**“Lance” Canine Teeth**

Lance upper canine teeth are also known as rostrally displaced or mesially displaced canine teeth (MCM). A lance canine tooth is one in which the upper adult canine tooth is displaced forward toward the nose, so that it comes in contact with the outer incisor tooth, and it is located in front of the lower canine tooth rather than behind as it should (Figs. 1 & 2). The long axis of an affected tooth is more parallel to the hard palate rather than nearly perpendicular as for a normal canine tooth. In some dogs, the lance canine tooth can be so horizontal that the tip rubs on the upper lip or even remains embedded in the upper jaw parallel to the hard palate. The deciduous (baby) canine teeth of affected dogs are normally positioned; however, the abnormal position of a lance canine tooth becomes evident as the adult tooth erupts. Because an affected tooth points forward like a lance or spear, it is commonly called a lance canine tooth. Delayed eruption of the adult canine tooth may be an indication that the adult tooth will be lanced.

The abnormal position of a lance canine tooth may prevent the mouth from closing completely, and may force the lower canine tooth to point outward causing the tip to rub the inside of the upper lip potentially causing ulceration. Also, food and tartar tend to accumulate between the lance canine tooth and the adjacent incisor tooth increasing the likelihood of periodontal disease between the two teeth. Although treatment is not required in all affected dogs, therapy is necessary in some. Treatment alternatives include extraction or crown shortening of the affected canine tooth and orthodontic repositioning which can cost several thousand dollars.

The condition is more commonly seen in Shetland Sheepdogs than other breeds* and is considered to have an underlying genetic cause. The American Shetland Sheepdog Association and others supported research at Clemson University to find genomic mutations associated with lance canine teeth. Sixty-five affected and 100 control Shelties from the US, Canada, and Europe were included in the study. The research resulted in the discovery of variants in two different genes associated with lance canine teeth [1]. The two genes are linked to each other and also associated with size (height and weight), so that affected Shelties in general are smaller than those with normal canine teeth.

A DNA test, called MCM susceptibility, resulting from the research is available for the gene having the strongest association with lance canine teeth.** Since the mutant genes are fairly common, it is suggested not breeding away from the mutations entirely, but breed to avoid producing puppies with two copies of the mutation. Of the 65 MCM dogs in the study, only 2 tested with 0 copies of the mutation, 21 tested with one copy and the remaining 42 tested with two copies. Of the 100 control dogs (MCM free) in the study, 35 tested with no copies of the mutation, 53 tested with one copy and 12 tested with two copies of the linked mutation.

An article explaining the research results, giving additional guidance on how to use the DNA test, and providing additional links can be found at Lance canine tooth research & breeder advice.

*In addition to Shelties, lance canine teeth have been reported in Italian greyhounds, miniature schnauzers, fox terriers, and cats [2], Shiba Inu [3], and Scottish Terriers [4].

** As of 2025, the DNA test (MCM - lance canine tooth susceptibility) is offered by GenSol. Other DNA testing laboratories may eventually offer the test.

Fig. 1A

Fig. 1B

Fig. 1A&B. Photos of the left (A) and right (B) sides of the mouth of a 4-year-old Shetland Sheepdog with a lance left canine tooth. The left upper canine tooth is displaced forward so that it is in front of the lower canine tooth and its tip touches the upper 3rd incisor tooth. Compare to the normally positioned right upper canine tooth in which the lower canine tooth is in front of the upper one. The right upper 2nd premolar tooth is absent. Periodontal disease between the lance canine tooth and the adjacent incisor tooth was avoided by daily tooth brushing.

Fig. 2: A young Sheltie with a lance left upper canine tooth that is in the process of erupting. The forward position of the abnormal tooth is more severe than that of the dog in Figure 1. The abnormal position of this tooth was so extreme that orthodontic repositioning was not a treatment option. The tooth was removed surgically and bone grafting was necessary to close the communication between the nasal cavity and the space occupied by the tooth root.

**References:**

[1] Abrams S, Hawks A, Evans J, et.al.: Variants in FtsJ RNA 2′-O-Methyltransferase 3 and Growth Hormone 1 are associated with small body size and a dental anomaly in dogs. PNAS: 117, no. 40 24929-24935, 2020. https://www.pnas.org/content/117/40/24929

[2] Legendre L, Stepanik K: Correction of Maxillary Canine Tooth Mesioversion in Dogs. J Vet Dent:25, 216-221, 2008. http://jov.sagepub.com/content/25/3/216.short

[3] Ackerman, L: The Genetic Connection: A Guide to Health Problems in Purebred Dogs: American Animal Hosp Assoc, 2011, pg 41.. http://books.google.com/books?id=ZOoRn4KgIawC&pg=PA41&lpg=PA41&dq=lance+canine+teeth+in+dogs&source=bl&ots=DtIXHVR7UL&sig=5Aewo0gBEa-jHNHTM2o8jLNNBoA&hl=en&sa=X&ei=ZRwaU9aBPMiPkAfe4YCgBg&ved=0CF8Q6AEwBzgK#v=onepage&q=lance%20canine%20teeth%20in%20dogs&f=false

[4] Harvey, Colin E., Emily Peter P.: Small animal dentistry, Mosby, 1993, pg 273.