Dental neglect in children

Jenny Harris

Abstract

Untreated dental diseases, particularly dental caries, can lead to a range of adverse impacts on children, including pain and infection. Yet caries is preventable if a child's basic oral health needs are met. Dental neglect occurs when there is persistent failure to meet those needs. Dentists and paediatricians can work together with other health and social care professionals to identify children with dental neglect and to intervene to safeguard their oral and general health and development.

Keywords child abuse; child neglect; child welfare; dental care for children; dental caries; dental decay; prevention

Introduction

Dental caries is one of the commonest diseases of childhood both in the UK and worldwide. In the USA it is five times more common than asthma. Since it is both preventable and treatable and, in the UK, children have free-of-charge access to dental care, good oral health should be attainable for every child.

However, the Child Dental Health Survey 2003 reported:

- by the age of 5, 43% of children have obvious caries experience and 5% have had teeth extracted under general anaesthesia
- 34% of 12-year-olds have obvious caries experience in permanent teeth
- 16% of 5-year-olds and 26% of 12-year-olds complain of toothache or sore mouth.

Educating parents and children in how to prevent dental caries has, for a long time, been considered an essential part of any course of dental treatment. However only within the last decade has the dental profession in the UK begun to understand fully the safeguarding implications of untreated dental disease. Rather than simply preventing and treating disease, the importance of promoting children's general health and well-being is now increasingly recognized. Identifying children with dental neglect presents an opportunity to intervene early to safeguard them or, if the child is at risk of significant harm, carries an obligation to make a child protection referral to children's social care. At the present time this remains a developing area of dental practice with sparse supporting literature.

Definition of dental neglect

Dental neglect was defined in 2009 by the British Society of Paediatric Dentistry as "the persistent failure to meet a child's basic oral health needs, likely to result in the serious impairment of a child's oral or general health or development". The long-standing American Academy of Paediatric Dentistry's definition is "the wilful failure of parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection".

To understand dental neglect requires first an understanding of dental development, dental diseases (particularly dental caries) and dental treatment provision. This article provides a review of current thinking on dental neglect together with sufficient background information on common oral conditions and their treatment to enable paediatricians and other health professionals to work with dental colleagues to jointly plan appropriate interventions for dental neglect and, when necessary, to interpret whether a child is at risk of significant harm. A glossary of common dental terms is provided in Table 1.

Dental development

Normal development

Development of the dentition follows a typical sequence but with some variation in the age at which teeth erupt. The primary (or deciduous) dentition is composed of 20 teeth which usually emerge between the ages of 7 months and 3 years. Permanent incisors and first molars usually start to erupt at age 6, heralding the start of the mixed dentition. Parents are sometimes surprised that their 6-year-old children have permanent molar teeth, which will not be replaced if extracted, present alongside primary molars which will in due course be replaced by permanent successors. The permanent dentition is established once all primary teeth have exfoliated, usually around the age of 12.

Developmental anomalies

Teeth can be affected by inherited or acquired anomalies of number, form, structure and eruption. Examples are:

- number: missing teeth (hypodontia) or extra (supernumerary) teeth
- form: tooth size (microdont, macrodont) or shape (double teeth, invaginated teeth)
- structure: dental enamel (molar-incisor hypomineralisation, amelogenesis imperfecta), dentine (dentinogenesis imperfecta) or combinations of dental hard tissues (dilaceration following dental trauma)
- eruption: ectopic teeth, premature or delayed eruption.

Dental anomalies show wide variation in severity. Some of these conditions are readily treatable, others result in tooth loss or require lengthy and complex treatment and lifelong maintenance.

