“Gummy Smile” diagnostic and treatment plan

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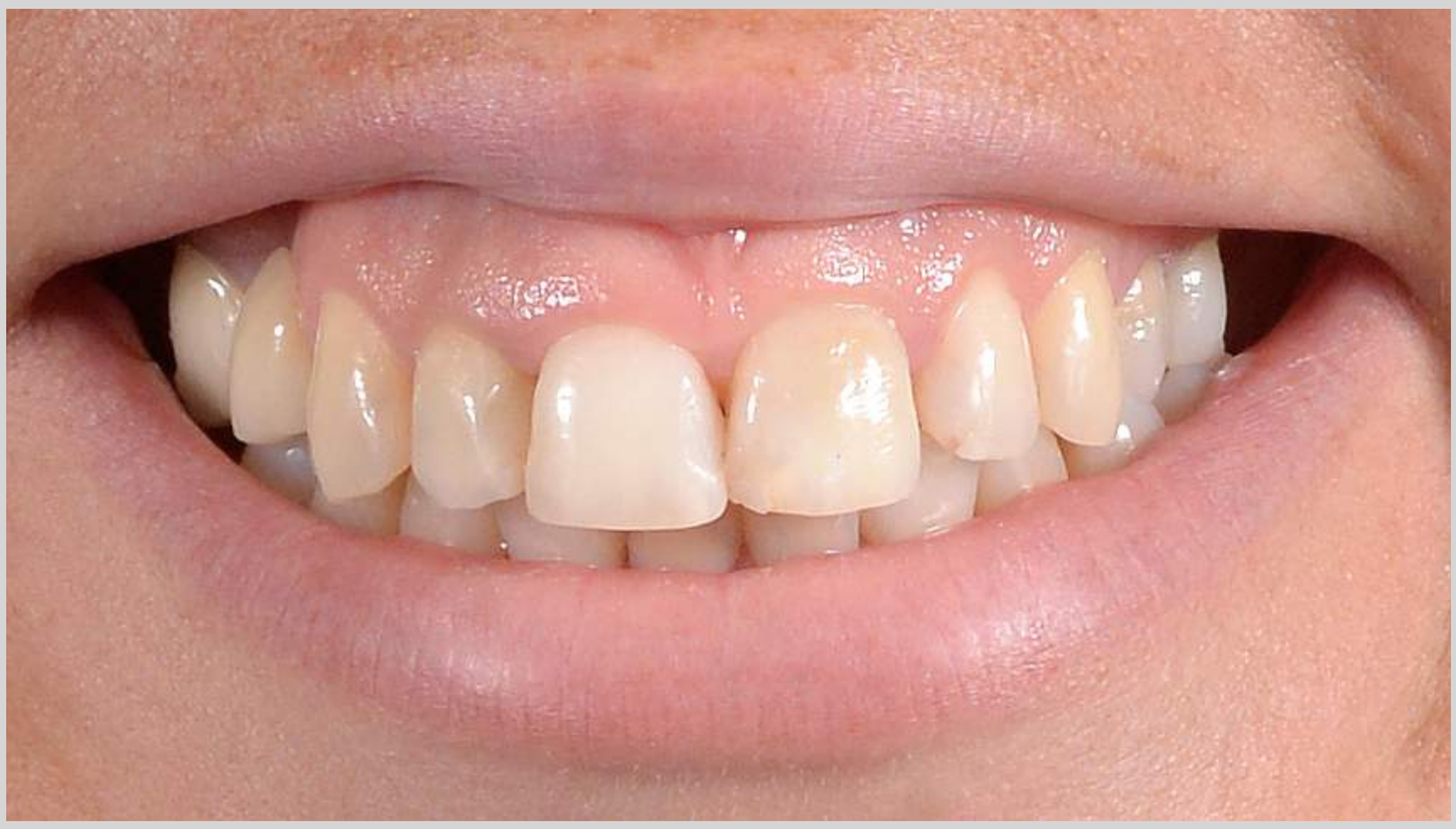

INTRODUCTION

One of the two major reasons our patients seek treatment is esthetics, the other being function. Next to tooth alignment, tooth shape and color, an increased gingival exposure while smiling is one of the most frequently crossed upon complaints of our patients.

