

I have always found it useful to discuss with patients (and referring practitioners) one simple point which appears to have been overlooked in this paper to date: that recession cannot occur when the bone contours are normal. Physiologically, no amount of vigorous tooth brushing will remove the bone through the gingival tissues, yet a lack of bone is essential for recession to occur.

Many teeth simply have an altered crestal bony contour associated with either anatomical variations of tooth position, tooth width and alveolar disproportion, which, combined with the thin gingival biotype, will predispose to recession in the presence of the traumatic and inflammatory factors described. Not all teeth erupt into a 'perfect' envelope of alveolar bone; indeed orthodontic treatment to bring them into that envelope can also be associated with spontaneous improvement of localised recession.

This lack of basic foundation underwrites and determines the extent of all gingival recession and of course influences the stability of attempts to repair this surgically, although these have been strengthened in recent years by the introduction of regenerative techniques.

I have always tried to encourage students and colleagues, when considering their periodontal patients and problems, to 'look at the outside, but think of the inside'. By trying to conceive the underlying bony anatomy, the effects of the secondary factors contributing to recession become easier to understand and for the patient to appreciate.

With that in mind, one might ask your readers to consider whether recession is a sign of health or disease?

A. Woodman  
Portsmouth

*The authors M. Patel, P. J. N. Nixon and M. F. W-Y. Chan respond: We would like to thank the reader for his interest in our paper. Dr Woodman has highlighted a key underlying point with regards to gingival recession. It is clearly true that the aetiological factors mentioned in the article can only result in recession in the absence of normal bone structure underneath the gingival tissues. Full bony coverage of the root can be altered*

*or lost at healthy sites as a result of development (ie tooth size discrepancy and tooth position in the bony envelope), orthodontic movement or traumatic displacement of teeth outside the bony envelope and possibly due to other factors which are still poorly understood. Normal bony contours can also be lost in sites of disease through an inflammatory disease process resulting ultimately in bone loss.*

*In the absence of clinical attachment loss, the status of the bony contour at healthy sites cannot simply be observed or easily assessed clinically without surgical intervention. Therefore it is difficult to predict which patients are at risk of developing gingival recession based on the underlying bony contours. Any operator who reflects mucoperiosteal flaps will have observed sites where there are significant bony dehiscences around roots and yet the gingival margin has remained at or just above the CEJ. It should therefore be emphasised that dehiscences of the alveolus, resulting in root(s) not being covered by bone do not necessarily always lead to recession.*

*It is, however, known that in the presence of altered bony contours the mechanical factors mentioned in the article can result in gingival recession. If these factors can be identified early on, then preventative advice should be offered to patients.*

DOI: 10.1038/sj.bdj.2011.969

## GLUCOSE AND SUGAR

Sir, I refer to the paper by Dr Lucy Wray, *The diabetic patient and dental treatment: an update* (BDJ 2011: 211: 209-215).

Whilst a paper on what is an increasingly prevalent disorder with oral implications is to be welcomed, it is unfortunate that the author has used the words 'sugar' and 'glucose' interchangeably throughout, implying that they refer to the same compound. Some of your readers must have found this very confusing.

Glucose is a monosaccharide and is indeed 'a sugar'. Poor hormonal control of its concentration in blood is the underlying cause of diabetes mellitus. However, the compound generally referred to as sugar is in fact a disaccharide consisting of a glucose molecule

linked to a fructose molecule. Although a dietary constituent, it does not occur in blood, being degraded to glucose and fructose in the alimentary canal before absorption. Dietary sucrose, however, is especially cariogenic because it can be metabolised by oral bacteria not only to acidic end products, but the glucose and fructose moieties can also be polymerised to form glucans and fructans which contribute to the matrix of dental plaque with the associated adverse effects on the gingivae and dentition.

It is unfortunate that the lay press still all too frequently refers to blood glucose as 'blood sugar'. This terminology probably came into use decades ago when the disorder was poorly understood and clinicians tasted the urine of diabetic patients to differentiate between diabetes mellitus and diabetes insipidus! That from the diabetes mellitus patient tasted sweet or honey like, thereby giving it its name.

