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## Classifications

Sir, further to Messrs Jagger and Korszum (*BDJ* 2004, 197:241) and letters from Mew (*BDJ* 2004, 197:660) and Veale and Chapman (*BDJ* 2005, 198:2) it would appear to me that the patients are suffering from a type of 'Habitual Subconscious Clenched Swallowing'. I have classified this condition in order of complexity into five classes:

1. Clenched tongue thrust swallow with normal cusp contact, no mandible deviation, without or with mandible protrusion, no tongue support.
2. Clenched tongue thrust swallow with no cusp contact, no mandible deviation, with mandible protrusion with tongue support.
3. Clenched tongue thrust swallow with premature cusp contact, no mandible deviation, with tongue support.
4. Clenched tongue thrust swallow with premature cusp contact, with mandible deviation, no tongue support.
5. Clenched variable tongue thrust swallow, with variable cusp support, variable mandible deviation, mandible protrusion and variable tongue support.

The symptoms Mew describes appear to fit into the most complex, Class 5. Unfortunately Veale and Chapman in their psychiatric discussion reveal no dental or medical histories in their cases. The cases I treated had in addition, puckering of the orbicularis oris, posturing of the mandible, tension headaches, reduced hearing and the inability to 'pop' their ears when swallowing. They did not exhibit hypersensitive gagging, as I believe tongue pressure was exerted mainly around the dental arches.

They were treated by swallowing relaxation<sup>1</sup> to reduce the frequency and strength of their variable tongue thrust in their 'subconscious' habitual clenched swallowing which reduced their 'bite' awareness. I believe that tongue thrust is the muscular protagonist to the clenching muscles (including the lips) which attempt to resist, balance and

adapt to this swallowing pressure, so every time the patient subconsciously clench swallows it influences tooth position. This produces the 'scalloping' of the tongue and sometimes of the cheeks, which is in fact indentation caused by the excessive tongue and cheek pressure on the teeth (dents), not by 'scallops' (an unfortunate term which distracts from the cause).

With careful clinical examination and using this classification, it is possible to predict symptoms for each patient, also tongue shape and indentation will indicate if and where there is any premature cusp contact. Reducing the strength of the clenching by relaxing the patient's swallow reduces the patient's awareness of their occlusion and gives them a simple strategy to control their idiosyncrasy. Thence, further to rebuild normal adaptable swallowing movements for saliva, through to bulky solids. The obsessive compulsive attitude of some 'occlusal specialists' when treating these patients' occlusal irregularities often makes the clenched swallowing worse!

It would appear that this had happened in the three cases in 'Phantom Bite Revisited' as each had been referred for psychiatric treatment, maybe as a last resort, it is easy to 'blame' a condition we do not understand. The case of a 'Dental Phobic with Pronounced Aversion to Rubber Gloves' being treated by Swallowing Relaxation in Two Appointments<sup>2</sup> illustrates a simple behavioural treatment for habitual subconscious clenched swallowing: (Class 1) Similarly swallowing relaxation should be contemplated before complex restorative procedures and more so before psychiatric diagnosis and therapy. The restoration of adaptable swallowing following swallowing relaxation treatment allows these patients to follow more normal lives.

The functional differences of subconscious habitual clenched swallowing will be affected by the number and position of the teeth present, size and position of the dental arches,

size, posture and position of the tongue, and the force of the thrust initiating the swallowing movement. I found that the main interconnecting conditions with Stress, Tongue Thrust and Habitual Subconscious Clenched Swallowing were: Class 1:

- a) Puckering of orbicularis oris, hypersensitive gagging, inability to 'pop' ears by swallowing, reduced hearing, persistent cough.
- b) Mandible protrusion, puckering of orbicularis oris, hypersensitive gagging, sharp anterior teeth, pronounce sibilants with anterior teeth, indigestion, 'lump in the throat' sensation, persistent cough.

Class 2:

Puckering of orbicularis oris, hypersensitive gagging, posturing of mandible, sharp anterior teeth, pronounce sibilants with anterior teeth, air swallowing, indigestion.

Class 3:

Hypersensitive gagging.

Class 4:

Puckering of orbicularis oris, hypersensitive gagging, posturing of mandible, sharp anterior teeth, pronounce sibilants with anterior teeth, tension headaches, inability to 'pop' ears, indigestion, 'lump in throat', allergies, persistent cough.

Class 5:

Puckering of orbicularis oris, posturing of mandible, tension headaches, inability to 'pop' ears, reduced hearing.

Tension headaches occurred when there was no tongue support, premature cusp contact with mandible deviation. Careful clinical examination of the tongue and inner cheek indentations will often reveal the pressure points causing bite instability.

**C. Wilks  
Leicestershire**

1. Wilks C G W. The Hidden Fear (Video). Dept Radiol, King's College Hospital Dental School.
2. Wilks C G W. Treatment of a dental phobic with pronounced aversion to rubber gloves by swallowing relaxation in two appointments. *Br Dent J* 1993; 175:88-89.

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## Potential toxicity

Sir, unfortunately the article by Dr Carrotte on endodontic treatment for children (*BDJ* 2005, 198:9) is woefully out of date. It is clear that the author is not a paediatric dentist and I wonder if a paediatric dentist would ever be allowed to publish an article on a subject unrelated to his/her area of expertise? The author does not appear to have kept up on the literature concerning pulp therapy in children particularly with research published within the past five years which has been considerable in its extent.

