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The safety and efficacy of an injectable bone substitute in dental sockets demonstrated in a human clinical trial.

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Figure 1: Radiographic pictures of ICPCS-filled mesial socket of a first molar from day of injection to 6 months. ICPCS was composed of MBCP™ ceramic granules 80-200 μm suspended in 2% cellulose saline solution. Notice the progressive disappearance of the radio-clear line outlining the defect and the increase in radiographic density with time.

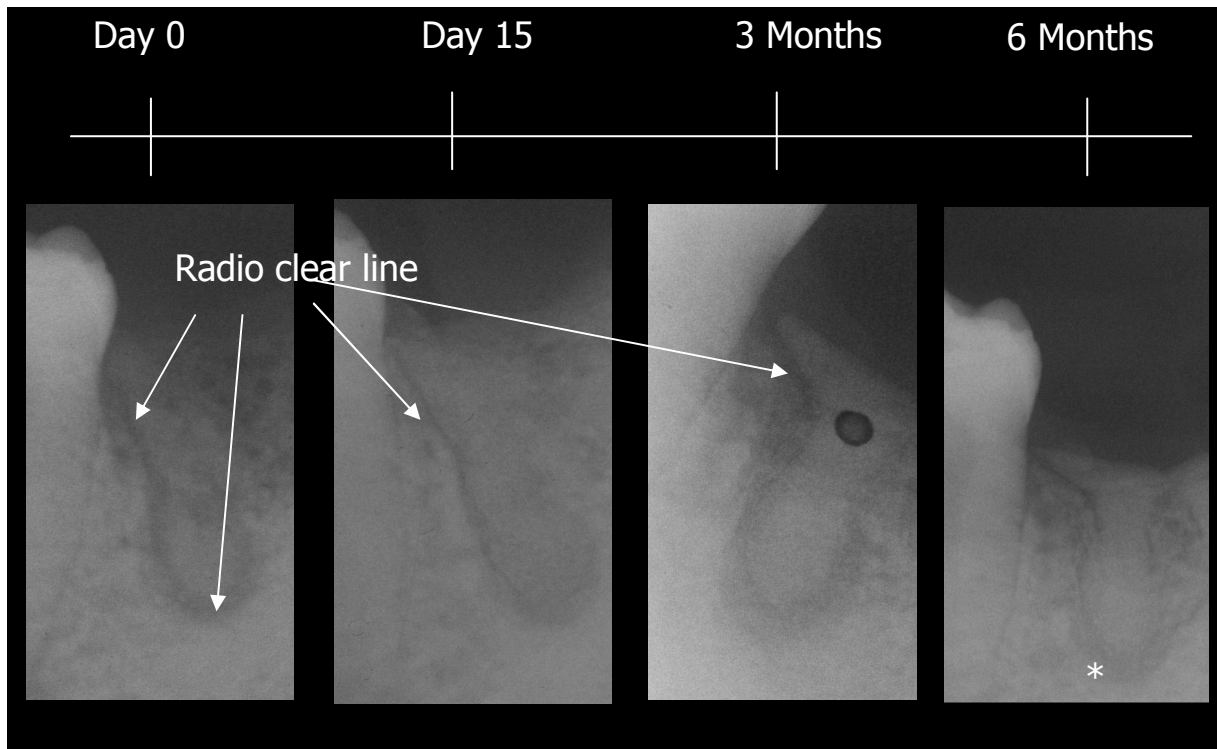


Figure 2: Relative radiographic density measured of the ICPCS-filled dental sockets (n=18) as a function of implantation time.

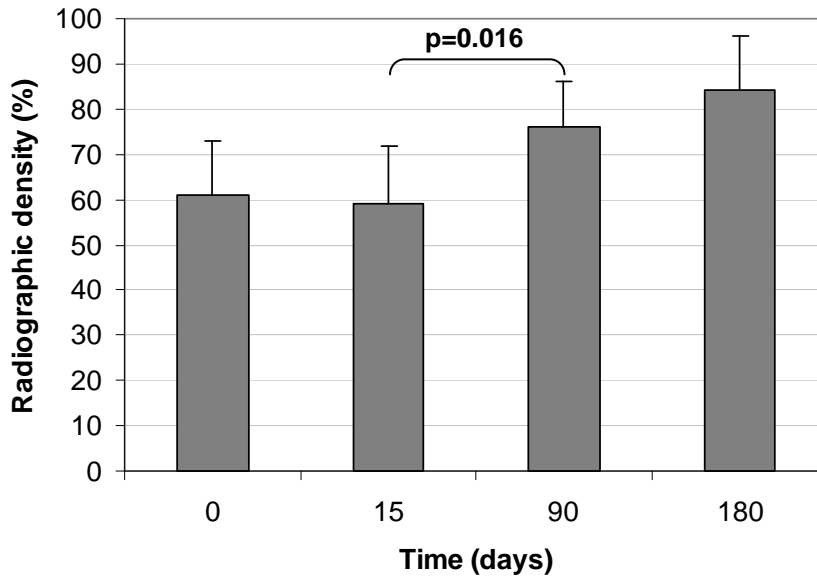


Figure 3: Radiographic of dental socket 6 months and 3 years after tooth extraction and filling with ICPCS. Notice the fading of the initial defect and the increase in mineral density over time.



Figure 4: Clinical picture of the opened implanted area 3 years after filling the dental socket with ICPCS and just prior to harvesting the biopsy. This picture corresponds to the radiography shown in Figure 3 (Case 1).



Figure 5: Histological analysis of the biopsy harvested 3 years after filling the dental socket with ICPCS (case 1). (a) SEM micrograph showing the BCP granules 80-200 μm and mineralized bone (*) in the lowest region of the defect, (b, c and d) histological sections showing osteoid tissue between the ceramic granules (Movat's pentachrome and Goldner's trichrome staining).

