ABSTRACT
The interdental area is composed of the contact area, the interproximal embrasure, and the interproximal dentogingival complex. It is the primary site of dental diseases, including periodontitis and caries, as it is prone to the accumulation and retention of microbial plaque. An interproximal black hole greatly affects the aesthetic appearance and can cause problems with phonetics and food impaction in the maxillary anterior region.

INTRODUCTION
The presence of the interproximal papilla was determined visually. If there was no visible space apical to the contact area, the papilla was recorded as being present. Finding a way to successfully restore the interdental papilla is the most challenging task in periodontal reconstructive surgery.

DISCUSSION
PRESENCE OF INTERDENTAL PAPILLA:
The presence of the interdental papilla is also influenced by many factors such as 1:
- tooth alignment,
- crown shape and
- distance of contact point to CEJ.

Nevertheless, there are other factors determining the existence of the interdental papilla, including the morphology and alignment of teeth, the mesiodistal distance between the adjacent teeth, and the volume of the embrasure space.

Studies:
Kurth and Kokich recently conducted a study on the occurrence rate and causes of an interdental black triangle in adults who received orthodontic therapy on the upper central incisor. The study showed that the occurrence rate was 38%, and no causal relationship with pre-therapy rotation or overlap was found.12

The related factors were crown shape, the distance between the contact point and the crest of bone, the root angulation of the adjacent teeth, and the volume of the embrasure space. Thus root angulation and tooth malposition are factors that affect the distance and teeth with crowding or spacing are therefore excluded in this study.

In Tarnow's study the distance between the contact point and the crest of bone which affects the existence of the interdental papilla was measured by surgical sounding. This distance is shown to be an important index for predicting the presence of the interdental papilla. Even though Tarnow et al. (1992) have suggested using periodontal probe to demonstrate the accuracy of measurement, several lines of clinical observations made us think otherwise. For example, in situations where overlapping of the adjacent teeth, tilting of tooth, and the inflamed interdental papilla was not uncommon, the measurements by clinical probing may be hindered and masked. Hence, the readout by probing technique to predict the presence or the absence of the interproximal dental papilla may be inaccurate.

Considering the growing attention paid to anterior esthetics by both patients and dentists, this study only focused on the maxillary anterior teeth, which is the most important esthetic zone. The results can be applied not only to before periodontal therapy but also prior to restorative treatments such as provisional prosthesis, crown and bridge or composite resin restoration in the interproximal area. In addition, the results can also be applied in orthodontic therapy, by reshaping and stripping teeth, and changing the morphology and the position of the interproximal contact point to remodel the shape of the interdental papilla to reduce the interdental black triangle.

LOST INTERDENTAL PAPILLA:
Interdental papilla can be lost as a result of several distinct clinical situations:
- Naturally occurring diastema: this situation can be remedied with orthodontic treatment, positioning the teeth closer together.
- Diverging roots- can result in the presence of an interproximal space when the contact point between the two clinical crowns is situated too incisally. Orthodontics can also correct it by aligning the roots and squeezing the interproximal soft tissue, thereby creating a new papilla.
- A clinical crown that tends to be triangular in shape can also result in partial interproximal space. This happens because of an accentuated discrepancy in the mesiodistal width at the incisal edge and gingival line. Reshaping the clinical crowns is helpful in reducing the interproximal opening.

True loss of a previously existing interdental papilla can occur as a result of periodontal disease processes or as a result of periodontal surgical procedures.

Tarnow et al suggest that partial loss of the soft tissue might occur with surgical reflection of the interproximal tissue in areas in which the distance between the contact point and the crest of the interdental bone is >5mm.

Therefore it is not unusual for the clinician to encounter situations where reconstruction of lost papilla is
to the crest of bone was 5 mm or less, the papilla was present almost 100% of the time, which correlated highly with the results of our study. However, at 6 mm, the papilla was present 56% of the time, and at 7 mm only present 27% of the time.

The sensitivity of the papilla recession of the anterior teeth is higher because of its longer and thinner shape. In healthy periodontium with normal tooth alignment, the distance between CEJ (cementoenamel junction) to alveolar bone crest is approximately 1 to 2 mm and the distance between CEJ to contact point is approximately 2 to 3 mm. Therefore, the distance between contact point to alveolar bone crest is about 4 to 5 mm. This may explain the usual presence of papilla in normally aligned teeth. Also, the concept of biologic width, which was first described by Garguilo et al., shows that the combined dimensions of the connective tissue attachment above the alveolar crest plus the length of the junctional epithelium, averages 2.04 mm. It must be emphasized that sulcus depth varies, while the combined width of the connective tissue and the epithelial attachment mentioned above is more consistent. A maximum depth of 3 mm of sulcus is clinically observed to maintain the health of periodontal status. Therefore, the biologic width of 2.04 mm plus the sulcus depth of 3 mm approximately equals 5 mm. If the sulcus depth presents more than 3 mm, the rate of inflammation of periodontium due to compromised environment to carry out plaque control may increase. The possibility of resultant gingival recession may also increase.

In Tarnow’s study, scaling and root planing 2-8 weeks before measurement eliminate the presence of inflammation. Therefore, a distance of 5 mm is more compatible to biological health and stability. In this study, only healthy periodontium with probing depths less than or equal to 3 mm are included.

CONCLUSION
Achieving excellent restorative results in the anterior dentition requires that interdental papilla and gingival embrasure form are managed appropriately. This can be extremely challenging when particularly when the patient suffers from periodontal disease or teeth are malpositioned. Gingival embrasures will ensure beauty in the eyes of beholder.

REFERENCES: