

Special Care Dentistry – A Forgotten Strand in Rehabilitation?

Special Care Dentistry is that branch of dentistry which provides comprehensive care for people with so-called 'special needs'. A contemporary definition, encompassing the World Health Organisation's ICF¹ principles¹ would be: 'People requiring special care dentistry are those with a disability or activity restriction that directly or indirectly affects their oral health, within the personal and environmental context of the individual'.²

Special Care Dentistry (SCD) as currently practiced in the UK is largely provided from services commissioned by Primary Care Trusts in community clinics and district general hospitals, mostly at a primary care level. In addition, secondary and tertiary care services are provided by a limited number of associate specialists and consultants in dental and other hospitals. Whilst there has been no formal, recognised training pathway in SCD, the General Dental Council agreed at the end of 2005 that it was timely to consider the recognition of the specialty and it is anticipated that by 2007 this will become a reality.

Special Care Dentistry and its patients

Some of the most frequently encountered patients in SCD are those with a learning disability. The challenges here for oral and dental health are in managing oral hygiene, coping with drug-induced dry mouths – which leads to rapid decay (Figure 1), as well as dental erosion (Figure 2). This happens for patients with seizures and those who have psychiatric disease. One of the challenges in rehabilitation is education and training for carers, especially given the level of basic qualification of such a group and their constant turnover.³ The use of mouth props (Figure 3) as well as triple sided toothbrushes (Figure 4) can help in patients who are resistant to brushing, mindful of the guidelines on the use of appropriate physical intervention.^{4,5}

Another significant group of patients who have learning disabilities are people with Down syndrome. This is a group of people who have distinctive oral and dental features: delayed shedding of primary teeth, absent successor teeth, anomalies of tooth shape, number and surface topography (Figure 5). Retention of primary teeth into third and fourth decades is not uncommon. The mid-face hypoplasia (Figure 6) means that teeth often do not meet in the normal relationship but orthodontic care to correct this relative prognathia may not be feasible because of cooperation problems and the very characteristic poor gum health. Tooth wear, as a consequence of grinding or gastro-oesophageal reflux disease (Figure 7) is also commoner in people with disabilities.⁶ In addition, severe gum disease means that early loss of teeth is more common in people with Down syndrome. Dental treatment may be compromised by congenital heart defects and the need for antibiotic prophylaxis, poor cooperation and the necessity to provide care under sedation or even general anaesthesia. As well, there are physical considerations such as steeply vaulted palates that act, unbeknown to carers, as a food trap – often an undiagnosed cause of halitosis. A large, fissured tongue, that seems large for the mouth but is a feature in part of the maxillary retrognathia (See Figure 6), may also trap plaque.

Another group of patients with disabilities that need regular dental care are people with cerebral palsy. Self-inflicted injuries can occur in young children with cerebral palsy when they are teething (Figure 8). This is known sometimes as Rige-fede disease when it principally affects the tongue.⁷ Management consists of fit-



Figure 1: Patient with a learning disability and psychiatric disease with a drug induced dry mouth and dental decay of the necks of the teeth as a consequence.



Figure 2: person with epilepsy - a dry mouth and gum overgrowth consequent on medication. The dry mouth encourages frequent ingestion of carbonated drinks resulting in extensive dental erosion of the front of his upper incisor teeth.



Figure 3: A mouth prop to aid in mouth opening and safe brushing for a carer.



Figure 4: A triple sided toothbrush that cleans three surfaces at a time; important when access to the mouth is restricted and time-limited by the patient's cooperation.



Figure 5: Congenitally absent teeth, microdontia and enamel hypoplasia in a person with Down syndrome.



Figure 6: Sagittal view of a patient with Down syndrome demonstrating the mid-face hypoplasia and relative prognathia.



Figure 7: Excessive tooth wear from grinding and gastro-oesophageal reflux in an adult with Down syndrome.



Figure 8: Ulceration of the ventral surface of the tongue as a result of tongue thrusting in a child with cerebral palsy, as lower primary incisors erupt into the mouth.



Figure 9: Patient with cerebral palsy with a (a) self-inflicted lip lesion and (b) after fabrication and placement of splints to prevent lip trauma.



