Prevention of Impacted Cuspids with Early Diagnosis

by Dr. Natalie Parisi

Impacted cuspids pose increased difficulty to orthodontists and increased treatment time to patients that experience them. Often these teeth need to be surgically exposed and brought into the arch via a bonded attachment and elastic thread. Impacted cuspids may cause damage to adjacent teeth and surrounding periodontal tissues. In a worst case scenario, impacted cuspids may become ankylosed and thus need to be extracted. Even in cases where we are successful in bringing the cuspids into alignment, the ability to achieve an ideal result is much more difficult. The cuspids may be severely rotated or damaged. The gingival tissue around the cuspids may be compromised due to the surgical intervention.

Most impacted cuspids can be avoided simply by early diagnosis.

What should we be looking for?
- Arch length deficiency (crowding) in the maxillary arch
- V-shaped maxillary arch
- Small or missing maxillary laterals
- Flared maxillary laterals (Figure 1)
- Lack of cuspid bulge

When should we start looking?
- Clinical evaluation should be done as early as 8 years old
- Absence of normal canine bulge through intraoral palpation or asymmetry of canine bulge by age 11 (high on the alveolar process above the deciduous cuspids)
- Delayed eruption or retention of deciduous canine beyond 13 years old is a strong clinical sign (Bishara, AJO 1992)

When we see a flared maxillary lateral, we should not be surprised to see an ectopic cusp with an associated enlarged eruption cyst. (Figure 2). Between ages 8 – 10 the canine migrates buccally from a position lingual to the root apex of the deciduous precursor. The panorex should show a cuspid that is distal to the distal half of the lateral incisor.

In a study done by Ericson & Kurol, 1988, European Journal of Orthodontics, they studied 46 consecutive ectopically positioned maxillary canines. Immediately after diagnosis of the ectopic path of eruption, the primary cuspid was extracted. 78% of the ectopic canines showed normalization of the path of eruption and later a clinically correct position. 91% of those canines distal to the midline of the lateral incisor showed normalization. 96% of all permanent canines will erupt when their cusp tips do not overlap or lie mesial to the lateral incisor root on the mixed-dentition panoramic x-ray. Figures 3 & 4 show movement of ectopic cuspids six months after extraction of their deciduous precursor (with no exposure). Note that the maxillary right cuspid, whose cusp tip was mesial to the central incisor did not erupt on its own, but the maxillary left cuspid, whose cusp tip was not past the long axis of the lateral, changed its path of eruption without exposure.

Note that Figure 5 shows us a success rate of eruption 18 months after extraction of primary cuspids. This study clearly shows that extraction of primary canines has a favorable effect on palatally malerupting maxillary canines and is the treatment of choice for ages 8-10 in cases of ectopic eruption of maxillary cuspids.

It is our duty as specialists, not only to recognize this abnormality early, but to educate referring dentists, hygienists and oral surgeons. Awareness could reduce the number of impacted cuspid cases in your office by 91%.