

# Understanding sickle cell disease and dental treatment

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Sickle cell disease (SCD) is a genetic blood disorder that affects millions of people, particularly those of African descent. It alters the shape of red blood cells and causes them to become rigid and sickle-shaped, which can obstruct blood flow and lead to complications throughout the body.

While the primary focus of SCD management centers around its systemic effects, its impact on dental health and treatment should not be overlooked. Dental professionals must be aware of the unique challenges posed by SCD to ensure safe and effective dental care for patients with this condition.

## What to watch for in SCD patients

One of the most significant concerns in dental treatment for people with SCD is the risk of a vaso-occlusive crisis. These painful episodes occur when sickle-shaped red blood cells block blood vessels, leading to tissue ischemia and severe pain. Dental procedures that cause tissue trauma or inflammation, such as extractions or periodontal treatment, can trigger these crises.

Careful planning and coordination between dental and medical providers are essential to minimize the risk of complications. Preoperative evaluation should include assessing the patient's overall health status, current hematologic profile, and recent history of vaso-occlusive events to determine the optimal timing and approach for dental interventions.

Prolonged stress is a significant factor in triggering a sickle cell crisis. Dental appointments should be short. Using dental materials that set quickly, are

wear-resistant, have excellent marginal integrity, and provide predictable results is particularly beneficial for SCD patients. Fast-setting materials reduce the time patients must spend undergoing procedures, thereby minimizing stress.

## Dental products that help

One such material is GrandioSO flowable light-cured composite (VOCO), which is used as a floor liner and in conservative occlusal preparations. The material combines durability and reli-

proper sterilization of instruments, strict aseptic techniques, and prophylactic antibiotic therapy when indicated are crucial to prevent complications in SCD patients undergoing dental treatment.

We've found that VOCO's ProFluorid Varnish is highly effective for our SCD patients, especially after routine cleanings. This 5% sodium fluoride varnish is transparent and easy to apply. It treats hypersensitive teeth, alleviates discomfort, and reduces complications. Its single dose delivery system is convenient for patients with limited tolerance because SCD can cause oral issues that can affect dental care.

## Adapt treatment plans properly

Chronic anemia associated with SCD can result in mucosal pallor, delayed wound healing, and increased susceptibility to oral infections such as candi-



able performance, making it ideal for treating SCD patients who require efficient and effective dental care with minimal stress.

Furthermore, SCD patients are often more susceptible to infections due to impaired immune function and functional asplenia, which is when the spleen fails to effectively filter bacteria from the bloodstream. Dental procedures that breach the oral mucosa, such as scaling and root planing, or invasive restorative work, can increase the risk of bacteremia and subsequent systemic infection. Meticulous infection control measures,

Patients may experience delayed eruption of permanent teeth, malocclusion, or enamel hypoplasia due to chronic hypoxia and nutritional deficiencies during development. Dental professionals should recognize these oral manifestations and adapt treatment plans to provide optimal care.

Moreover, SCD patients may have underlying medical conditions or comorbidities that require special consideration during dental treatment. Individuals with SCD are at increased risk of developing osteonecrosis of the jaw (ONJ) due to the use of

bisphosphonates for the management of bone pain or complications such as avascular necrosis.

Dental procedures that involve bone manipulation, such as extractions or implant placement, may exacerbate

during and after dental treatment. Opioid use should be judiciously monitored to minimize the risk of addiction and adverse effects, especially in those with a history of opioid sensitivity or substance abuse.

are essential to optimize dental treatment outcomes and improve the quality of life for patients with SCD. By addressing these challenges proactively, dental professionals can help mitigate the impact of SCD on oral health and overall well-being. **RDH**

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#### Linda Chandler-Jacobs, BS, RDH

Linda has been in dentistry since 1977. She is past president of the Southeast National Dental Hygiene Association and was voted Top Dental Hygienist of the Year in 2012. Her expertise about sickle cell disease developed from years of interaction with patients affected by SCD. Linda served on the Board for Sickle Cell Houston, and is the founder of The Potters Smile, the only known 5013C in the US that addresses the dental needs of those with SCD.

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#### Jean Morency, DMD

Jean earned his DMD from Harvard, then entered the postgraduate prosthetic dentistry program and earned a Master of Science and a teaching Fellowship. Dr. Morency prioritizes advanced, world-class education to elevate his abilities and allow him to provide exceptional care. He completed the master's course in aesthetic dentistry at the Las Vegas Institute for Advanced Dental Studies and earned the Degree of Graduate of the Institute, an honor achieved by only 600 dentists.

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this risk and should be approached cautiously, with close monitoring for signs of ONJ postoperatively. Pain management is another critical aspect of dental care for patients with SCD. Vaso-occlusive crises can cause excruciating pain, which may be exacerbated by dental procedures.

Adequate pain control measures, including local anesthesia, nonsteroidal anti-inflammatory drugs (NSAIDs), and opioids, when necessary, should be employed to ensure patient comfort

In conclusion, sickle cell disease presents unique challenges in dental treatment due to its systemic manifestations, oral implications, and associated comorbidities. Dental professionals must have a thorough understanding of SCD and its implications to provide safe and effective care for affected individuals.

Collaboration between dental and medical providers, meticulous infection control measures, recognition of oral manifestations, and careful consideration of pain management strategies