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Orthopedic Web-Based Fracture Healing Telediagnostic Decision Support System

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Fracture healing assessment is both a clinically relevant and frequently used outcome measure in orthopaedics. A lack of consensus with regard to the definition of fracture healing in the current orthopaedic literature is well known.

Manual manoeuvre and radiographic image subjective evaluation remain commonly used methods in bone union assessment clinically. Web based Computer Aided Diagnostic (CAD) system, that has been designed for fracture union assessment, combines EHR with Orthopaedic Analysis System for Fracture healing monitoring. The digital image analysis method based on open system Internet technology provide an alternative to supplement the traditional approach for a quantitative, accurate and cost-effective assessment of fracture healing.

The described system was developed and implemented as Web application that utilises single server and Web Browser for Internet communication. Networked functions including web access, database access, and graphical analyser of digitised radio -graphic image are based on the client-server model. The system can be complemented with existing picture archiving and communication system (PACS), as well as recent advances in Internet technology. A relational image database system is used to organise fracture images, their extracted features and patient data. The Adobe Flash-based Web user interface allows users to interact with the series fracture radio -grams database.

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