Talking with Patients

Diastema

Lee W. Boushell, DMD, MS*

WHAT IS IT?

Dentists use the term "diastema" to describe the space that results when a tooth in the dental arch is not in contact with an adjacent tooth (Figure 1). Numerous factors contribute to proper tooth and arch interrelationships. These may include the relative height, width, orientation, and number of the teeth as well as the size and shape of the dental arches. An imbalance in the size and shape of the teeth and dental arches may limit the ability of the teeth to fit together properly. This may result in the formation of one or multiple diastemas. Normal contact between adjacent teeth in each dental arch serves to limit drifting and/or crowding. Tooth contact provides protection of the gum tissue and tooth root surfaces immediately beneath the contact by limiting the accumulation of food particles during chewing. There are various reasons why diastemas form in children and adults.

Children are using all of their baby teeth by age 5 to 6 years. Baby teeth are characteristically smaller and usually do not fill in the total available space of the dental arches. This typically results in the presence of multiple spaces or diastemas, but, with baby teeth at this age, it is a normal condition. Dentists are rarely concerned about diastemas in growing children, as these may actually indicate that there will be an adequate amount of arch space for the developing adult permanent teeth that will follow.

Diastema formation in children usually does not result in gum or tooth problems. However, some children develop an excessive soft-tissue attachment between the lip and the dental arch (called a "high frenum"). This may result in a diastema between permanent front teeth just adjacent to the attachment. Habits such as thumb sucking also often prevent teeth from moving into normal arch position and may result in a distorted dental arch as well as diastema formation. Routine dental examinations will allow early identification of the conditions that create diastemas that may require professional intervention.

The adult permanent top and bottom teeth usually fit together without diastema formation. About 7 out of every 100 adults develop a diastema between their top front teeth.[1] Some individuals (or their parents/peers) may notice the formation of a diastema and find it esthetically unsatisfactory. Adults also may develop diastemas between their back teeth. Diastemas also may result from conditions that prevent dental fillings or crowns from restoring natural tooth contours. Some individuals develop severe gum/jawbone problems that allow teeth to move apart from each other with resultant diastema formation. Diastemas between front or back teeth, which allow food particles to continually collect, may predispose the area to gum or tooth root problems.

HOW IS IT TREATED?

It is essential for your dentist to identify the reason for the diastema(s) that has been detected. Children may require modification of high frenum attachments that have contributed to diastema formation. Some children require professional assistance to discourage thumb-sucking habits that are distorting the dental arches and/or creating diastemas. Adults who have tooth and/or arch size discrepancies that have caused diastemas may require orthodontic intervention (braces). Underlying disease states, such as gum disease, may need to be

*Assistant professor, Department of Operative Dentistry, University of North Carolina School of Dentistry, Chapel Hill, NC, USA

DOI 10.1111/j.1708-8240.2009.00261.x

Figure 1. Clinical photograph of a diastema located between the top front teeth. Courtesy of Dr. Edward Swift, Jr.

Figure 2. Diastema closure with composite resin. Courtesy of Dr. Edward Swift, Jr.

resolved before diastema correction is implemented. In some cases, additional procedures beyond orthodontic intervention may be required to create natural tooth–tooth contact.

Adhesive dentistry is ideal in the conservative correction of diastemas, a procedure commonly referred to as "diastema closure." This procedure uses addition of resin-based composite materials to the teeth on either side of the diastema. Normal tooth color and shape are accomplished without making permanent changes to the teeth (Figures 1 and 2). Current composite materials have the potential to retain their color and shape for years. More aggressive procedures, such as porcelain veneers or crowns, may be required to correct overall tooth shape and color in addition to closing the diastema. Your dentist will recommend the most predictable treatment method based on the particular circumstances that resulted in the diastema.

CONCLUSION

"Diastema" is the term dentists give to a space that has formed between adjacent teeth. Not all diastemas require treatment. Identification of the cause is necessary to ensure appropriate treatment planning. Children with diastemas between their permanent teeth that are caused by high frenum attachments or thumb-sucking habits may benefit from treatment. Diastema closure procedures are ideal for adults who are concerned about appearance or are experiencing localized gum or tooth disease as a result of diastema formation.

DISCLOSURE

The author does not have any financial interest in the manufacturers whose materials are discussed in this article.

REFERENCE

1. Mitchell L, Littlewood SJ, Doubleday B, Nelson-Moon ZL. An introduction to orthodontics. 3rd ed. Oxford, UK: Oxford University Press; 2007.