The use of formocresol is now out of date. This medicament has been almost totally superseded by ferric sulphate, because of the concerns in the last ten years over the toxicity of formocresol. More recently, formaldehyde has been linked with certain forms of cancer, in particular nasopharyngeal carcinoma in a systematic review, following which most paediatric dentists in the UK have abandoned its use. Ferric sulphate has been shown to be equally as effective as formocresol but without any potential toxicity. There have been a considerable number of papers on this change culminating in a symposium held in Dublin in 2002, the proceedings of which were then published<sup>1-4</sup> and since then a systematic review has been published on its efficacy. It is widely accepted now within the profession that ferric sulphate is the mainstay for pulpotomies in primary molars. It is therefore unacceptable that it is not even mentioned in a review article on this subject published in year 2005 in a leading British Journal.

If formocresol has been abandoned because of its toxicity beechwood creosote should never ever be used. As its name implies it contains creosote, so toxic that it has been withdrawn from use throughout the EU, been shown to be mutagenic, tetragenic and carcinogenic. What is more, there is no evidence in the literature as to its effectiveness. While there have been innumerable clinical trials showing formocresol having a success rate of about 90% and ferric sulphate the same, there is nothing in the literature to support the use of beechwood creosote.

Though devitalising paste is still mentioned in some publications, there is no evidence in the literature what so ever as to its efficacy. Placing a small amount over an exposed pulp horn in a primary molar meant that one pulp horn was devitalised. A clinician is then tempted to assume that the whole pulp is devitalised when it is not. Entering the pulp chamber without any local analgesia, as the technique required, lead to a crying, pained, uncooperative child. There is no

excuse these days for not doing the job properly. Local analgesia and rubber dam can usually be placed by most dentists who use an empathetic approach and indeed by those who are trained in the management of children. Pulpotomies with ferric sulphate achieve a high success rate. Dr Carrotte, in his previous articles has quite rightly emphasised the need for excellent coronal seal with endodontics. The same applies in primary teeth and this can only adequately be achieved by placing a pre-formed metal crown. The combination of pulpotomy with metal crown provides better than 90% success and maintains a tooth until its natural date of exfoliation ensuring a fully functional primary dentition.

The section on the management of immature permanent incisors does not even mention the use of mineral trioxide aggregate (MTA). The section on the management of avulsions contains some useful tips but falls short of a review that should be published in a journal with a national impact. The much discussed possible detrimental effects of the early placement of calcium hydroxide in the root canals of avulsed teeth on the development of ankylosis should have been discussed as it has an important bearing on the outcome of replanted teeth. Our main worry is that as general dental practitioners read articles such as this one in the *British Dental Journal*, there is all the more reason for these to be thoroughly researched and based on up to date literature.

**M. S. Duggal**

**M. E. J. Curzon**

**R. Balmer, Leeds.**

**J. Roberts, London**

1. Duggal M S, Nooh A, High A. Response of the primary pulp inflammation: A review of the Leeds studies and challenges for the future. *Eur J Paediatr Dent* 2002; **3**:111-114.
2. Fuks A B. Current concepts in vital pulp therapy. *Eur J Paediatr Dent* 2002; **3**:115-120.
3. Cleaton-Jones P, Duggal M S, Parak R, William S, Setze S. Ferric sulphate and formocresol pulpotomies in baboon primary molars: histological responses. *Eur J Paediatr Dent* 2002; **3**:121-125.
4. Papagianoulis L. Clinical studies on ferric sulphate as a pulpotomy medicament in primary teeth. *Eur J Paediatr Dent* 2002; **3**:126-130.

Sir, while enjoying the current series on endodontic practice I was distressed to see the emphasis on traditional conservation for the primary dentition being promoted (*BDJ* 2005, 198: 9). Firstly the little evidence that does exist suggests that caries in primary teeth is unlikely to cause problems. There should not be a presumption for restorative treatment. Secondly, if there is a necessity to treat other than extractions then it is curious that the chemical regimes still promoted for primary endodontics are no longer

regarded as acceptable for permanent teeth endodontic treatment. Finally this is all the more curious because the significant exposure of these chemicals to the rest of the body is unavoidable given the resorption of primary teeth roots.

**D. English  
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**Author of the paper P Carrotte responds:**  
*I am most grateful to Dr Duggal and his colleagues for raising this very important issue, echoed by Dr English and I am sure other readers as well. I had, in fact, been attempting to draft a similar letter following publication of the paper in question in light of the recent systematic review on nasopharyngeal carcinoma and formocresol.*

*Dr Duggal is, of course, correct that I am not a paediatric endodontist. This series of papers is taken from the *BDJ* textbook A Clinical Guide to Endodontics which was written during 2001/2002, subjected to peer review in early 2003, amended and published in the autumn of 2003. When writing this particular chapter of the book I sought help and advice from a variety of sources, including the relevant clinical guidelines of the British Society of Paediatric Dentistry. Unfortunately the library in Glasgow does not subscribe to the European Journal of Paediatric Dentistry and I did not see the papers referred to. Although I have always been aware of the concerns regarding the use of formocresol and similar materials, the techniques described were those considered to be appropriate at the time of writing and taught in most UK dental schools. Indeed, the formocresol technique is described in detail in Dr Duggal's own textbook, Restorative Techniques in Paediatric Dentistry, which was published in 2002. I fully understand and accept that the situation has changed since both of these books were written, indeed continues to change.*

*Dr Duggal and colleagues have expressed their own opinion of the current position in their letter, although I understand that there is to be a national meeting of Consultants in Paediatric Dentistry where the issue is to be debated further, particularly in relation to the treatment of the non-vital pulp. I sincerely hope that Dr Duggal and his colleagues will then as a matter of urgency publish guidelines in the British Dental Journal so that general dental practitioners may be brought up to date as soon as possible. The relevant chapter in the *BDJ* textbook will, of course, be rewritten in the light of these new guidelines for the next edition.*

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