“Gummy smile” refers to an increased display of gingiva during a spontaneous smile, measured from the lower border of the upper lip to the gingival margins of the upper incisors.

Studying the literature, we found that up to 2 mm of gingival display is considered to be ideal, up to 4 mm is acceptable, while anything beyond that is considered to be less attractive. However, it is up to the patient himself to decide if the amount of gingiva displayed is displeasing or not.

Various treatment approaches can be applied to correct this issue, like orthodontics, orthognatic surgery, periodontal surgery or even less traditional approaches like botox or lip repositioning surgery. The question is which one is the optimal treatment option?

To answer this question, we should first establish a differential diagnosis, as there are more possible etiologies. Just to have a better overlook, we can group the etiological factors in three categories: lips, the osseous structure (bone) and teeth & gums, which can occur alone or combined.

This article is a short overview about how to diagnose a gummy smile, it’s etiology and the according treatment options.

Q:

What is the **GUMMY Smile?**

Do we **always** need to **treat** it?

What **treatment options** do we have?

LIPS

There can be two reasons for increased gingival exposure correlated with the upper lip.
The first one is a **short upper lip** (Fig 1).

A normal length of the upper lip was found to be 20-22 mm in females, 22-24 mm in males. A short upper lip tends to increase the amount of incisors exposed at rest as well as the amount of gingiva exposed during smiling. We will recongise it by the curved shape of the lip in smiling and by an increased gingival display in the front.


FIG 1

The second reason is a **hypermobile lip** (Fig 2)and is due to a hyperactivity of the upper lip muscles that causes the lip to ascend farther apically than normal. In this case, the lip will elevate more than 6-7 mm and the gingival display will be increased in the front as well as in the posterior.
The treatment for these two etiologies may imply injections with botulinum toxin type A or, a more invasive but permanent approach, surgery to reduce the mobility and elevation of the upper lip.

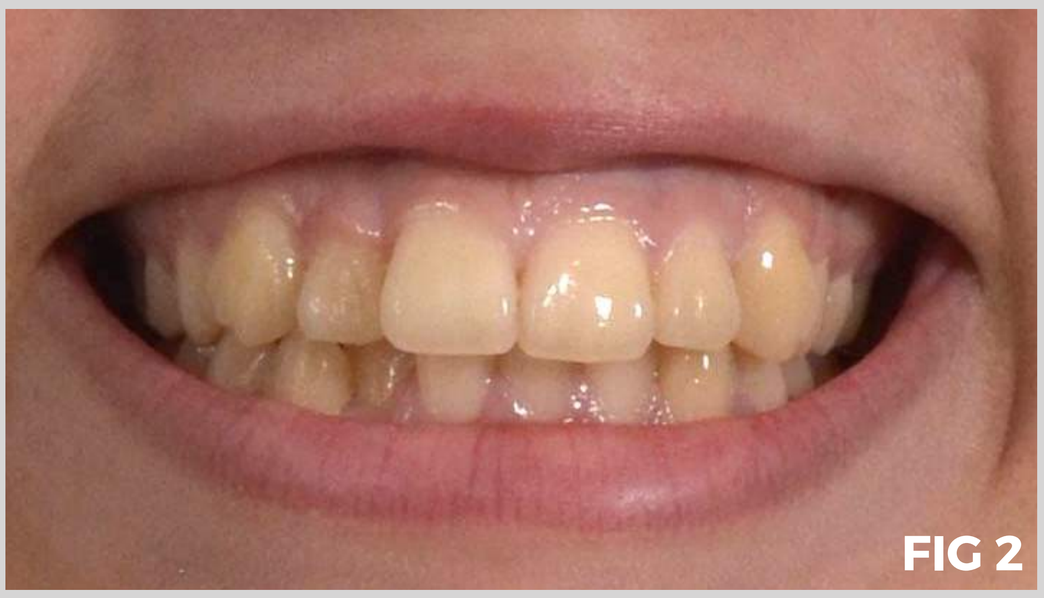
FIG 2

THE OSSEOUS STRUCTURE

In many cases, the etiology of the gummy smile originates from basal bone, alveolar bone or a combination of these.

