High lip line treatment: a case study and recent developments

Dr Peter JM Fairbairn BDS (Rand) looks at the treatment of high lip lines

The move to less invasive treatment options in aesthetic Dentistry driven by GDP-provided orthodontic programs has been a step forward in patient care, supported by the British Academy of Cosmetic Dentistry (BACD). The straighten and whiten mantra (Figs 1 and 2) with associated composite bonding is the future but there are still complex issues and the extreme high lip line (more than 5mm of visible gingivae above the laterals on smiling hard, Fig 5) or “Gummy” smile is one of the most difficult to treat.

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“Expectation is merely premeditated disappointment” - this is the pervading fear in all aesthetic treatment plans, especially the more complex cases. Social media and an increase in appearance-driven trends has raised our patient expectations which can be difficult to sate in these, the most challenging of aesthetic cases.

Balance (Fig 4) is the key to achieving both our own, and our patients’ desires, especially in high lip line cases where even at rest all of the anterior teeth may be visible. Thus in these cases, achieving balance in the soft tissue can see a beneficial result.

There are many ways to achieve this balance; either orthodontically, by gingival contouring, or crown lengthening (hard and soft). Orthodontics is the least invasive method, and with the use of the Inman Aligner introduced five years ago by Dr Tiff Qureshi, this option to improve the tissue balance is routinely utilised. This can be done in as little as four weeks (Fig 5) and as we see in this case where the patient did not want any surgery, the balance has been improved.

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The aetiology of the extreme high lip line is often multi-factorial, a combination of the four main causes. Skeletal deformity often leads to the most difficult cases and they are often associated with another of the main causes, muscular hyper-activity, which can result in an unsatisfactory outcome even after orthognathic surgery. The other factors are over-eruption which can with difficulty be treated with orthodontic intrusion and finally merely a short upper lip which is rare.

Treatment modalities for these cases can be divided into non-surgical and surgical. Non-surgical solutions are orthodontic intrusion mainly in younger patients but this can be difficult and needs specialist attention. The use of Botulinum Toxin is the other solution and here the use of 40 units, 15 at each corner (for Levator Labii superioris alaeque nasi) of the nose (Fig 6) and 10 units in the centre (for Depressor septi). Whilst good results can be achieved in the muscular hyper-activity group, it appears to wear off in three months and it has been noticed that on further applications the effect may not be as satisfactory.

Surgical solutions are orthognathic surgery, surgical crown lengthening and finally lip repositioning surgery. The first requires a specialist team and is generally only suited for the most extreme cases as long-term side effects such as paraesthesia are a possibility. It has also been seen that even after hard tissue correction further soft tissue work (lip repositioning) may be needed for the desired aesthetics.

The last two surgical modalities only need GDP or Periodontist skills and are both low risk, low pain solutions although crown lengthening may require extensive dental restorative processes. They can be used together but the biology must be respected and a minimum of 5mm of attached gingiva must be retained (Figs 7 and 8).

Case
This 26-year-old patient fitted in with the type seen routinely; 95 per cent of the cases seen are young females who all show the same photographs of their smiles when at a social function (un-restrained and under the influence of alcohol) which they really dislike to the point of having developed a habit of covering their mouth with a hand when smiling hard. Seeing a case or two every week the same features and characteristics are repeated and there is an immense effect on these patients psychologically, with some even having discussed events of bullying.

In these cases there is often
hobbled a pleasing improvement (Fig 14) but there was still not ideal balance. After a detailed dis-
cussion with the patient, includ-
ing careful periodontal probing
and assessment, it was decided
to lengthen the crowns as well
without any associated dentistry
due to the shape of the teeth and
position of the enamel cementum
junction.

A flap was then raised from 5

to 5 (Fig 15) and a small amount
of bone removed with a round bur
prior to the flap being re-sutured
closed with Prolene. Electro-
surgery was then used to remove
the excess gingival tissue to the
correct level (Fig 16) and the scar
from the lip surgery can be seen.

After a further three months
the patient came in for a follow-
up (she lived 200 miles away)
and further photographic records
were taken to show the case at
nine months post the initial sur-
gery. The rest position now had
balance (Fig 17) and on hard smil-
ing (Fig 18) the patient was very
contented with the outcome and
even consented to a full-face pho-
tograph (Fig 19) which she had
decided prior to the surgery. She
felt her expectation had been met,
and the case was a satisfying re-
sult with very low trauma and no
long-term side effects to the pa-
tient. Her new, more confident ap-
proach to life was also particularly
pleasing.

Conclusion
Being a soft tissue procedure, re-
lapse can always be an issue es-
specially in cases with very hyper-
active musculature. More than 560 cases in the last eight years
it is felt that the vast majority of
them have fulfilled the patients
expectation but follow-up is com-
plicated by the distance most pa-
tients have to travel.

Case assessment and selec-
tion as well as careful consent
procedure is critical in under-

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standing our patients and their desires. More recent changes to procedure to minimise relapse in the more complex cases include using shorter but wider ovoid incisions (3 to 3.5 inch width), deeper connective tissue suturing (Fig 20) and Myectomies done by a plastic surgeon.

A multi-disciplinary approach to the solution of this complex emotional problem with a variable aetiology may require specialist referral as this type of solution is often the best option. We are currently working with a US Dental School, carrying out long-term research into the situation of this surgical procedure.

For further enquiries about the British Academy of Cosmetic Dentistry (BACD) and to register for the BACD 2012 Annual Conference in November:

visit: www.bacd.com, call: 0207 612 4166 or email: suzy@bacd.com

REFERENCES

Fig 1: View of Bruxism Teeth to correct
Fig 7: Before crown lengthening and lip repositioning
Fig 8: 4 year post-surgery, improved balance
Fig 9: Extreme high lip line at rest
Fig 10: Smiling hard to show ‘gummy’ smile
Fig 11: Split thickness mucosal removal
Fig 12: Lip repositioning surgery, now only 2 in 2
Fig 13: Six months post-op. Rest position the same
Fig 14: Hard smiling improved, but still not balanced
Fig 15: Hard and soft tissue crown lengthening
Fig 16: Steel and electro-surgery. Sutured with Prolene, showing scar from lip surgery
Fig 17: Post-op rest position. Balance improved