# Deciduous Dilemmas: Persistent Puppy Pediatric Perspectives 3-05-2025

Kristin I. Scott, DVM, DAVDC Abbie Janisch, DVM CROWN • Veterinary Dental Specialists of Charlotte <u>drscott@crownvetdentistry.com</u> <u>drjanisch@crownvetdentistry.com</u> Charlotte, NC, USA

## NORMAL ANATOMY

Deciduous dentition refers to the set of temporary "baby" teeth that eventually fall out and are replaced by adult dentition. A typical puppy develops 28 deciduous teeth, which consist of incisors, canines, and premolars. These teeth are smaller, sharper and more delicate compared to the permanent teeth that will follow.

Deciduous teeth begin to erupt between 3 to 5 weeks of age and are normally finished erupting by 6 weeks of age. By the time a puppy is around 4 to 5 months old, those teeth will be lost as its permanent teeth begin to emerge. All 42 adult teeth are typically in place by 6-7 months. Small breed dogs may have a delay in eruption of their adult dentition, but eruption should be bilaterally symmetrical. Missing teeth and the age of adult eruption is primarily genetic and highly associated with the timing exhibited by one or both of the parent dogs.

Occlusion refers to how the teeth come together when the mouth is closed. In a "normal" occlusion, the maxillary incisors slightly overlap the lower incisors, the lower canine teeth should align in the space (diastema) between the upper third incisors and the upper canine teeth, and the cusps of the premolars should fit into the spaces between the teeth of the opposing jaw (a 'scissor bite').

Many brachycephalic breeds have an underbite (Class 3 Malocclusion). This type of bite is considered normal for these breeds due to their facial structure and breed standard.

Dogs with narrow mandibles, especially dolichocephalic breeds, are overrepresented in patients with linguoverted ('base narrow') canines. These teeth, as well as the canines for dogs with overbites (Class 2 Malocclusion) typically create palatal trauma and require treatment.

# **ORAL EXAMS – FREQUENTLY AND INTENTIONALLY**

Oral exams should occur at each puppy visit, as the mouth is growing rapidly during the first 6 months of life. A normal occlusion at 8 weeks does not mean the occlusion will continue to be normal at 12 weeks, or 6 months of age. Each visit should be accompanied by an oral exam with assessment of the occlusion, proper number of teeth, and the proper type of teeth. Mixed dentition is normal between 4-6 months of age, with the caveat that two teeth should NEVER occupy the same location.

As the recommendation for spays and neuters have changed, it is important to remember that at 6 months the adult dentition should be present. Having puppies come in for a 6-month wellness check can allow for the identification of dental/oral abnormalities sooner. Early intervention can be key in certain pediatric occlusal abnormalities.

Pediatric exams are the perfect time to discuss oral home care. Discuss gentle brushing of the gums, desensitization of oral exams, and proper chew toys. Puppies love to chew, but it is important that this behavior is directed toward acceptable and safe objects. Having examples of these chew toys in your exam room is a great way to show clients exactly what you want them to purchase for their pet. Avoid hard toys such as nylon chews, cow hooves, ice cubes, antlers, etc. as they can cause fractures. Any toy labeled "Indestructible" probably is – but teeth are not. Tennis balls are a common fan favorite of our puppy friends. However, when they become soiled and wet from play, the outer covering of fluff traps debris and then acts as sandpaper, wearing the teeth down significantly. Rubber balls are better for the teeth, unless tennis balls are kept for only indoor play and washed when dirty.

### **MISSING TEETH**

Any time a tooth is noted to be "missing", dental radiographs need to be taken. Missing deciduous teeth could be truly absent (never developed), fractured below the gumline, or impacted (trapped within the bone). The mandibular 3<sup>rd</sup> incisor tooth buds are radiographically evident later than the other mandibular incisors but should be visible on x-ray by 5 months old.

Occasionally, dogs may simply not develop the normal number of teeth. Small breeds may not always develop the mandibular 3<sup>rd</sup> incisors (#311 and 411), and we have seen many miniature Dachshunds with only 4 adult mandibular incisors. Sometimes, they may have a deciduous (baby) tooth that remains in that spot instead. If the deciduous tooth is healthy, it is fine to leave it there. It is important to remember, however, that baby teeth are weaker than adult teeth, and may be more likely to break.

Sometimes a missing tooth is actually buried under the gingiva (soft tissue impaction), or within the bone, meaning it never erupted into the mouth. Teeth impacted in bone must be removed to prevent or treat dentigerous cyst(s). Teeth with soft tissue impaction can be treated via operculectomy if this is done while the puppy is between 5-7 months old and eruption forces are still present. Timing is critical to the success of an operculectomy.

Dentigerous cysts are fluid-filled sacs that can form around the crown of an impacted tooth. They are typically non-painful but can grow quite large and cause damage to the surrounding bone. It is impossible to predict which impacted teeth will develop dentigerous cysts or when it will happen, so the best thing to do is to extract the tooth before it happens. Dentigerous cysts can develop from any tooth in any dog but are most common in the mandibular first premolars of brachycephalic dogs.