Patients with **an excessive vertical development (VME) of the maxilla** (Fig. 3). will have an increased amount of incisor display at rest as well as an increased amount of gingival display during smiling. They will usually present a long lower face with a hyperdivergent pattern.

The treatment for VME is complex and, according to the severity, may include orthognatic surgery, orthodontics, periodontal surgery or a combination of these.

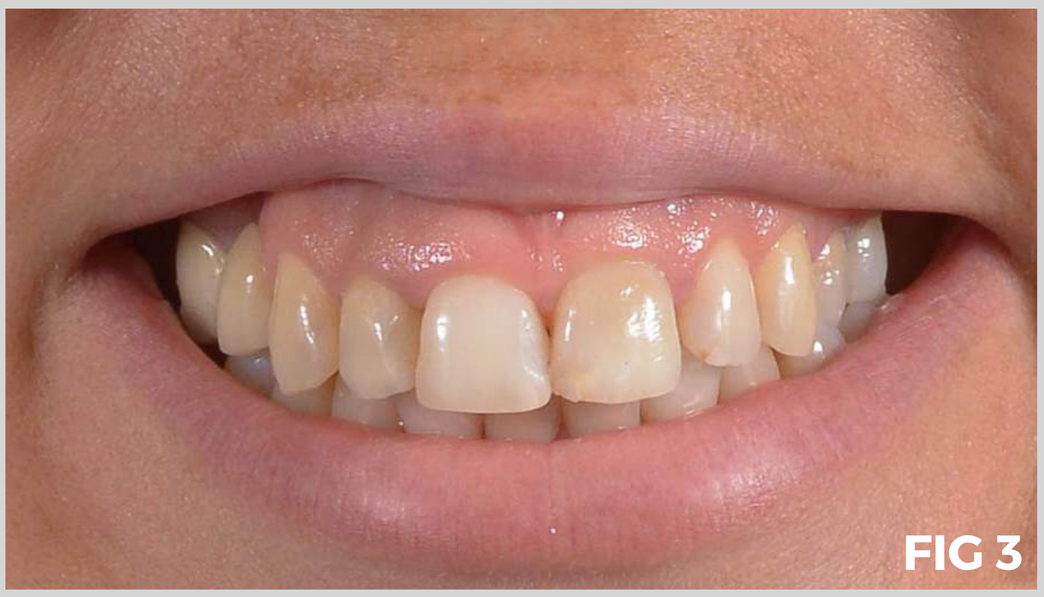
FIG 3

Another possible etiology might be **overeruption of the maxillary incisors** (Fig. 4), which is by definition not a skeletal problem but a dentoalveolar one. It is mainly associated with Class II malocclusions, an increased overbite and a vertical difference between the anterior and the posterior occlusal plane (Fig. 5). Treatment usually includes intrusion by orthodontic means.

