that a contact time of 10 minutes vs 5 minutes and a dilution of 1:256 were very effective in inactivating FCV in the presence of 5% organic soil. This product is considered a one-step disinfectant in that it cleans and disinfects in one application. However, it is important to note that a wetting contact time of 10 minutes is needed. Study funded by the manufacturer, Lonza Inc, Allendale, NJ.

COMMENTARY: Although the goal of the study was to produce data to get label claim for norovirus, an unexpected benefit was an investigation on the use of QAC for disinfecting hard surface areas exposed to FCV. Most cleaning protocols include a 2-step process: cleaning to remove organic debris followed by disinfection. Bleach is commonly used as a disinfectant for FCV, and this study again shows that it is very effective. This product, marketed as Lonza R-82 Formulation 1:256, may be of interest to veterinarians and people working in shelters because it is a one-step cleaning product. It received EPA approval in March 2000. —Karen A. Mariello, DVM, Diplomate ACVD


Injection Site Sarcoma in a Dog

Injection site sarcomas are common in cats but not in dogs. This case report describes a fibrosarcoma with features of an injection site sarcoma at the site of a microchip implant in a dog. A 9-year-old French bulldog presented with a subcutaneous 3- x 3-cm mass on the dorsal midline of the neck, just cranial to the shoulders. Fine-needle aspiration showed a single population of large spindle cells in swirling bundles. The cytologic diagnosis was fibrosarcoma. The mass was surgically excised along with the microchip, which was detected attached to the mass. Histologically, the mass was confirmed as a high-grade infiltrative fibrosarcoma with multifocal necrosis and peripheral lymphoid aggregates. Further investigational studies were recommended because certain features of the tumor were remarkably similar to feline postinjection site sarcoma. Immunohistochemical stains for vimentin, smooth muscle actin (SMA), CD3, CD79α, and CD18 were performed. All neoplastic cells were positive for vimentin and cells within the periphery were positive for SMA, suggesting a myofibroblastic phenotype. There was positive staining in the lymphoid cells for CD18 and CD3. A final diagnosis of fibrosarcoma that was morphologically similar to feline postinjection sarcomas was made.

Injection sites in cats (vaccinations most commonly) have been associated with localized inflammation and granuloma formation. Since 1991, epidemiologic evidence has shown that the incidence of sarcomas in the skin of cats at injection sites is increasing and that these sarcomas are frequently associated with inflammation similar to what is usually seen with vaccine reactions. These sarcomas are typically surrounded by, and infiltrated with, lymphocytes and macrophages. The phenomenon of sarcoma formation at injection sites appeared to be unique to cats; however, there is now evidence that these postinjection sarcomas have been observed in dogs and ferrets. Neoplastic growth at the site of a microchip implant in another dog and laboratory rodents has also been described. In this case, the authors were unable to establish the primary cause of the neoplastic growth because the dog had received several rabies vaccines in that area and because the microchip was detected close to, but not within, the mass.

COMMENTARY: This case study identifies further evidence that there are distinct similarities between canine fibrosarcomas from presumed injection sites and feline vaccine–associated fibrosarcomas, suggesting the possibility of development of postinjection sarcomas in dogs. As veterinarians, it is our responsibility to report any adverse reactions to vaccination, microchips, or other injections. Each additional information report will enhance our knowledge of possible tumorigenesis. —Valerie MacDonald Dickinson, DVM, Diplomate ACVIM (Oncology)