Abnormal Upper 3rd Incisor Teeth

Over the years, Sheltie breeders have occasionally observed Shelties in which one or both of the upper 3rd incisor (I-3) teeth in adult dogs are different in size, shape, and position than normal adult I-3 teeth. (The I-3 teeth are the incisor teeth adjacent to the canine teeth). Barbara Curry wrote an article in the *Sheltie International* in 1994 in which she talked about the problem, so it has been seen in Shelties for a long time [1].

In affected Sheltie puppies, there is delayed eruption of one or both of the upper 3rd incisor teeth, so that only 4 or 5 upper incisor teeth are present at 4 weeks of age rather than the normal number of 6 (Fig. 1 A&B). Around 8 - 16 weeks of age, deciduous I-3 teeth erupt in most affected dogs; however, these teeth may be larger than normal deciduous teeth, but smaller than normal adult incisor teeth. When erupted, the abnormal I-3 teeth may point outwardly and some may be rotated 90 degrees, as shown in Figs 2 B&C, 3C, & 4. The abnormal I-3 teeth may be retained indefinitely or may be shed months or years later. If shed within a few weeks of eruption, normal adult I-3 teeth may replace the abnormal ones; however, in older dogs, normal adult incisor teeth never appear.

Owners and judges may not recognize the presence of these abnormal I-3 teeth since they are similar to, but slightly smaller in size than, the central four incisor teeth. However, there are distinct differences in the appearance of the abnormal and normal adult I-3 teeth.

Normal adult upper I-3 teeth (Fig 3A):

- The distal tips point down and backward toward the tips of the upper canine teeth.
- They are larger than the other maxillary incisor teeth.
- The caudal margins (surfaces that normally face the adjacent canine teeth) are smooth.

Abnormal upper I-3 teeth:

- The distal tips point outwardly (Fig 2 C) and somewhat forward (not toward the canine teeth).
- They are similar in size or slightly smaller than the other adult maxillary incisor teeth, but they are larger than normal deciduous (baby) I-3 teeth.
- The caudal surfaces are notched (Fig 1B).

Thus, the abnormal I-3 teeth are late erupting deciduous teeth that are rarely replaced by normal adult teeth. Occasionally, an adult tooth may erupt within the hard palate behind the abnormal I-3 tooth.

What is known about the inheritance of this trait is that affected dogs and normal appearing dogs (with an affected relative) can produce normal and abnormal offspring. Unless one is knowledgeable about whether or not this trait is present in the relatives of a normal dog, one cannot tell by phenotype if the dog is a carrier.

The good news is that the condition, in most dogs, is cosmetic, rarely requiring surgical correction or interfering with function of the dog like other conditions such as hip dysplasia. However, the condition is definitely abnormal and definitive reports of the trait in other breeds are hard to find. Empirically, the number of affected dogs in the show population is increasing as are reports of Shelties with missing incisors (only 4 adult central incisors with no deciduous I-3 precursors ever appearing). Breeding two carriers or affected individuals might result in a greater number of missing incisor teeth. Puppies with only 3 upper deciduous incisor teeth have resulted from such a breeding.

The ASSA is supporting active research into finding the genomic mutations associated with abnormal upper 3rd incisor teeth. It is hoped that this study will lead to a genetic test that can be used by breeders to decrease the incidence of the problem in Shelties. For more information on this study and how to participate see “Active studies supported by the ASSA”.

Fig. 1 A – Six week old Sheltie pup with missing right upper 3rd incisor tooth.

Fig. 1B – Same pup as in Fig. 1A.

