

Tips & tricks and FAQ

Back to your roots!

MI treatments for root caries



Are there any special considerations for treating root caries in elderly or medically compromised patients?

Every patient should be treated primarily as an individual* and the treatment plan should be tailored to his or her specific conditions and needs. The patients that fall into the older adult group and medically compromised patients do need some adjustments in their treatments. Firstly, a dentist should be familiar with the common conditions and medications of this patient group. Many of them can impact dental treatment or pose a contraindication for a certain procedure. Secondly, a dentist should also be aware of the patient's social environment, frailty level and self-care skills and anticipate difficulties such as achieving adequate oral hygiene or visiting the dental office at regular intervals. Lastly, a dentist should keep in mind that older adults and medically compromised may present with a diminished capability for cooperation during dental visits. The general recommendation is to schedule this patient in the morning hours, after they had breakfast, and to keep dental appointments short. For this purpose, a dentist will have to choose appropriate materials to work with that will allow for fast and efficient procedures.

* Pretty et al, Gerodontology. 2014 Feb;31 Suppl 1:77-87



What preventive measures can be recommended for patients at risk of root caries?

Older adults need comprehensive oral care with strong emphasis on prevention. Depending on the patients' condition, different levels of prevention can be employed. The basic preventative measure for any patient is always education and help with adequate oral hygiene. The patient has to be instructed and if needed helped maintain their oral hygiene and the hygiene of any removable prosthesis by their caregivers. Furthermore, home care can be complimented with Mi Paste Plus for enhanced protection and promotion of favorable ionic balance. Due to Recaldent complex (CPP-ACP), calcium, phosphate and fluoride are delivered directly to tooth surface, and they strengthen the weakened tooth structure. Regular dentist visits are crucial for effective prevention. During the visit, a dentist will perform a complete check-up and asses current caries risk and required measures. A dentist can also apply MI Varnish with high fluoride content and Recaldent for further protection. Exposed and at-risk root surfaces can be covered and protected with Fuji Triage.



What is Recaldent and why is it useful in root caries treatment?

RECALDENT™ is derived from casein, the milk protein. Recent research has shown that milk's protective effect lies in a part of the casein protein called casein phosphopeptide (CPP), which carries calcium and phosphate ions as Amorphous Calcium Phosphate (ACP). Calcium phosphate is usually insoluble; in other words, it forms a crystalline structure at neutral pH. However, the CPP keeps the calcium and phosphate in an amorphous, non-crystalline state, much like the saliva's mineral components. This means that the CPP-ACP complex, or RECALDENT™, is the optimal way to deliver calcium and phosphate ions to the surface of the tooth and within dental plaque.

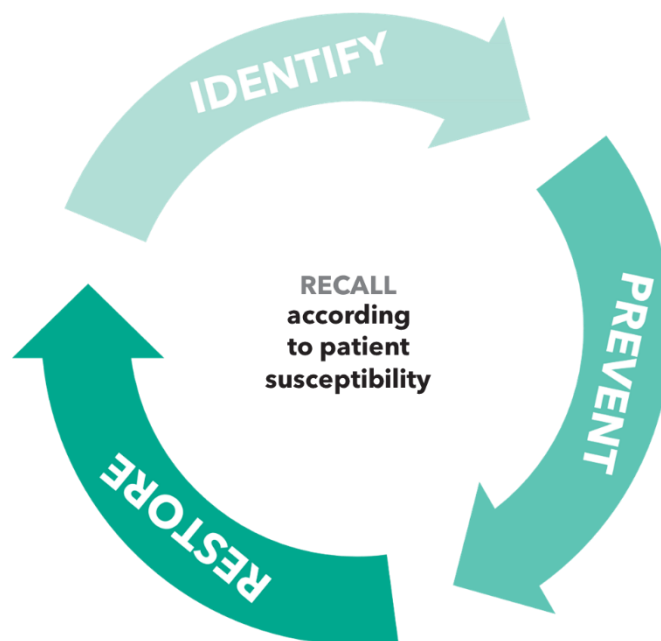
Recaldent can be very useful in prevention and treatment of root caries, as it protects the root surfaces, reduces hypersensitivity and reverses early carious lesions.



