

# A Dilemma in Managing the Case with Missing Lateral Incisor

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Editor

As an orthodontist, we regularly encounter a patient with missing lateral incisor and often in a stage of dilemma whether to close space or open space for the prosthesis. As the space is present in the esthetic zone, so it needs careful treatment planning with multidisciplinary approach to obtain the most predictable outcome.

The optimal long-term management of the congenitally missing maxillary lateral incisor continues to cause controversy within the specialty. Opinions remain divided, as evidenced by the 'point/counterpoint' discussion published in the American Journal of Orthodontics and Dentofacial Orthopedics as to whether to open or close the resultant space with either a restorative replacement or canine substitution, respectively.<sup>1,2</sup> In light of this, the Angle Society of Europe (ASE) meeting 2012 dedicated a day to address some of the current controversies relating to the management of these missing lateral incisors.<sup>3</sup>

There are multiple treatment options for managing the patients with missing lateral incisor like canine substitution, single-tooth implants and tooth supported restorations.<sup>4</sup> Whichever the treatment option is, many challenges are involved in obtaining and retaining an optimal result.

The optimal canine substitution patient is one who has small canines with crowns that match the shade of the central incisors, nice profile, Class II dental relationship, and no crowding in the mandibular arch.<sup>2</sup>

The major advantages of orthodontic space closure for young patients are the permanence of the finished result and the possibility to complete treatment in early adolescence. This option is less invasive, treatment can be completed relatively in short period of time and its adaptation with the facial changes throughout life without having artificial prosthesis.

Some common objections to orthodontic space closure are that the treatment result might not look "natural," the functional occlusion is compromised, and the retention of the treatment result is difficult. The tendency of

reopening of the space between the anterior teeth can be overcome with long-term fixed retention using a palatally bonded multistrand wire on the central incisors and canines when occlusion permits.

Canine-protected occlusion is not feasible with orthodontic space closure. As a result, the forces generated through canine guidance are placed on the smaller and thinner roots of the first premolar.<sup>5</sup> Some investigators fear loss of periodontal attachment due to the stress placed on the premolars. Long term periodontal and occlusal studies, however, have shown that space closure is equally sound occlusally and is preferable periodontally to orthodontic space opening.<sup>6</sup> Patients who do not meet the specific qualifications necessary to be considered optimal candidates for canine substitution, an alternative form of treatment must be considered.

Tooth supported restorations are resin bonded fixed partial denture (FPD), a cantilevered FPD, and a conventional full-coverage FPD. Among prosthetic option, the primary consideration while deciding which option to choose is based on conservation of tooth structure and the option which satisfies the expected esthetic and functional objectives.<sup>1</sup> Single-tooth implant option becomes most popular because of high success rate and it leaves the adjacent teeth untouched.<sup>7</sup>

Creating an orthodontic space opening is reported to be advantageous both functionally and occlusally, as it favors an ideal intercuspation of canines through first molars.<sup>8</sup> In addition, minimal equilibration and reshaping are required on sound teeth.

The major disadvantage of orthodontic space opening is that it commits the patient to a permanent prosthesis in an area of the mouth in which tooth shade, gingival contour and margins are critical and not always easy to control.<sup>9</sup>

Robertsson and Mohlin<sup>10</sup> retrospectively evaluated 50 treated patients with lateral incisor agenesis (mean age, 26 years; range, 18-55 years). The mean time after

treatment was 7.1 years (range, 0.5-13.9 years). Thirty patients had received space closure, and 20 had space opening with fixed restorative options, but not implants. It was concluded that orthodontic space closure produces results that are well accepted by patients, does not impair temporomandibular joint function, and encourages periodontal health in comparison with the prosthetic replacements.

The decision in treatment planning implies identification of alternative procedures, prediction of the relative odds in favor of the desired long-term outcome for each option, and evaluation of the relative cost-risk-benefit ratios of each alternative. The decision should be comprehensible to the patient and best meet the patient's needs.



## REFERENCES

1. Kokich VO, Kinzer GA, Janakievski J. Congenitally missing maxillary lateral incisors: restorative replacement. *Am J Orthod Dentofacial Orthop.* 2011; 139:435–45.
2. Zachrisson BU, Rossa M, Toreskog S. Congenitally missing maxillary lateral incisors: canine substitution. *Am J Orthod Dentofacial Orthop.* 2011; 139:434–44.
3. Johal A, Katsaros C, Kuijpers-Jagtman AM. State of the science on controversial topics: Missing maxillary lateral incisors- A report of the Angle Society of Europe 2012 meeting. *Prog. Orthod.* 2013;14:20.
4. Kinzer GA, Kokich VO. Managing congenitally missing lateral incisors. Part I: canine substitution. *J Esthet Restor Dent* 2005;17:5-10.
5. Balshi TJ. Osseointegration and orthodontics: modern treatment for congenitally missing teeth. *Int J Periodontics Restorative Dent* 1993;13(6):494-505.
6. Senty EL. The maxillary cuspid and missing lateral incisors: esthetics and occlusion. *Angle Orthod* 1976;46:365-71.
7. Sadan A, Blatz MB, Salinas TJ, Block MS. Single-implant restorations: a contemporary approach for achieving a predictable outcome. *J Oral Maxillofac Surg* 2004;62:73-81.
8. Sabri R. Management of missing maxillary lateral incisors. *J Am Dent Assoc.*1999;130:80-84.
9. Tuverson DL. Orthodontic treatment using canines in place of missing maxillary lateral incisors. *Am J Orthod* 1970;58(2):109-27.
10. Robertsson S, Mohlin B. The congenitally missing upper lateral incisor. A retrospective study of orthodontic space closure versus restorative treatment. *Eur J Orthod.* 2000