Common oral conditions and treatment

Dental caries

Dental caries is a multifactorial disease of the dental hard tissues resulting from interactions over time between acidogenic bacteria (predominantly mutans streptococci), a dietary sugar substrate and many host factors including the components of saliva. There is a strong association between caries experience and sociodemographic factors, with children living in deprived neighbourhoods having higher decay experience than their non-deprived peers: 60% of 5-year-olds in deprived schools with

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Glossary of common dental terms

Development	
Eruption	Emergence of a new tooth through the gingiva (gum)
Exfoliation	Spontaneous loss of a tooth, usually when a primary tooth is replaced by its permanent successor
Quadrant	The teeth in one half of a dental arch e.g. the upper right quadrant extends from the midline to the most distal upper right molar
Dental tissues	Enamel, dentine, pulp, cementum, gingiva, periodontal ligament
Diagnoses	
Dental caries	Destruction (decay) of dental hard tissues by acidic by-products from bacterial fermentation of dietary carbohydrates
Dental plaque	Bacterial biofilm on the tooth surface, removed by toothbrushing
Gingivitis	Inflammation of the gingival margin, usually plaque-related due to poor oral hygiene
Periodontitis	Progressive destruction of the supporting tissues of the tooth ('gum disease'); rare before puberty
Calculus	Hard deposit of mineralized plaque; gross deposits uncommon except in children with complex disabilities, especially if non-orally-fed
Pulpitis	Inflammation of the dental pulp (nerve); acute or chronic; can progress to dental abscess if pulp becomes necrotic
Dental abscess	Abscess in the periapical tissues (at the root apex); acute with severe pain and risk of spreading infection or chronic discharging sinus with intermittent discomfort
Dental trauma	Injuries to teeth: (a) fractures defined by the tissues affected e.g. enamel, dentine, pulp and (b) luxation injuries defined by the degree of loosening and the direction of movement
Tooth surface loss	Toothwear due to erosion (e.g. from acidic drinks or gastric reflux), attrition (e.g. from tooth grinding) or abrasion (e.g. from abrasive foodstuffs), alone or in combination
Treatment	
Preventive care	Use of fluorides, fissure sealants, oral hygiene instruction and dietary counselling to prevent oral disease
Fissure sealants	Resin coating applied to teeth to prevent caries
Scaling	Removal of calculus
Restoration	Removal of decayed or damaged tooth tissue and repair with a suitable material (a filling) or custom-made replacement (e.g. crown, inlay, veneer)
Endodontic treatment	Treatment for the diseased dental pulp ('root filling')
Extraction	Irreversible removal of the tooth

Table 1

obvious decay as compared to 40% in non-deprived schools. There are also marked regional inequalities in oral health. In 12-year-olds surveyed in 2008/09 the range between children living in the 'best' and 'worst' PCT areas in England was for caries prevalence 13%–56% and for decay severity 0.2–1.59 D3MFT (obvious decayed, missing, filled permanent teeth).

Caries usually progresses slowly over months or years with opportunity for early diagnosis of the non-cavitated lesion, which first appears as a white then a brown spot. At this stage risk factors can be modified in order to prevent progression to a cavitated lesion (Figure 1). Remineralization can occur in a favourable environment in the presence of fluoride. Even cavitated lesions can become 'arrested' in a favourable environment. However when there are overwhelming risk factors, for example the frequent or night-time consumption of juice from a bottle, caries may progress rapidly over a matter of months. This pattern of disease in pre-school children is known as severe early childhood caries (S-ECC) and affects smooth tooth surfaces not usually prone to decay (Figures 1 and 2).

In its early stages within enamel and the superficial dentine, caries is asymptomatic. Once progressed more deeply into dentine, symptoms of pulpitis may occur. Usually initial symptoms are intermittent and can be reversed by restoration of the tooth. Progression to irreversible pulpitis typically results in severe pain which keeps children awake at night and is only partly relieved by analgesics. Necrosis of the dental pulp follows and, after a variable interval, a dental abscess may develop with further pain and the risk of spreading infection. Endodontic treatment or extraction are then the only remaining definitive treatment options. Antibiotics and analgesia are used in emergency care but are never a permanent treatment for a dental abscess. In children who do not receive definitive treatment, spontaneous discharge of pus though a sinus or 'gum boil' may initially alleviate pain but continue to cause intermittent

Figure 1 Four-year-old girl with S-ECC who has missed appointments for a dental clearance (extraction of all her teeth) under GA. (Reproduced with kind permission of Oxford University Press from Welbury, Duggal, Hosey. *Paediatric Dentistry*, 4th Edn, 2012).