Use of Recaldent products counters the effects of acid onto the teeth surface by delivering calcium and phosphate ions.

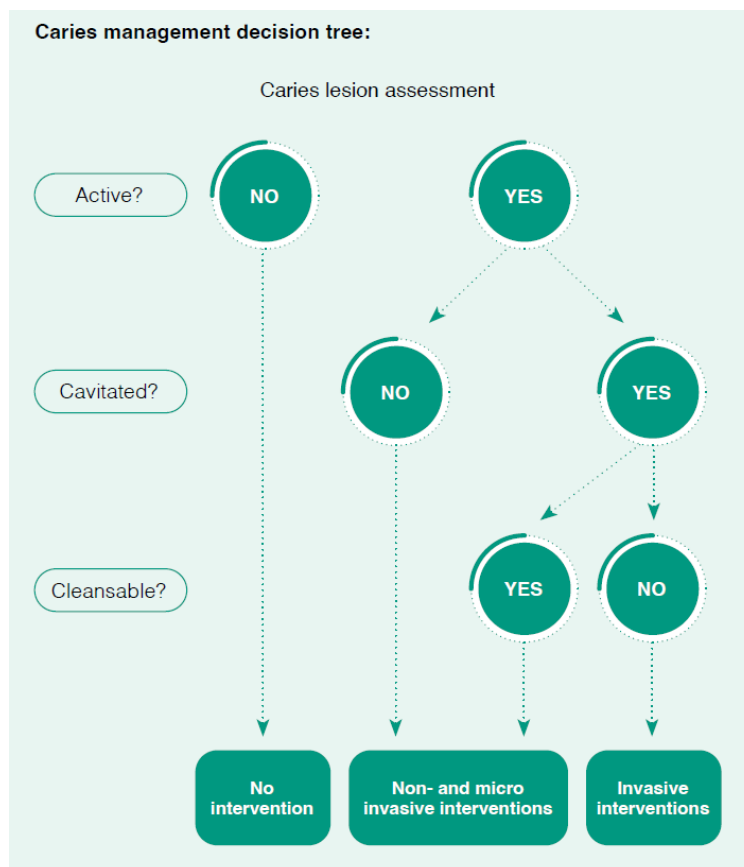
What are the treatment options for root caries?

Simply removing the carious tissue and filling the cavity with a restorative material is not enough in cases of root caries. In order to effectively stop the disease, the treatment of root caries has to be holistic and focused on prevention. Due to the population that is most affected being older adults, the treatment has to take in account the socio-economic factors, the general health of the patient and always include planning for the future. GC's MI approach to root caries offers a truly holistic and long-term treatment planning. The approach includes prevention of the disease, identification of risk factors and restoration of irreversible lesions. Following the three steps, combined with recall appointments, helps clinicians draft and execute a holistic and individually tailored treatment plan.



When is restoration of root caries necessary?

Not all root caries lesions need to be restored. MI approach strives for minimum interventions, depending on the type of lesion. Inactive lesions don't require restorations. Active but non-cavitated lesions can be managed with non-invasive and micro invasive interventions such as protection and restoration of ionic balance with MI Varnish and Mi Paste Plus or arresting the lesion with silver diamine fluoride. More aggressive lesions (active and cavitated) require a more invasive restoration, but with products such as Equia Forte HT and Fuji II LC, and use of selective carious removal technique, the invasiveness of the preparation can be kept to minimum.



Caries management decision tree is based on: Schwendicke, Falk et al.. (2019). When to intervene in the caries process? An expert Delphi consensus statement. *Clinical Oral Investigations*. 23. 10.1007/s00784-019-03058-w.

What should I do if I cannot isolate the lesion?

Root caries lesions often pose a challenge of effective isolation, due to their proximity to gum tissues. Furthermore, the patients that are most often affected – older adults – may present with physical and mental challenges which minimize their tolerance for rubber dam isolation. The difficult isolation is further potentiated by very common inflammation of gingiva that is prone to bleeding. In these cases, a choice of restorative material becomes very important. A clinician must choose a moisture tolerant, easy to handle material, that will be able to withstand the difficult conditions of placement. Glass ionomers and glass hybrids, such as Fuji II LC and EQUIA Forte HT, are an excellent option as they offer unparalleled moisture tolerance, fast and easy handling and placement, and good physical properties. These materials are cited as the materials of choice for treatment of root caries by numerous geriatric dentist and specialists.



