Understanding Esophageal Reflux

Using a culture system for mucosal organ biopsy in humans, this study sought to identify the cellular source of cytokines in human gastroesophageal reflux disease (GERD), investigate whether cytokines can be induced by gastric refluxate, and determine whether esophageal tissue- or cell-derived mediators affect muscle contractility. Results showed that the mucosa of human esophagitis patients produced significantly greater amounts of interleukin (IL)-1 beta and IL-6, both of which reduce esophageal circular muscle contractility as compared to that of controls. Cultures of esophageal epithelial cells were found to produce IL-6, and production was up-regulated in fibroblasts in response to IL-1 beta. In addition, direct contact of esophageal squamous epithelial cells with gastric refluxate was sufficient to induce them to produce cytokines. These results establish a functional link between the cytokines produced in the human esophagus under inflammatory conditions and the motor abnormalities seen in GERD, although how cytokines and afferent nerves interact to create these changes remains unclear.

COMMENTARY: The old adage that "to diagnose a disease you have to think of it" holds true for GERD as much as or more than most diseases. Most clinicians are unlikely to consider GERD in their canine or feline patients unless they have it themselves. Signs are subtle, and diagnosis is difficult without an endoscope. We have known for some time that acid reflux perpetuates reflux by reducing sphincter pressure of the lower esophagus. Now we know that it is mediated through the release of IL-6. We can control acid reflux with H_2-blockers or proton pump inhibitors (recall all those ads for the "purple pill") but such treatments are not risk-free. One day we may be able to do more by developing more specific drugs that influence esophageal muscle contractility.—*Colin F. Burrows, BVetMed, PhD, MRCVS, Diplomate ACVIM*

Gastroesophageal reflux disease-associated esophagitis induces cytokine production leading to motor abnormalities. Rieder F, Cheng L, Harnett KM, et al. ***GASTROENTEROLOGY*** 132:154-165, 2007.