Figure 10: Patient with a brain injury and lip trauma wearing a splint to prevent further trauma and permit soft tissue healing.



Figure 11: Excessive deposits of calculus in a child who has a PEG and who has an exaggerated gag reflex, making mouth cleaning difficult.



Figure 12: A commercial tooth brush with an integral aspirator to help clear debris and secretions while mouth cleaning.



Figure 13: An oral screen used actively to encourage lip closure by exercising the circum-oral musculature and thus preventing drooling.



June Nunn is Professor of Special Care Dentistry at Trinity College, University of Dublin. Her research focuses on intervention programmes in oral and dental management of children and adults with disabilities. She examines for the Royal Colleges of Surgeons in Edinburgh and London masters and diploma programmes in Special Care Dentistry (SCD). She has designed a distance learning program in SCD for undergraduate dentists. June is a past president of both IADH, BSDH and the ISDH and is currently editor of the Journal of Disability and Oral Health and author of one of two textbooks in this discipline.

Correspondence to:

Professor June Nunn,
Division of Public and Child
Dental Health,
School of Dentistry,
Trinity College Dublin,
Lincoln Place, Dublin 2, Ireland.
Tel/Fax: +353 16127303/7298.
E-mail: june.nunn@dental.tcd.ie

ting a splint, if impressions can safely be taken, but this will sometimes necessitate referral for a general anaesthetic (Figures 9a and b). This condition usually resolves but can recur on eruption of the permanent teeth as well. The alternative may be to remove the teeth that are traumatising the soft tissues, usually lips and cheeks, unless the physician can find a drug regime that reduces the degree of spasticity, without sedating the child to such an extent that their normal daily routine becomes impossible. An alternative, once children have permanent teeth, is to undertake orthodontic tooth movement so that the teeth do not trap the oral soft tissues.

Self-inflicted injuries occur as well in people with acquired brain injuries and can be intransigent to treatment.^{8,9} Again, fitting a splint can protect the oral soft tissues until better function is restored (Figure 10). Young children who, because of feeding difficulties are fitted with a PEG, and have nil by mouth, accumulate large quantities of calculus (Figure 11). This is impossible for carers to remove and they are not unnaturally worried that chunks will break off and be inhaled. Before resorting to a general anaesthetic to remove such deposits it is vital to ensure that, thereafter, carers will be able to prevent such deposits accumulating. Otherwise, you are committing the child to repeat general anaesthetics, an unacceptable practice. A helpful aid can be an oral suction device attached to a toothbrush (Figure 12). This enables carers to clear oral secretions whilst brushing. This is vital in such patients who often have a degree of dysphagia, a pronounced gag reflex as well as heightened circum-oral sensitivity, making mouth cleaning especially challenging.

Another habit that upsets families, carers, and sometimes peers, is drooling. This is not only a feature seen in cerebral palsy but also in Down syndrome and patients who have had a CVA. There are a number of treatment modalities to manage this distressing complaint.^{10,11} The general principle is to commence with the least invasive. This may simply be using an oral screen (Figure 13) in conjunction with behaviour management strategies, to encourage a lip seal in a compliant child. For other, less able patients, drug therapy, using scopolamine patches (Figure 14), botulinum toxin injections into the salivary glands, or even surgery to remove glands and/or re-route saliva



Figure 14: A Scopolamine patch is worn on the mastoid process and changed every 72 hours. The reaction experienced by some patients to scopolamine which necessitates removal of the patch.



Figure 15: Rampant caries of lower incisor teeth within 12 months of desalivation.



Figure 16: Placing concentrated fluoride varnish for a child with Down syndrome to prevent dental decay.

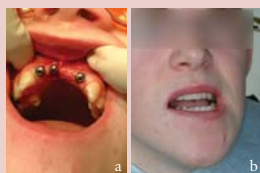


Figure 17: A patient with cerebral palsy, epilepsy and a learning disability with (a) implant fixtures, and (b) the finished bridge to replace traumatically avulsed upper anterior teeth.