How can I best manage treatment of uncooperative patients?

Due to possible comorbidities on older patients, it can be expected that some patients will have a hard time cooperating with the dentist during their appointment. For these patients, prevention is absolutely essential in maintaining their oral health. Use of MI Varnish and Mi Paste Plus can support an oral environment in which the presence of fluoride ions can create a favorable situation for hard tissue remineralization. MI Varnish can be applied during the visits in the dental office, and MI Paste Plus can be easily and effectively applied at home by the patient or caregivers. In light of preventative principles, the exposed root surfaces can be protected with Fuji Triage.

The dental procedures should be fast and atraumatic for the patient. EQUIA Forte HT and Fuji II LC offer fast bulk placement. Furthermore, Fuji II LC can be light-cured and therefore the placement time can be made even shorter, which makes it ideal for patients that cannot effectively cooperate or keep their mouth open for a longer time.



What is the best treatment for patients with several root caries lesions at once?

Several root caries lesions can be treated in one appointment, with considerations to patient's general status and cooperation ability. The time is usually a critical component, so materials that allow for fast placement should be used. EQUIA Forte HT and Fuji II LC offer fast bulk placement. Furthermore, Fuji II LC can be light-cured and therefore the placement time can be made even shorter. When the material of choice is composite, G-aenial Universal Injectable offers fast and easy placement and definitely saves the time. Any restorative intervention has to be combined with preventative measures.



Multiple MI restorations of root caries lesions with Fuji II LC, one month after placement.

Courtesy Dr AmrEldeeb Core Team, Ain Shams University, Cairo, Egypt

Which is the most cost-effective treatment for patients with limited means?

The most cost-effective treatment for patient with limited means is preventative measures, combined with restorations of glass ionomers or glass hybrid materials, such as Fuji II LC and EQUIA Forte HT.



What is EQUIA Forte HT?

EQUIA Forte HT is a strong, cost effective, biocompatible long-term bulk fill restorative system (Fil & Coat) with enhanced mechanical properties, excellent handling and improved translucency. The unique glass hybrid technology with intelligent particle size distribution and synergistic coat make EQUIA Forte HT restorative system a versatile and durable restorative solution, ideal for patients of all ages, including pediatric, geriatric, high caries risk and special care patients.

Additionally, glass hybrid materials show good adhesive potential to sclerotic dentine, commonly found in older adults. *

The abovementioned qualities make EQUIA Forte HT an excellent material of choice for root caries restorations, where speed, strength and moisture tolerance are of high importance.

Discover more at: <https://campaigns-gceurope.com/equia-forte-ht/>

* Schwendicke F, Müller A, Seifert T, Jeggler-Engbert L-M, SebastianParis S, Göstemeyer G. Glass hybrid versus composite for non-carious cervical lesions: Survival, restoration quality and costs in randomized controlled trial after 3 years. J Dent 2021, Vol. 110:103689

Is the use of coating obligatory when restoring with EQUIA Forte HT?

Yes, use of EQUIA Forte coat is obligatory. EQUIA Forte Coat nano-fillers increases surface hardness, flexural strength and wear resistance for long-lasting restorations. Only by using both EQUIA Forte HT and EQUIA Forte Coat, can the system be indicated for long-term restorations.



How long will the restoration of Equia Forte HT last for the indication of root caries? Is there any data available?

There is a lot of research available on effectiveness and longevity of glass hybrid restorative materials. A longitudinal clinical study* beginning in 2018 is aiming to compare EQUIA Forte HT with composite restorations. The study concluded that there was no significant difference in clinical performance between EQUIA Forte HT and composite restorative materials over the period of 60 months. This conclusion suggests that EQUIA Forte HT performs well over a long period of time, even comparable to composite restorations.

