

Surface characteristics and lesion depth and activity of suspicious occlusal carious lesions

Findings from The National Dental Practice-Based Research Network

Sonia K. Makhija, DDS, MPH; Daniel A. Shugars, DDS, PhD; Gregg H. Gilbert, DDS, MBA; Mark S. Litaker, PhD; James D. Bader, DDS, MPH; Rebecca Schaffer, DDS; Valeria V. Gordan, DDS, MS, MS-CI; D. Brad Rindal, DDS; Daniel J. Pihlstrom, DDS; Rahma Mungia, BDS, MSc, DDPHRCs; Cyril Meyerowitz, DDS, MS; for The National Dental Practice-Based Research Network Collaborative Group

Suspicious occlusal carious lesions (SOCLs) can be characterized as initial carious lesions on occlusal tooth surfaces that have no cavitation and no radiographic evidence of caries but in which the presence of a carious lesion is suspected owing to roughness, surface opacities, or staining. Such lesions may be

difficult to detect¹⁻⁵ and often present a

diagnostic challenge because of the difficulty in determining if the lesion has penetrated into dentin.^{3,6,7} Commonly, noninvasive therapies (fluoride, sealant) are recommended when lesions are confined to enamel or when dentinal lesions are inactive, whereas invasive treatments, such as preventive resin restorations or full restorations, are reserved



Supplemental material is available online.

ABSTRACT

Background. A lesion on an occlusal tooth surface with no cavitation and no radiographic radiolucency but in which caries is suspected owing to surface roughness, opacities, or staining can be defined as a suspicious occlusal carious lesion (SOCL). The authors' objective was to quantify the characteristics of SOCLs and their relationship to lesion depth and activity after these lesions were opened surgically.

Methods. Ninety-three dentists participated in the study. When a consenting patient had an SOCL, information was recorded about the tooth, lesion, treatment provided, and, if the SOCL was opened surgically, its lesion depth. The Rao-Scott cluster-adjusted χ^2 test was used to evaluate associations between lesion depth and color, roughness, patient risk, and luster.

Results. The authors analyzed 1,593 SOCLs. Lesion color varied from yellow/light brown (40%) to dark brown/black (47%), with 13% other colors. Most (69%) of SOCLs had a rough surface when examined with an explorer. Over one-third of the SOCLs (39%) were treated surgically. Of the 585 surgically treated SOCLs, 61% had dentinal caries. There were statistically significant associations between lesion depth and color ($P = .03$), luster ($P = .04$), and roughness ($P = .01$). The authors classified 52% of the patients as being at elevated caries risk. The authors found no significant associations between lesion depth and patient risk ($P = .07$).

Conclusions. Although statistically significant, the clinical characteristics studied do not provide accurate guidance for making definitive treatment decisions and result in high rates of false positives.

Practical Implications. Given that 39% of the opened lesions did not have dentinal caries or were inactive, evidence-based preventive management is an appropriate alternative to surgical intervention.

Key Words. Evidence-based dentistry; carious lesions; dentin.

JADA 2017; ■(■):■-■

The study protocol was registered at ClinicalTrials.gov (NCT02340767).

<http://dx.doi.org/10.1016/j.adaj.2017.08.009>

for active lesions that have penetrated into dentin.^{8,9} In the event of uncertainty, noninvasive treatments are recommended because the proportion of these lesions that progress is small, and progression is seldom rapid.^{8,10,11} Ismail and colleagues¹² found that although general dentists spend the bulk of their time restoring lesions, there is a growing interest in the preventive aspects of managing these lesions. It is important to gather evidence from ongoing research studies that further evaluate the characteristics of SOCLs and diagnostic, management, and treatment strategies to develop guidelines that can help dentists treat their patients and manage their oral health. Providing the appropriate care for these lesions may reduce the number of invasive procedures being performed. This is important because invasive treatment initiates the almost-inevitable reresoration cycle.¹³