#### PERSISTENT DECIDUOUS TEETH

Normal tooth eruption involves a deciduous tooth falling out as the permanent tooth comes in. Persistent deciduous teeth are those which are either present alongside the adult tooth, or which are present because an adult tooth did not erupt or never developed. They are most common in small breed dogs but can occur in larger dogs and cats as well. The upper and lower canine teeth are the most frequently affected, followed by incisors, and sometimes premolars. Missing (never developed) adult teeth are often bilaterally symmetrical.

Persistent deciduous teeth can cause several issues such as malocclusion, trauma to other teeth or the soft tissues, and/or crowding and subsequent periodontal disease.

If a persistent deciduous tooth is identified, extraction is recommended as soon as possible. Early removal of retained teeth improves the chances of proper eruption of permanent teeth. A thorough oral exam and dental radiographs under anesthesia are essential for treatment, as retained teeth can cause pain and infection if not fully removed. Any root remnants left behind will make it impossible for the adult tooth to erupt in the appropriate location.

## MALOCCLUSION

Every animal is entitled to a functional, pain free bite. In cases of malocclusion, abnormal tooth positions can cause damage to oral soft tissues or lead to traumatic contact between teeth. This can result from one or more teeth being misaligned, jaw length abnormalities, or a combination of both.

Types of malocclusions per the American Veterinary Dental College:

- Type 1: A normal rostro-caudal relationship of the upper and lower dental arches with malposition of one or more individual teeth. The skeletal relationship of the MX and MN is normal, \*only\* individual teeth are malpositioned.
- Type 2: An abnormal rostro-caudal relationship between the dental arches in which the lower dental arch occludes caudal to its normal position relative to the upper dental arch. (Overbite)
- Type 3: An abnormal rostral-caudal relationship between the dental arches in which the lower dental arch occludes rostral to its normal position relative to the upper dental arch. (Underbite)
- Type 4: A skeletal malocclusion with asymmetry in a rostro-caudal, side-to-side, or dorsoventral direction (Previously called wry mouth)

The most common malocclusion in dogs involves the mandibular canine teeth (both deciduous and permanent), which may press against the soft tissues of the upper jaw or misalign with opposing teeth in the upper arcade.

In cats, malocclusions are often caused by maxillary premolars pressing against the buccal/labial gingiva of the opposing mandibular premolars and first molars. This most commonly presents as the MX PM4 creating gingival recession or a pyogranuloma adjacent to the MN M1. Abnormally positioned canine teeth in cats can cause similar issues as in dogs, but these cases are less common and may be associated with trauma or jaw malformation.

The treatment of a malocclusion depends on the type of malocclusion present, and how the animal is affected. If a malocclusion isn't causing trauma or discomfort, intervention may not be necessary. Extraction, preventive, interceptive, or corrective orthodontics may be indicated. Images of malocclusions and treatment options will be discussed in lecture. The AVDC and

AVMA do not advocate correction of malocclusions in show or breeding dogs for cosmetic or competition purposes.

## FRACTURED DECIDUOUS TEETH

Active, chewing puppies often fracture their delicate deciduous teeth, which can expose the pulp. Just like with permanent teeth, pulp exposure can cause pain, bacterial infection, and pulp necrosis. If the infection spreads through the root of the fractured deciduous tooth, it can damage the developing permanent tooth bud(s) nearby. This can interfere with the normal development of the permanent tooth, potentially leading to enamel defects, weakened enamel, or malformation of the crown. For these reasons, it's important to remove a fractured deciduous tooth as soon as possible to prevent further complications.

Proper extraction technique is vital to removing these fragile, eggshell-like teeth without damaging surrounding structures such as the developing tooth bud or the surrounding gingiva. A video will be shown during lecture going through the proper extraction technique for extraction of deciduous canine teeth.

## JUVENILLE PERIODONTITIS

Feline juvenile gingivitis is an early form of gingivitis seen in young cats, often as their adult teeth erupt. It typically affects the attached gingiva around the teeth, and can include gingival overgrowth (hyperplasia), but does NOT extend to the back of the mouth (caudal mucositis). Treatment includes a thorough cleaning and full mouth dental radiographs to rule out tooth resorption or periodontitis. If only gingivitis is present, the teeth are cleaned, and a gingivectomy may be performed to remove excess gingiva. Home care, including daily brushing, 1TDC supplementation, chlorhexidine rinses, dental diets, water additive, and VOHC-approved products, is crucial to prevent plaque buildup. Regular dental cleanings under anesthesia every 3-4 months are recommended until the cat is around 2 years old, when they typically outgrow the condition. Without treatment, the condition can progress to periodontitis or stomatitis, requiring more aggressive interventions, including tooth extractions.

# OTHER PEDIATRIC ORAL/DENTAL ABNORMALITIES

Other oral pathologies may be discussed during this lecture, time permitting.