Pets: Reservoirs of E coli?

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Shiga toxin–producing Escherichia coli (STEC) is a food-borne pathogen that can cause diarrhea, sometimes complicated by hemolytic-uremic syndrome (HUS). Cattle and other ruminants are the major reservoirs. STEC produces two potent cytotoxins (Stx1, Stx2) that inhibit protein synthesis. In humans, another virulence factor is the outer membrane protein intimin, encoded by the eae gene.

In this study, 9 STEC strains isolated from dogs and cats were tested for a range of virulence factors, genetic relationships with strains from cattle, meat, and humans; several STEC strains belonged to pathotypes associated with human disease, including HUS. The virulence patterns suggested the source may be bovine meat fed to pets by their owners. Pets may have an epidemiologic role as a source of STEC infections in humans.

Commentary

Outbreaks of STEC are commonly a result of E coli 0157; however, other serotypes are also associated with severe illness in humans of all ages. A severe complication of STEC illness that occurs in 5% to 10% of infected humans is HUS. This study revealed that companion dogs and cats can harbor serogroups of STEC that are 90% to 100% genotypically similar to strains of corresponding serotypes recovered from cattle, meat, or humans. Although only 9 isolates were examined, the genetic similarity to previous outbreak strains and the presence of putative virulence factors in these strains highlighted that pets could potentially be silent reservoirs of STEC.—Faye Hartman, MS, MT (ASCP)

Source

Profile of Shiga toxin-producing Escherichia coli strains isolated from dogs and cats and genetic relationships with isolates from cattle, meat and humans.


Top Suture Choice in Reptiles

This study evaluated histologic reactions to 8 suture materials and cyanoacrylate tissue adhesive (CTA) in the skin and musculature of hatchling ball pythons (n = 30). Ten incisions were made along the dorsal midline of each snake (≥1-cm intervals). A single interrupted suture was placed in the muscle layer, and a single horizontal mattress suture of the same material was placed in the skin over implanted sutures. A total of 8 different suture materials were used for each of 8 incisions. Incision 9 was closed with CTA, while incision 10 was left to heal by second intention.

Samples of skin and muscle were scored by severity of inflammation, fibrosis, inflammatory cell infiltrates, granuloma formation, bacterial contamination, presence of foreign material, and degree of suture fragmentation. All suture types were still present by day 90, with significantly higher inflammatory response scores than the negative control. CTA was the least reactive over all time points, with no significant difference in inflammation versus the negative control. CTA was found to be a good choice for closure of small skin incisions or lacerations in reptiles; when suture is used, more rapidly absorbed materials may be most appropriate.

Commentary

Surgeons have used various suture materials in reptiles with little knowledge of tissue reactions. In this study, the authors demonstrated that reptiles can absorb suture material by hydrolysis, phagocytosis, or body extrusion. Surgeons should therefore choose absorbable suture that is broken down as rapidly as possible. Newer suture materials that are even more rapidly absorbed are available but were not part of this study.

—Stephen Barten, DVM

Source