Although SOCLs pose diagnostic difficulty and uncertainty, little descriptive information is available. To our knowledge, only 1 study has been conducted to estimate the prevalence of SOCLs, and it was conducted by The National Dental Practice-Based Research Network (“network”).¹⁴ The authors of this study suggested that SOCLs are commonly encountered in daily clinical practice, with approximately one-third of patients exhibiting such lesions at a given time. On average, practitioners saw 55 patients a month with an unrestored occlusal surface, which translated into approximately 19 SOCLs encountered per month. In addition, the same authors found that almost one-half of the lesions for which practitioners performed invasive procedures did not penetrate clinically into dentin.¹⁵ Although most of dentists in the network subscribe to the “restorative threshold” of caries penetrating into dentin, their ability to detect preoperatively when this penetration has occurred is not optimal.¹⁶ Given the high prevalence of SOCLs and the scarcity of descriptive information about them, gaining a better understanding of these lesions is essential for informed decision making regarding treatment. We conducted this study to quantify the characteristics of SOCLs and their relationship to caries risk and lesion depth and activity, as judged by clinicians’ reports after they surgically opened these lesions.

METHODS

The results we present here were generated as a part of a larger study conducted in dental practices in the network. The network is a consortium of dental practices established to answer questions raised by dental practitioners in everyday clinical practice and to evaluate the effectiveness of strategies to prevent, manage, and treat oral diseases and conditions.^{17,18}

Selection and recruitment process. Network practitioners were recruited by regional coordinators through letters and announcements sent to licensed practitioners from all 6 network regions (Western, Midwest, Southwest,

South Central, South Atlantic, and Northeast). To be eligible for this study, practitioners had to complete an enrollment questionnaire, attend an orientation session or watch a video of it, and complete their training in the protection of human participants. The enrollment questionnaire, which is publicly available at <http://nationaldentalpbrn.org/enrollment.php>, collects information about practitioner, practice, and patient characteristics. Once practitioners had completed the required steps, the regional coordinators provided training sessions with the practitioners and staff that included an overview of the study and steps to complete the necessary forms and answered any questions they had related to the study. The network’s applicable institutional review boards approved the study; all participants provided informed consent after receiving a full explanation of the procedures.

Study design. Network dentists (practitioners) collected the data in their offices. If patients had a SOCL on a permanent molar, were 6 years or older, and consented (or if a minor, assented, in conjunction with parental or guardian consent) to participate in the study, the practitioners completed data-collection and patient-characteristics forms using their typical examination procedures. These forms included specific information about the patients and lesions. Lesion characteristics queried included luster (chalky or shiny), color (opaque, white spot, yellow/light brown, dark brown/black, or other), and roughness of the surface with the use of an explorer (did not use an explorer, yes, or no roughness). Practitioners recorded patient risk factors, such as other teeth with carious lesions, restorations in the previous 3 years, visible heavy plaque, high cariogenic diet, inadequate saliva flow, and infrequent/unpredictable recall intervals. Practitioners then categorized their patients as at “low” or “elevated” caries risk. Practitioners then recorded the treatment plan for the suspected lesion, which could have included monitoring, oral hygiene instruction, fluoride (in-office or prescription), sealant with no preparation, enameloplasty, preventive resin restorations, or full restoration. Practitioners also indicated if the lesion was opened surgically, and if so, they recorded lesion depth (using the Eo-E2, D1-D3 classification system¹⁹) and activity (Eo [no caries], inactive/arrested caries, active caries in the outer one-half of the enamel [E1], active caries in the inner one-half of the enamel [E2], active caries in the outer one-third of dentin [D1], active caries in the middle one-third of dentin [D2], or active caries in the middle one-third of dentin [D3]).

ABBREVIATION KEY. **D1:** Active caries in the outer one-third of dentin. **D2:** Active caries in the middle one-third of dentin. **D3:** Active caries in the middle one-third of dentin. **Eo:** No caries. **E1:** Inactive/arrested caries, active caries in the outer one-half of the enamel. **E2:** Active caries in the inner one-half of the enamel. **SOCL:** Suspicious occlusal carious lesion.

Download English Version:

<https://daneshyari.com/en/article/8698435>

Download Persian Version:

<https://daneshyari.com/article/8698435>

[Daneshyari.com](https://daneshyari.com)