** Gurgan S, Koc U, Meral E, Ergin E.: Sixty-Month Follow-up of a Glass Hybrid in NCCLs. 2022. Dent Res Vol 101 (Spec Iss C): P319*



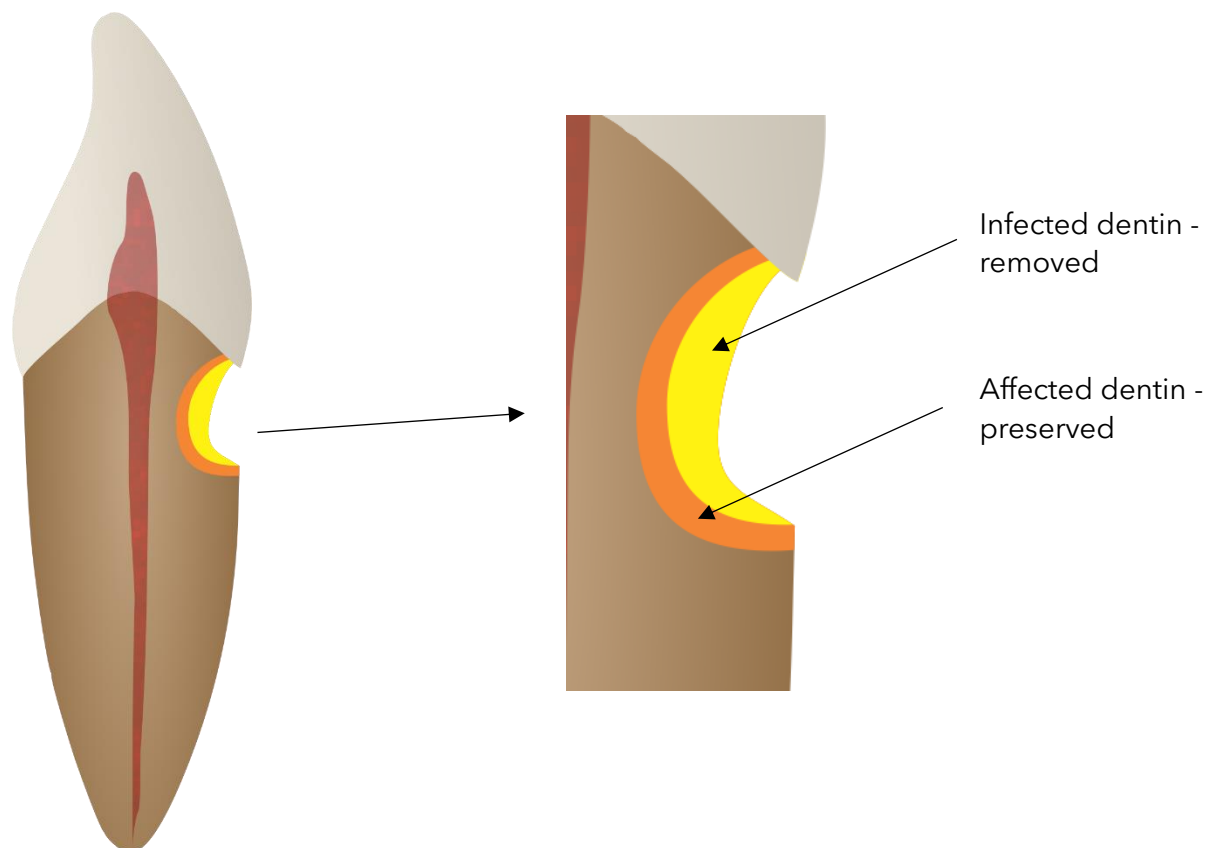
Multiple root caries restorations with Equia FORTE HT immediately after placement



6,5 years recall

How can we manage pain and discomfort associated with root caries and its treatment?

Exposed root surfaces and root caries cause hypersensitivity and pain. Aggressive lesions can even lead to pulpitis, pulp necrosis and abscesses if not treated. The burden of the disease is high for the patients; therefore prevention is of extreme importance. Once root caries has developed, a dentist can alleviate the pain caused by it by preventing hypersensitivity and promoting favorable ionic balance of incipient lesions with fluoride rich products (such as MI Past Plus and MI Varnish). Incipient carious lesions and exposed root surfaces can also be protected with Fuji Triage. During the restoration procedure, application of local anesthesia is an option for preventing any pain associated with the procedure. When selective caries removal technique is used, often there is not even a need for a local anesthesia and therefore the patient's discomfort is truly minimized.



