



DIAGNOSTIC EFFECTIVENESS OF CLINICAL AND RADIOGRAPHIC METHODS FOR ASSESSMENT OF PULPAL INVOLVEMENT IN DEEP CARIOUS LESIONS IN CHILDREN WITH MIXED DENTITION

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ABSTRACT

In children with mixed dentition, the high prevalence of dental caries creates a need for rapid and reliable clinical assessment, particularly when large numbers of patients require dental care. In mass dental examinations and public health settings, the use of additional diagnostic methods for every suspected deep carious lesion may increase examination time, resource requirements, and patient burden. Therefore, identifying how accurately pulpal involvement can be assessed using basic clinical methods is important for efficient patient screening and treatment planning. The present study focuses on determining the diagnostic value and limitations of basic clinical assessment, with radiographic examination used as an additional diagnostic method for comparison.

Introduction. In children with mixed dentition, the high prevalence of dental caries creates a need for rapid and reliable clinical assessment, particularly when large numbers of patients require dental care. In mass dental examinations and public health settings, the use of additional diagnostic methods for every suspected deep carious lesion may increase examination time, resource requirements, and patient burden. Therefore, identifying how accurately pulpal involvement can be assessed using basic clinical methods is important for efficient patient screening and treatment planning. The present study focuses on determining the diagnostic value and limitations of basic clinical assessment, with radiographic examination used as an additional diagnostic method for comparison.

Aim. To compare the effectiveness of basic clinical methods and radiographic examination in identifying pulpal involvement in deep carious lesions in children with mixed dentition.

Materials and Methods. A total of 31 molars in 7-year-old children with a preliminary diagnosis of moderate or deep caries were examined. Initially, pulpal status was assessed using basic clinical methods, including anamnesis, clinical examination, percussion, and cold testing. The same teeth were subsequently re-examined by the same clinician using radiographic examination as an additional diagnostic method. The clinical and radiographic findings were compared with the final clinical diagnosis.

Results. Of the 31 examined teeth, 24 (77.4%) were diagnosed correctly, including 19 cases (61.3%) of deep caries and 5 cases (16.1%) of pulp exposure. In 7 cases (22.6%), pulp

exposure was not identified and was initially diagnosed as deep caries. Among the 12 teeth with pulp exposure, only 5 (41.7%) were correctly identified, while 7 (58.3%) were missed by the initial clinical assessment. In 4 of the missed cases, the diagnostic difficulty was associated with the inability to reliably assess pulp vitality.

Conclusion. Basic clinical methods showed relatively high diagnostic effectiveness and may provide a rapid and practical approach for the initial assessment of pulpal involvement during large-scale dental examinations of children with mixed dentition. Nevertheless, some cases of pulp exposure may remain undetected, particularly when pulpal vitality cannot be reliably determined. Additional radiographic assessment should therefore be reserved for clinically uncertain cases. **When clinical** findings do not allow a confident diagnosis, invasive treatment should preferably be postponed until a more comprehensive diagnostic evaluation is performed..

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