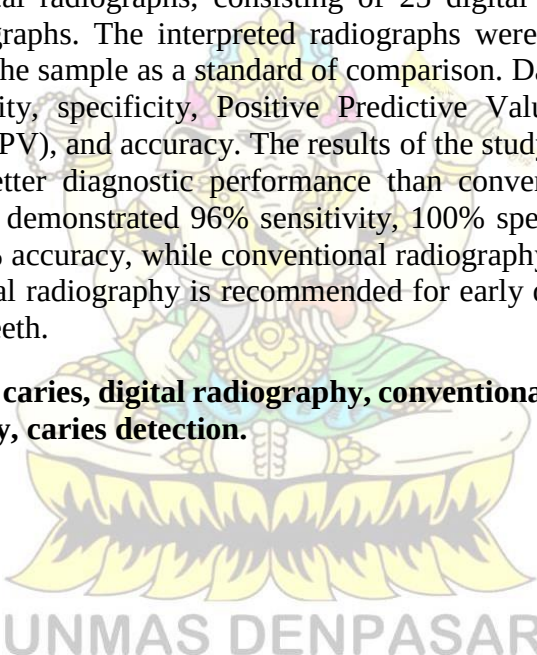


ABSTRACT

Dental caries is one of the most common oral health problems and is still frequently encountered in dental practice. Early-stage occlusal caries is often difficult to detect clinically, requiring supporting examinations in the form of radiographs. Intraoral radiography plays a crucial role in assessing the depth and extent of tooth structure damage, using two image-processing methods: conventional radiography and digital radiography. The parallel periapical radiography technique is recommended because it produces more accurate images with minimal distortion. With technological advancements, selecting the appropriate radiographic method is crucial for improving the accuracy of early caries diagnosis. This study aimed to assess the diagnostic accuracy of occlusal caries using digital radiography and conventional radiography with the parallel periapical technique. The research method employed a quantitative approach with an experimental design. The study utilized 50 periapical radiographs, consisting of 25 digital radiographs and 25 conventional radiographs. The interpreted radiographs were compared with the actual condition of the sample as a standard of comparison. Data analysis included calculating sensitivity, specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV), and accuracy. The results of the study showed that digital radiography had better diagnostic performance than conventional radiography. Digital radiography demonstrated 96% sensitivity, 100% specificity, 100% PPV, 96% NPV, and 99% accuracy, while conventional radiography had 93% accuracy. In conclusion, digital radiography is recommended for early detection of occlusal caries in posterior teeth.

Keywords: occlusal caries, digital radiography, conventional radiography, diagnostic accuracy, caries detection.

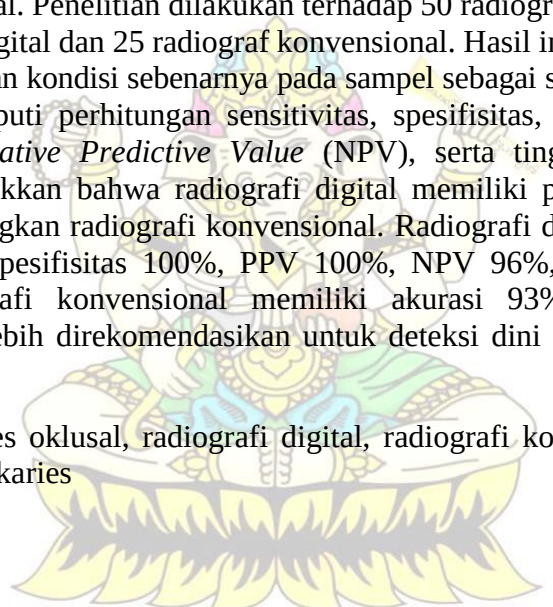


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ABSTRAK

Karies gigi merupakan salah satu masalah kesehatan mulut yang paling umum dan masih sering dijumpai dalam praktik kedokteran gigi. Karies oklusal tahap awal sering sulit terdeteksi secara klinis sehingga diperlukan pemeriksaan penunjang berupa radiografi. Radiografi intraoral berperan penting dalam menilai kedalaman dan luas kerusakan struktur gigi, dengan dua metode berdasarkan pengolahan citra yaitu radiografi konvensional dan radiografi digital. Teknik radiografi periapikal paralel direkomendasikan karena menghasilkan citra yang lebih akurat dengan distorsi minimal. Seiring perkembangan teknologi, pemilihan metode radiografi yang tepat menjadi penting untuk meningkatkan ketepatan diagnosis karies secara dini. Penelitian ini bertujuan untuk menilai akurasi diagnostik karies oklusal menggunakan radiografi digital dan radiografi konvensional dengan teknik periapikal paralel. Metode penelitian menggunakan pendekatan kuantitatif dengan desain eksperimental. Penelitian dilakukan terhadap 50 radiograf periapikal, terdiri dari 25 radiograf digital dan 25 radiograf konvensional. Hasil interpretasi radiograf dibandingkan dengan kondisi sebenarnya pada sampel sebagai standar pembandingan. Analisis data meliputi perhitungan sensitivitas, spesifisitas, *Positive Predictive Value* (PPV), *Negative Predictive Value* (NPV), serta tingkat akurasi. Hasil penelitian menunjukkan bahwa radiografi digital memiliki performa diagnostik lebih baik dibandingkan radiografi konvensional. Radiografi digital menunjukkan sensitivitas 96%, spesifisitas 100%, PPV 100%, NPV 96%, dan akurasi 99%, sedangkan radiografi konvensional memiliki akurasi 93%. Kesimpulannya, radiografi digital lebih direkomendasikan untuk deteksi dini karies oklusal pada gigi posterior.

Kata Kunci : Karies oklusal, radiografi digital, radiografi konvensional, akurasi diagnostik, deteksi karies



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