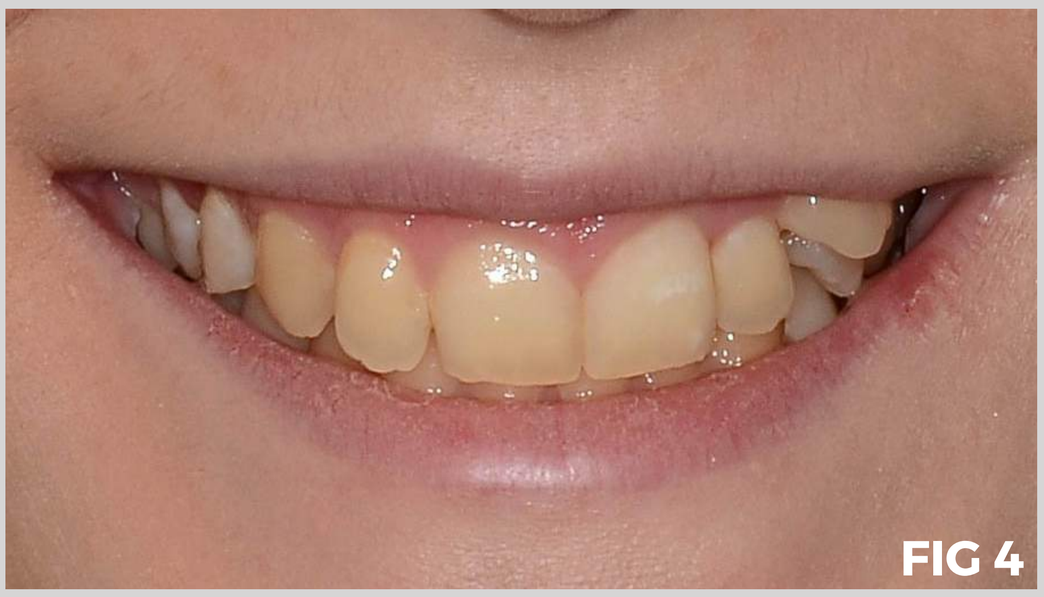
FIG 4

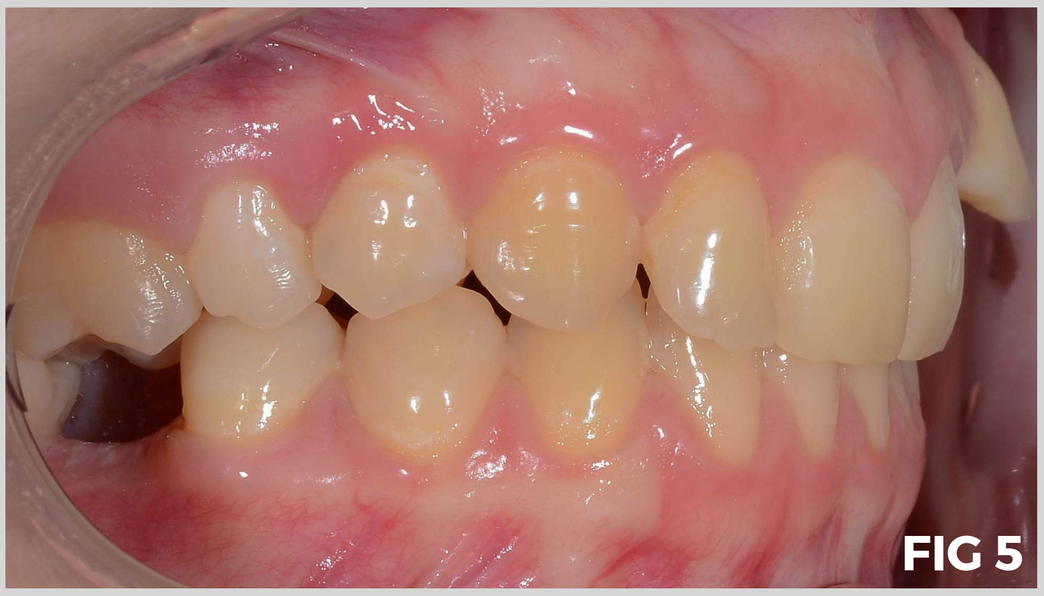
FIG 5

TEETH & GUMS

While the maxillary incisors in the first two categories have a normal clinical crown length, this category comprises the situations with short clinical crowns. This can be due either to **tooth wear** or to **excessive gingiva** covering the crown.

Upper incisors with **tooth wear** are frequently associated **with compensatory eruption** (Fig. 6), leading to a more exposed gingiva during smiling. The treatment may involve orthodontic intrusion which may be combined with periodontal surgery and restoration of the worn teeth.