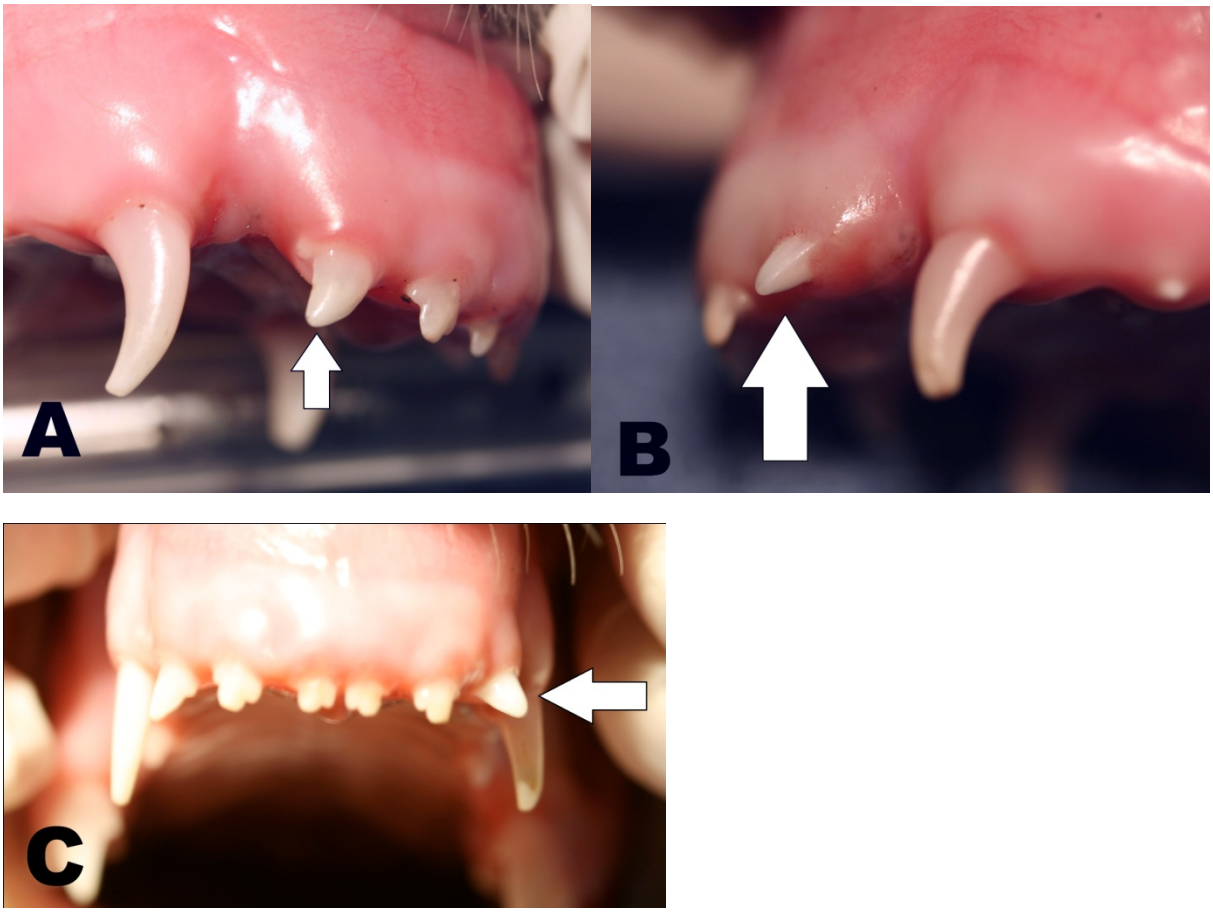

Fig. 2: A – right side, B – left side, and C – front view of the upper incisor teeth of a 15 wk old Sheltie. Arrows point to the 3rd incisor teeth. A – normal 3rd incisor tooth. B – abnormal 3rd incisor tooth that is rotated. Its tip is directed forward. C – The tip of the abnormal left 3rd incisor tooth (arrow) is pointed more outward than that of the normal right 3rd incisor tooth. The left upper I-3 tooth was missing at 6 wks of age and the abnormal tooth started to erupt at 12 wks of age.

Fig. 3A - C: 10 mo old Sheltie with an abnormal left upper 3rd incisor (I-3) tooth. Same dog as in Fig. 2.

(3A) – The right upper I-3 tooth (arrow) is normal. Notice that the I-3 tooth is larger than the central incisor teeth, the caudal margin is smooth, and the tip points slightly backward toward the tip of the upper canine tooth.

(3B) – The left upper I-3 tooth is abnormal. The tooth is smaller than the other incisor teeth, and there is a notch (arrow) in the caudal margin. In this dog, the tip of the I-3 tooth points slightly backward; however, in many affected dogs, the tip is directed more forward than seen in normal I-3 teeth.

(3C) - View of the front of the incisor teeth. Notice that the left I-3 tooth (black arrow) is smaller than the right and its tip is pointed more outward than that of the right I-3 tooth (white arrow). Incidentally, several of the lower incisor teeth extend more forward than normal.

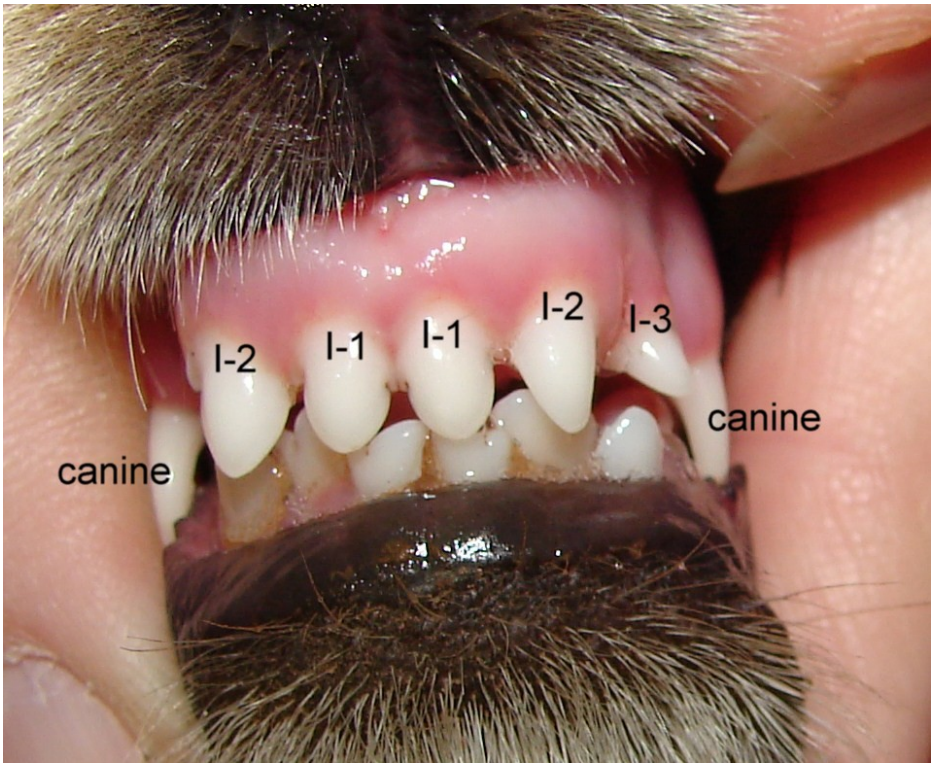

Fig 4 –Sheltie with an abnormal upper left 3rd incisor tooth (I-3) that is smaller than the other incisors (I-1, I-2) and abnormally positioned so that the tip points outwardly. The upper right 3rd incisor tooth is absent. (canine = canine tooth).

[1] Curry, Barbara A: Missing and crooked teeth. Sheltie International 13: 90, 1994.