When should I use a composite material for root caries restoration?

Composite materials can be used when restoring root caries lesions, in cases where the size of the lesion is limited, and the carious tissue can be removed in its entirety. Another important factor is the possibility of complete isolation of the working area – rubber dam use is required for composite restorations. A dentist must consider the described factors and take into account also the patient's capability for cooperation, tolerance for rubber-dam isolation, and good abilities of maintain excellent oral hygiene. If all the criteria are met, a composite material can be a highly esthetic long-term solution for a root caries lesion. G-aenial Universal Injectable can be an excellent material of choice in this case, as it enables fast, ergonomic and efficient placement, highly aesthetic outcome and wear resistant surface. Furthermore, the high polishability of G-aenial Universal Injectable acts protectively as the smooth surface prevents the retention of plaque, which is a big benefit in elderly patients that often cannot keep up efficient oral hygiene.



Highly aesthetic cervical restoration with G-aenial Universal Injectable
Courtesy Dr Javier Tapia Guadix, Spain



How to ensure a solid adhesion of the composite material in this area?

Due to the lack of enamel on the root surfaces, the adhesion of composite materials can be very challenging. The first prerequisite for efficient adhesion is to ensure truly sound dentin margins of the preparation. If this cannot be achieved, glass hybrids and glass ionomers might be a better choice. When sound margins can be achieved and all other criteria for composite placement is satisfied, an adhesive with good bonding ability do dentin must be used. GC offers an adhesive solution that shows very high bond strengths to dentin and enamel and minimizes the risk of hypersensitivity: G-Premio BOND.



How often should the recall of older adult patients be?

It's essential for older adults and their caregivers to have an open and ongoing conversation with their dentist to develop a personalized dental care plan that takes into account their unique needs and circumstances. Regular dental check-ups are crucial for maintaining oral health and preventing dental issues, and they become even more important as people age to ensure that any problems are detected and addressed promptly. The recall interval varies a lot among the dental professionals. Some recommend all adults to see a dentist every 6 months, but older adults with high caries risk might need even more frequent visits: even every 3 to 4 months.

Keep in mind these questions when assessing the recall needs of your patients:

- Is the bacterial environment under control?
 - Do the plaque test, bacterial tests or the salivary tests.
- Does the home care seem to be efficient?
 - Evaluate the efficiency of at-home treatment
 - Look out for the signs of demineralization
- Check if there is remineralization or not
- Check if the dental restorations are stable
- Evaluate if the diet risks are still present
- Check the evolution of the lesion(s) on the X-rays

For more information visit:

https://www.gc.dental/europe/sites/europe.gc.dental/files/products/downloads/mivarnish/leaflet/LFL_MI_Dentistry_Handbook_en.pdf

What are the long-term outcomes and prognosis for patients with root caries?

Long term prognosis of patients with root caries can be improved, if the disease is treated holistically.

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. Noninvasive and preventive strategies are preferable. *

Literature shows that the best long-term prognosis can be attributed to restorations made of glass ionomer cements and modified glass ionomer cements. **

** 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*

*** Carilho MRO: Root Caries: From Prevalence to Therapy. Karger.2017.*

*** Ghilotti, J.; Mayorga, P.; Sanz, J.L.; Forner, L.; Llana, C. Remineralizing Ability of Resin Modified Glass Ionomers (RMGICs): A Systematic Review. J. Funct. Biomater. 2023, 14, 421.*

*** Cheng, L., Zhang, L., Yue, L. et al. Expert consensus on dental caries management. Int J Oral Sci 14, 17 (2022).*

How can we educate patients about the importance of root caries prevention and early intervention?

As with any disease, patient education is of big importance for long-term success of the treatment. In the fast-paced everyday work environment, it could be difficult to adequately explain to the patients, and the patient might not successfully retain a large amount of information. For this reason, GC wants to make it as simple and as informative as possible – introducing GC's new patient leaflet that presents the risks and solutions in an efficient and understandable way. Let this leaflet be your helper in raising awareness among the patients and helping improve overall oral health of our older adults' population!

https://www.gc.dental/europe/sites/europe.gc.dental/files/products/downloads/equiaforteht/leaflet/LFL_Root_Caries_Campaign.pdf