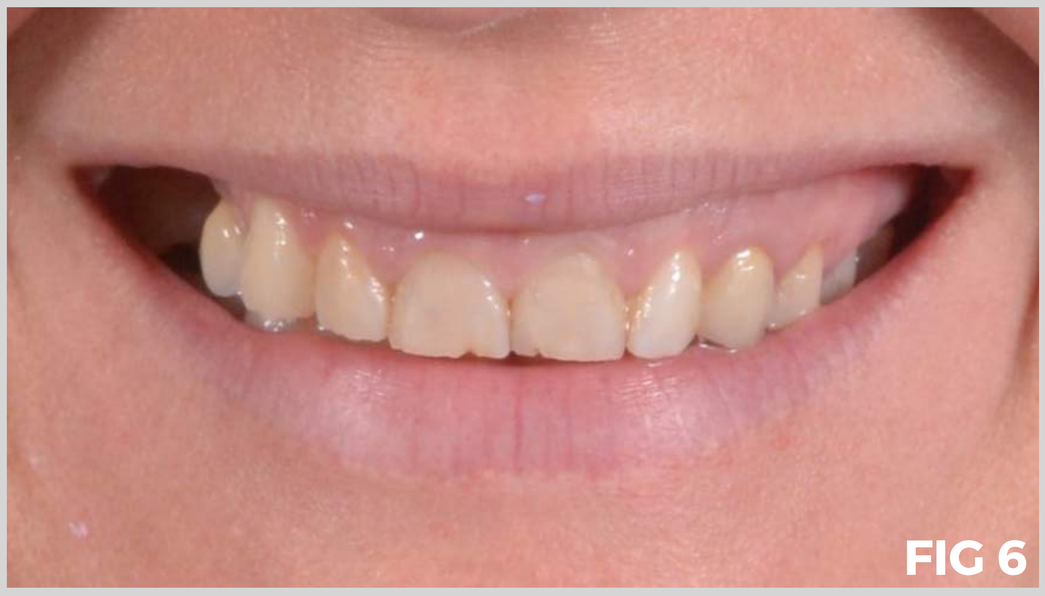
FIG 6

Cases with excessive gingiva covering the crown, either because of **gingival hyperplasia** or because of **altered passive eruption** (Fig. 7)**.** need periodontal surgery for crown lengthening. The sulcus depth will be increased in this cases and bone sounding has to be performed in order to locate the cementoenamel junction in regard to the alveolar crest.

Crown lengthening may be achieved by gingivectomy with or without bone resection according to the type of altered passive eruption.

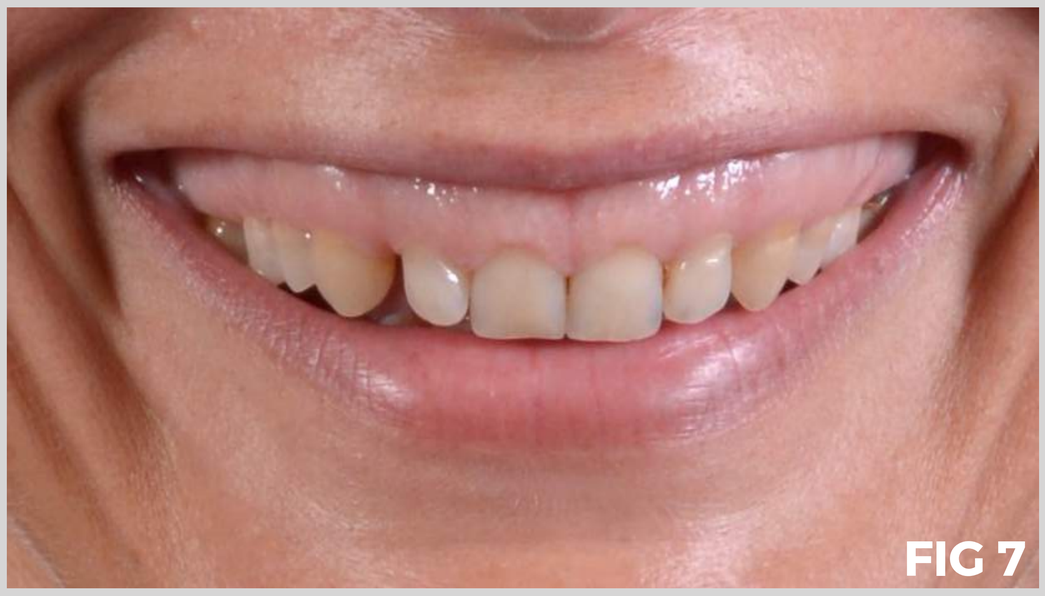
FIG 7

CONCLUSION

Patients awareness of their smile appearance is a powerful motivator to seek treatment. An increased display of gingiva while smiling is often perceived as less attractive and many patients search for a solution to this problem.

As we have seen, there are many treatment approaches for an excessive gingival display, including orthodontics, orthognatic surgery, periodontal surgery, lip repositioning surgery, botox, restorative or a combination of these.

However, the most important part is to establish the **differential diagnosis** in order to find out the etiology of the gummy smile in each particular case, as each etiology has its specific treatment option.

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