

Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by Paul Hellyer.

Root caries

AlQranei M S, Balhaddad A A, Melo M A S. The burden of root caries: Updated perspectives and advances on management strategies. *Gerodontology* 2021; **38**: 136-153.

An ongoing worldwide problem.

Root caries is any carious lesion which occurs on the root surface of the tooth and is more prevalent in older people. Lesions are discoloured, softened and ill defined but may or may not be cavitated. Dentine has a higher percentage of organic material than enamel and demineralises at a higher pH (6-6.8) than enamel (5.4). Additional risk factors for root caries, in addition to the presence of carbohydrates and bacteria, include reduced ability to maintain oral hygiene and reduced salivary flow. Diagnosis is made on visual criteria and radiographically. Gentle tactile examination with an explorer may also be used with care because of the potential for damage to early lesions, thus inducing cavitation.

Restorative treatments for root caries lesions have poor prognosis due to the close proximity of the gingival margin, the difficulties of isolation and problems associated with bonding to dentine. Lesions tend to spread laterally making them shallow but extensive, and proximally, difficult to access. When necessary, resin modified glass ionomer cements are the restorative materials of choice. Composite resins and calcium silicate cements have lower survival rates. Non-invasive and preventive strategies are preferable.

Successful prevention depends on changing dietary habits, disturbing the biofilm, reducing the presence of plaque, promoting remineralisation and inhibiting demineralisation. Early intervention to prevent loss of periodontal attachment and consequent exposure of the root to the oral environment is important. As with coronal caries, reduction in the frequency of the consumption of food and snacks that are high in sugar is important. Plaque removal techniques should focus on high risk areas such as proximally and surfaces abutting a denture. Patients with xerostomia should be recommended to use xylitol containing products and saliva-inducing medications.

Fluoride has been shown to be effective in preventing root caries, either in toothpaste, in rinses or by professional topical application. Higher concentration 5000 ppm NaF dentifrices are more effective than lower concentrations. Topically applied fluoride both prevents and arrests existing lesions. The application of chlorhexidine varnish may be beneficial. The application of silver diamine fluoride has also been shown to arrest root caries lesions.

With the anticipated increase in the worldwide population of people aged over 65 from 12% to 22% by 2050, many of whom are retaining their natural dentition into old age, root caries is expected to be one of the main challenges in dentistry in the next decades.

<https://doi.org/10.1038/s41415-021-3234-2>

Deep coronal caries

Edwards D, Bailey O, Stone S, Duncan H. The management of deep caries in UK primary care: a nationwide questionnaire-based study. *Int Endod J* 2021; DOI: 10.1111/iej.13585.

Further education is needed.

Deep coronal caries is defined as reaching the inner quarter of dentine radiographically and bacteria are largely confined to the dentine. Extremely deep caries extends through the entire thickness of dentine and bacteria are likely to be in contact with the pulp. Selective removal of infected dentine in deep lesions, rather than total removal, reduces the risk of pulp exposure and pulpal symptoms, and increases the likelihood of maintaining vitality. Management of deep carious lesions requires a detailed history of signs and symptoms, including radiography, vitality and percussion testing. Treatment requires an aseptic technique using rubber dam and sealing the cavity with an appropriate material which prevents bacterial ingress and encourages dentinogenesis.

An e-survey was undertaken to understand primary care practitioners' practice and attitudes to the management of deep caries lesions. A total of 657 valid responses were received from a wide range of sources including NHS, private and mixed practices, military and community dentists and dental therapists. Shown a series of bitewing radiographs, 97.7% of respondents could identify deep caries. A majority would seek further information before treatment, including percussion testing (PT) but only half would undertake vitality testing with cold. Electric pulp testing (EPT) was used more frequently in non-NHS practices and by those with a postgraduate qualification.

Ten percent of NHS practitioners would place rubber dam before carious tissue removal as opposed to 44% of private practitioners and 50% of salaried practitioners. Complete, as opposed to selective removal of caries, was practised by 41% of respondents. Disinfection of dentine was rarely carried out. Beneath a direct composite restoration, more than half of respondents would place a lining material. Of those, 47% would use a resin modified glass ionomer cement (RMGIC), 20% a glass ionomer cement (GIC), 19% a calcium silicate cement (CSC) and 16% calcium hydroxide (CH). Ninety percent of respondents had access to CH but only 38% to CSC. CSCs were more likely to be available in practices located in more affluent postcodes. More respondents had access to CSCs than mineral trioxide aggregate (MTA).

These data suggest potential health inequalities between NHS and non-NHS provided services. NHS practitioners were found to be more likely to be reliant on pulpal tests of poor specificity (PT) and less likely to use EPT and thermal sensitivity testing, less likely to use rubber dam and having limited access to newer materials such as CSCs. There is an urgent need to disseminate current guidelines for the management of deep caries lesions into primary care.

<https://doi.org/10.1038/s41415-021-3240-4>