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When Cats Drool

Cat owners are surely familiar with the behavioral signs of kitty contentment. Happy cats will purr, knead their paws, and offer up a few head butts for good measure. Occasionally, cats really on cloud nine will drool on their owners. As the owner of such a cat, I interpret the flow of saliva as the utmost compliment. At the veterinary office, however, patients rarely drool with glee. In a veterinary setting, drooling more likely signifies that something is amiss.

Saliva is continuously produced by the salivary glands. Excessive production and secretion of saliva is called *ptyalism*. Oral problems and central nervous system disorders are common reasons for ptyalism and subsequent drooling. Ptyalism should not be confused with *pseudoptyalism*, in which normal amounts of saliva is being produced, but it overflows from the mouth due to anatomic abnormalities, such as malocclusion (abnormal alignment of the teeth), or to an inability or reluctance to swallow because of pain associated with swallowing.

The initial step in determining the cause of a cat's drooling is a thorough oral examination. This may require sedation, tranquilization, or even general anesthesia, as cats with painful mouths are often head-shy and won't allow a comprehensive exam.

Disorders of the teeth and gums are a common reason for drooling. "Periodontal disease and the accompanying gingivitis, if severe, can lead to halitosis (bad breath), dysphagia (difficulty eating), and drooling", says Dr. Theresa Paoloni, owner of Veterinary Care Unlimited in Ozone Park, New York. "Periodontal disease is easily diagnosed during an oral examination, however, determination of the true extent of periodontal disease often requires oral radiographs". Some cats experience gingivitis or stomatitis (inflammation of the entire mouth) of such severity that they paw at their mouth, refuse to eat hard food, and may drool excessively. Biopsy of the gums or other affected oral tissues may reveal a severe infiltration of inflammatory cells. This condition, called "lymphocytic/plasmacytic gingivitis or stomatitis" is usually quite painful. Treatment consists of antibiotics, anti-inflammatory medications, and in extreme cases, extraction of all of the teeth. (See Sidebar: Tips on Keeping Your Cat's Mouth Healthy)

During an oral exam, the cat should be evaluated to see if it can close its mouth properly. Some cats cannot, due to malocclusion. Although congenital and developmental disorders are common causes of malocclusion, oral tumors can cause misalignment of the teeth and/or jaw, leading to improper closing of the mouth and subsequent drooling. In fact, oral cancer is a very common cause of drooling in geriatric cats. Such was the case with "Milo", an 18 year-old American Shorthair belonging to Amy Cousins. Last May, Milo presented to my hospital with a mouth

that was oozing foul-smelling drool. Initially, it appeared as if severe periodontal disease alone might be the cause of his problem, however, upon extracting one of his diseased upper canine teeth, a piece of bone came loose, attached to the tooth root. Submission of the bone specimen to the pathologist confirmed our fears: squamous cell carcinoma, an aggressive oral cancer.

Damage or paralysis of the trigeminal nerve (cranial nerve V) can lead to drooling secondary to an inability to close the mouth. Lesions involving other cranial nerves (cranial nerve VII, IX, X, and XII) can also lead to drooling. Fortunately, cranial nerve disorders are uncommon in cats.

Oral trauma and associated pain and discomfort can lead to drooling. Broken teeth with resultant nerve exposure, a fractured jaw, and temporomandibular joint (TMJ) disorders are traumatic injuries that often lead to pain and drooling.

Kidney failure is a very common condition, especially in geriatric cats. Cats with severe kidney failure may have significant *uremia* (literally "urine in the blood"). Uremic cats often develop ulcers on the gums, tongue, and edges of the lips. These ulcers are painful, and many of these cats drool foul-smelling saliva as a result. These ulcers are readily visible on oral examination.

If the oral cavity is determined to be normal, other causes for drooling that should be considered include liver disease, nausea, seizure activity, and drug or toxic stimulation of salivation.

The liver's job is to help remove toxins from the blood. If the liver isn't working properly, the toxins accumulate in the blood stream where they affect the brain. This is called "hepatic encephalopathy", which translates to a mental condition due to liver dysfunction. One liver disorder, called a "portosystemic shunt", is a common cause of this, and is often seen in young cats. This is a congenital abnormality in which blood coming from the intestinal tract bypasses or "shunts" around the liver rather than flowing through it. Because the blood bypasses the liver, the liver never gets to detoxify it. Typical signs of this (and other) liver disorders include behavioral changes, poor appetite, weight loss, excessive thirst and urination, vomiting, diarrhea, nausea, and drooling. Compared to dogs, cats are much more prone to drooling as a result of liver disease.

Nausea is the first stage in the process of vomiting. Although liver disease is a well-documented cause of nausea in cats, any disorder that causes nausea can lead to hypersalivation.

Various drugs and toxins can cause hypersalivation in cats. Unpleasant tasting drugs can cause cats to salivate profusely. The antiprotozoal drug metronidazole (Flagyl), the antihistamine chlorpheniramine (Chlortrimeton), and the sulfa antibiotics are particularly notorious for causing cats to salivate copiously if the pill inadvertently lands on the tongue during administration. These drugs require a client that is proficient in pilling. Overdosing of flea and tick insecticides can lead to ptyalism, as can the secretions of various toads and newts, and the venom of the black widow spider. Various plants, including philodendron, dieffenbachia, poinsettia, and Christmas trees can cause increased salivation. Household cleaning products can irritate the oral mucosa, resulting in hypersalivation.

Seizure disorders are not as common in cats as they are in dogs. During a seizure, cats and dogs may drool secondary to reduced swallowing of saliva.

A systematic approach is necessary for diagnosing the underlying cause of drooling in cats. Though it may seem obvious when a cat is drooling from happiness, any signs of illness, including oral discomfort, unusual behavioral changes, foul odor to the saliva, or saliva that is blood-tinged should be investigated by a veterinarian.

Sidebar: Tips to Keep Your Cat's Mouth Healthy

In celebration of Pet Dental Health Month, Rita Santiago, a certified veterinary dental technician working at Manhattan Cat Specialists in New York City, suggests the following tips for keeping your cat's mouth in tip-top shape

- Regular veterinary exams – a thorough oral examination, every six months, is essential. Periodontal disease can be prevented if caught early. Gingivitis, the earliest stage of periodontal disease, is reversible if detected early and treated promptly
- Brushing your cats teeth - brushing your cat's teeth, ideally every other day, can go a long way toward preventing dental disease. Dental homecare should be introduced during kittenhood, so cats become used to having their lips lifted, their mouth and gums touch and handled, and their teeth brushed. Specially designed toothbrushes and toothpastes for cats are available from veterinarians.
- Oral rinses, gels, and sprays – cats with especially tender mouths, or those with established dental problems may benefit from these oral care products. While brushing is best, rinsing helps protect and clean teeth on days that you cannot brush.
- Treats and special diets - dental diets are a somewhat recent veterinary development. These diets are designed to prevent or dramatically slow the accumulation of tartar on the teeth. Also available are dental chews for cats. These offer an abrasive texture that help remove debris and plaque from your cat's teeth. They come in flavors like fish or poultry.

Regular home maintenance, combined with frequent veterinary examinations will help your cat maintain a sound, healthy mouth for life.