The paper also implies that ketones are acidic and are the products which cause ketoacidosis. What actually happens is that when cells are deprived of glucose because of lack of insulin (some tissues require insulin for glucose uptake), fat is degraded to form a group of compounds known as 'ketone bodies'. Two of these, acetoacetate and  $\beta$ -hydroxybutyrate, are indeed acidic, but only the first is a ketone. The third one, acetone, is the ketone which gives the breath its characteristic smell, but it is not acidic.

Lastly, haemoglobin is not 'attached' to the erythrocytes (red blood cells), but is contained within them. Erythrocyte membranes are glucose permeable which is why the % haemoglobin A1c reflects the long term blood glucose concentration.

I hope these comments will be helpful and lead to a better understanding of this disorder.

J. A. Beeley  
Glasgow

*Dr Wray responds: Josie Beeley is of course perfectly correct in saying that 'blood sugar' and 'blood glucose' are different entities.*

*However, the words 'blood glucose' and 'blood sugar' are routinely used*

*interchangeably both by diabetics themselves and those treating them. Dentists treating such patients will no doubt come across both terms when speaking with their patients. The purpose of the article was to try to address an important topic in a straightforward and practical manner. However, I am sure Josie Beeley's comments are helpful to those who may wish to understand the underlying physiology and biochemistry further.*

DOI: 10.1038/sj.bdj.2011.970

## DIFFERENT PRIORITIES

Sir, I wonder whether Messrs Holmgren and Benzian (*Dental volunteering – a time for reflection and a time for change*; *BDJ* 2011; 210: 513-516) have ever run a clinic in a third world country and if they had, they are obviously not aware of the huge benefits this brings to these communities. I have personally removed 1,200 rotten, badly decayed, infected and painful teeth (and only such teeth) in seven visits to Northern Kenya. We work in a remote clinic in the bush, miles from any town. The dentist visits the local town (six hours' walk away) once a week and a single extraction is over a month's wages for the average Kenyan.

The relief that this brings to these individuals is huge and demonstrable – some offer a heartfelt thank you, others jump up and dance around singing hallelujah. All, without exception, are overjoyed at the relief. I have tried taking samples of oral health promotion material and dietary advice sheets, tubes of toothpaste and thousands of toothbrushes only to see them being traded for cash five minutes later to buy food. Their priorities are not our priorities. Let's face it, we can't even persuade 50% of our own population to embrace prevention and listen to our message by regular attendance. The third world rural communities are just trying to survive.

It would be lovely but somewhat naive to believe that any money raised for funding volunteer training or NGOs would all reach the planned target and indeed do any good. We are very lucky to be able to help with direct hands-on action rather than words of prevention,

albeit well meaning – their priorities are so different.

A local chief told me a very sad story. Only one week before we arrived at the clinic, a young Moran (warrior) had severe toothache. He persuaded his friend to knock the offending lower molar out with a stick and a stone (they quite often do this at the age of seven, removing the two lower centrals to make a breathing/feeding space as they are terrified of tetanus). The top of the tooth came out, but the stick deflected off the mandible and pierced an artery (probably carotid?) and he rather quickly bled to death.

You reflect if you want to, and spend years trying to create a system to fit their totally different priorities, I'll just get on and do what I can do – that's the gift we have trained for.

R. O. Coleman  
Cirencester

*C. J. Holmgren and H. Benzian respond: We read the letter of Dr Robert Coleman with great interest. In writing our article (BDJ 2011; 210: 513-516) we realised that questioning the benefits of the traditional paradigm of volunteering in low- and middle-income countries would inevitably lead to a knee-jerk reaction from those who continue to pursue what has now been debunked as 'voluntourism'.<sup>1</sup>*

*Dr Coleman's letter raises views that are, unfortunately, quintessential of the opinions expressed by many volunteers.<sup>2</sup> Using the sad and unacceptable reality of neglected oral care in many primary healthcare systems around the world as an argument, Dr Coleman reveals an often-seen underlying mindset of short-sighted actionism, of allegedly doing good, or, worse, the attitude of a presumptuous knowing-better approach of 'getting on and do what I can do'. Clinical care might have its place, but addressing public health and health policy is equally important if lasting impact is to be made. As much as a pure treatment approach may bring relief to the few individuals who are fortunate enough to get attention from a flown-in expatriate dentist, this approach is questionable because it ignores any reflection on the impact*