Figure 18: A patient with Sturge-Weber syndrome who required cryotherapy to the (a) haemangioma of his palate to prevent trauma and thus bleeding from the opposing lower incisor teeth. (b) A splint has also been fitted to prevent a recurrence.



Figure 19: Drug induced overgrowth in a patient who needs gingival surgery to allow teeth to erupt.

ducts can be considered. The latter has a significant morbidity, especially for the teeth, deprived of protective saliva, which in a matter of months develop rampant decay (Figure 15) in lower incisor teeth, which are usually decay-resistant. Aggressive prevention with concentrated topical fluoride varnishes help but may not entirely halt the spread of the decay (Figure 16).

People with poorly controlled epilepsy often lose teeth as a result of trauma during a seizure. Replacement of lost anterior teeth can be a dilemma if the seizures are poorly controlled since teeth may also be lost from a prosthesis, and could be inhaled. In a patient where this is not the case, a bridge or a well-fitting denture can be fitted. For some patients with cerebral palsy, a lack of manual dexterity means that it is impossible to insert and remove a denture and implants can be

considered in such cases (Figures 17a + b)

Drug induced gingival overgrowth is a major management issue in dental care – it affects patients with seizure disorders, acquired and congenital (Figure 18) as well as a consequence of immunosuppression post-transplant. Alternative drug regimes may be a possibility but otherwise, oral hygiene, even eruption of teeth in the growing patient (Figure 19), can be an issue.

For all these patients, early diagnosis, good interdisciplinary care – so that the dental team, especially the hygienist – is involved in the planning and ongoing care with the medical team, can avert many of these problems that are known to impact significantly on quality of life for these patients.^{3,12} As well, much of the morbidity, and for some, mortality, associated with dental disease and its management, can be avoided altogether.¹³

References

- World Health Organisation. *International Classification of Functioning, Disability and Health (ICF)*. Geneva: World Health Organisation, 2001.
- Faulks D, Hennequin M. *Defining the population requiring special care dentistry using the international classification of functioning, disability and health – a personal view*. J Disabil Oral Health. (In Press).
- British Society for Disability and Oral Health. *Clinical guidelines and integrated oral care pathways for the oral healthcare of people with learning disabilities*. 2001. <http://www.bsodh.org.uk/guidelines/Dianatru.pdf> Accessed 1st October 2006
- British Society for Disability and Oral Health. *Principles on intervention for people unable to comply with routine dental care*. 2004 <http://www.bsodh.org.uk/guidelines/PIDocument.pdf>. Accessed: 1st October 2006
- Ahlborg B. *Practical Prevention*. In : Disability and Oral Health. Nunn J (Ed). Federation Dentaire Internationale World Dental Press Ltd 2000.
- Rees JS, Jara L, Ondarza A, Mistry P, Laing E, Odell O. *A comparison of tooth wear in children with Down syndrome, children with intellectual disability and children without disability*. J Disabil Oral Health 2004;5:3-12.
- Machuca G, Rodríguez S, Vargas M-P, Suárez C, Bullón P. *Management of Riga-Fede disease – A case report*. J Disabil Oral Health (In Press)
- Millwood J, Mackenzie S, Munday R, Pierce E, Fiske J. *A report from an investigation of abnormal lip reflexes and awareness levels in patients with profound brain damage*. J Disabil Oral Health 2005;6:72-9.
- Griffiths JE, Boyle S. *Holistic Oral Care. A Guide for Health Professionals*. Stephen Hancocks Publishing Ltd. 2004:201-02. ISBN 0-94561452-6
- Nunn JH. *Drooling. A review of the literature and proposals for management*. J Oral Rehab 1999;27:735-43.
- Andersson-Norinder J, Sjögreen L. *Orofacial dysfunction*. In : Disability and Oral Health. Nunn J (Ed). Federation Dentaire Internationale World Dental Press 2000.
- Glassman P, Folse G. *Financing oral health services for people with special needs: projecting national expenditures*. J Calif Dent Assoc. 2005;33:731-40.
- Liao CC, Chen YH, Yang CY. *Mortality after full mouth rehabilitation under general anaesthesia for a child with Tetralogy of Fallot: report of a case*. J Disabil Oral Health 2006;7:35-42.