Straightforward Diagnosis, Challenging Treatment

Extrahepatic biliary atresia is a common cause of cholestasis in children but is rare in animals. It can involve any portion of the biliary tree, including the hepatic, cystic, or common bile duct. The cause of the malformation is unknown, but early surgical intervention is critical. If left untreated, cholestasis, recurrent cholangitis, portal hypertension, and hepatic cirrhosis can develop. Imaging of the biliary tree by ultrasound or direct contrast cholangiogram may help identify this condition.

This case report details the clinical, imaging, and surgical features of a 4-week-old pug with extrahepatic biliary atresia. The puppy presented with lethargy and poor weight gain despite a good appetite. CBC and serum chemistry panel analysis revealed neutrophilic leukocytosis and elevations in bilirubin, alkaline phosphatase, alanine aminotransferase, and glutamate dehydrogenase. A biliary drainage problem was suspected based on the presence of acholic feces, elevated ammonia, and dilation of the gallbladder and bile duct on ultrasonography. There was no ultrasonographic evidence of a portosystemic shunt, and the major duodenal papilla could not be identified. Exploratory laparotomy revealed absence of the major duodenal papilla that allows entrance of the common bile duct into the intestines. A cholecystoduodenostomy was performed. Feces color was normal the day after surgery. Postoperative ultrasounds over 6 months showed that the stoma remained functional, maintaining a small gallbladder. At 15 months postoperatively, the dog’s ammonia level and clinical function were normal, although bile acid concentrations remained quite elevated.

Commentary
This report describes successful surgical management of biliary atresia in a dog. Surgical intervention is required to establish a portal for drainage of bile from the liver into the intestines. Establishing the diagnosis is straightforward; however, the perioperative management and surgical rerouting of any portion of the biliary system is technically challenging, particularly in such a young, small patient. The short- and long-term outcome after cholecystoduodenostomy was good in this individual patient, which suggests this may be a viable salvage option in animals.—Jason Bleedorn, DVM, DACVS

Source

Tear Film Stabilization

The tear film consists of several layers: a mucin layer covering the ocular surface; an aqueous layer above that; and a lipid layer that covers the tear film surface. Mucin is important because it helps create a smooth refractive surface, decreases shear force between the corneal epithelium and aqueous layer, inhibits microbe adhesion, and prevents drying. Diquafosol is a P2Y2 purinergic receptor agonist that stimulates aqueous tear and mucin secretion from conjunctival epithelial and goblet cells respectively. In this study, Western blotting and immunohistochemical analysis demonstrated that P2Y2 receptors were present in canine conjunctivae at the level of the conjunctival epithelium and goblet cell surfaces. Following administration of 3% diquafosol to 6 laboratory dogs, there was an increase in goblet cell mucin secretion; however, this required at least 180 minutes. Diquafosol may have some use in dogs to treat corneal epithelial disorders.

Commentary
Poorly responsive cases of canine keratoconjunctivitis sicca represent a frustrating subset of patients presenting to the veterinary practitioner. This creates a niche market for the development of novel topical products to improve and stabilize the tear film. The results of the pilot study, which used normal dogs in an experimental setting, may support the ongoing investigation of the use of 3% diquafosol ophthalmic solution in dogs diagnosed with clinical tear film abnormalities or corneal epithelial disorders. Few new products of this type are re-evaluated in the form of peer-reviewed, masked, prospective clinical studies; this charges the general practitioner with making an anecdotal judgment call of cost vs benefit. The reality is that many of the pharmaceutical tear-stabilizing compounds are available fail to result in a significant impact when prescribed to dogs with clinical disease when subjectively compared to products labeled for ocular lubrication alone. The cost of any new product thus must be carefully weighed against the true expectation for improvement in patient comfort and clinical signs.—Allyson Gosling, DVM

Source