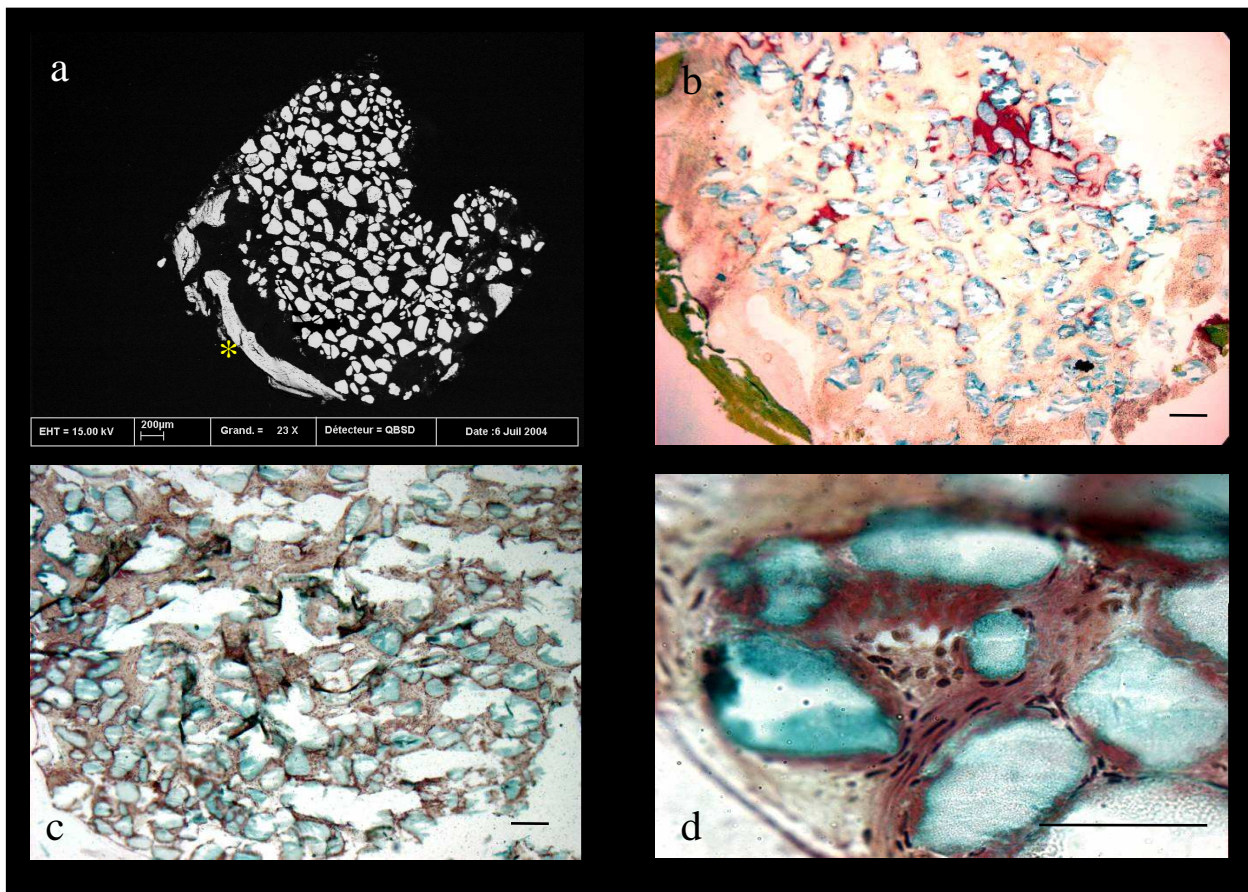


Figure 6: Analysis of the biopsy harvested 3 years after filling the dental socket with ICPCS (case 2). (a, b) SEM micrographs exhibiting mineralized bone in contact with the ceramic granules, (c) micro-tomography 3D picture and (d) histology thin section showing osteoid and mineralized bone tissue between the granules (Goldner's trichrome stain).

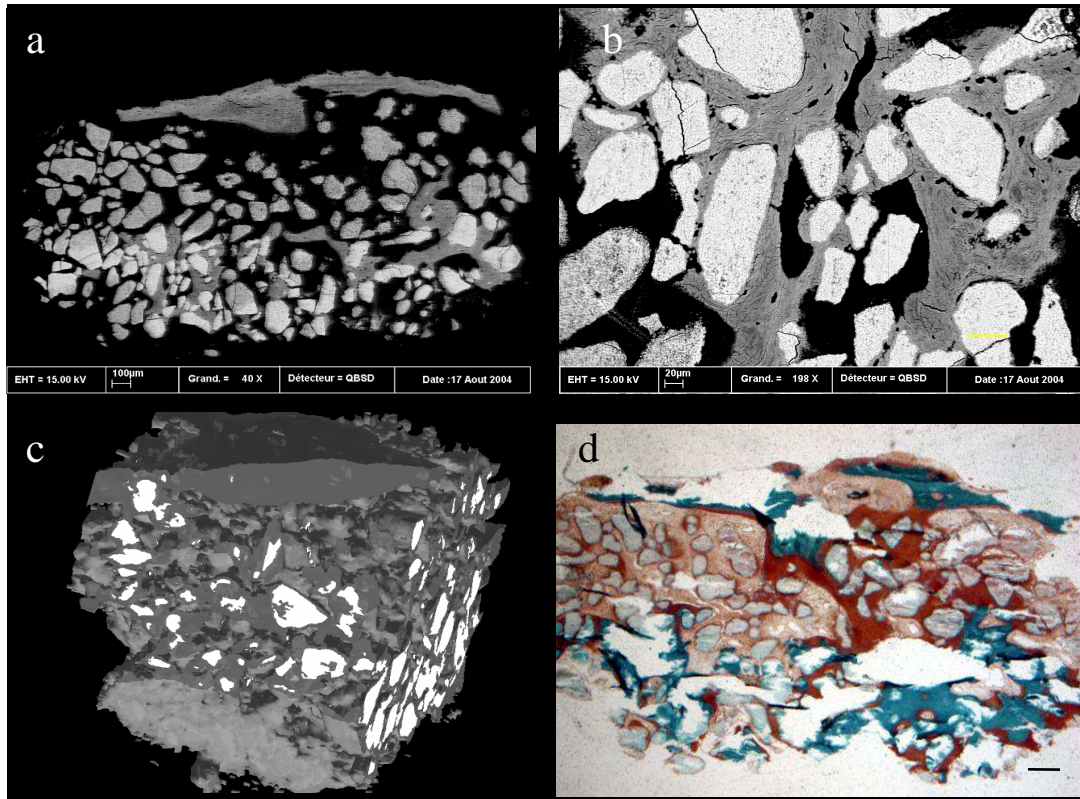


Figure 7: TEM micrographs of the biopsy harvested 3 years after filling the dental socket with ICPCS (case 2). (a,b,c) : Upper soft tissue region of the biopsy, just under the gum. (d,e,f) : lowest region of the biopsy.

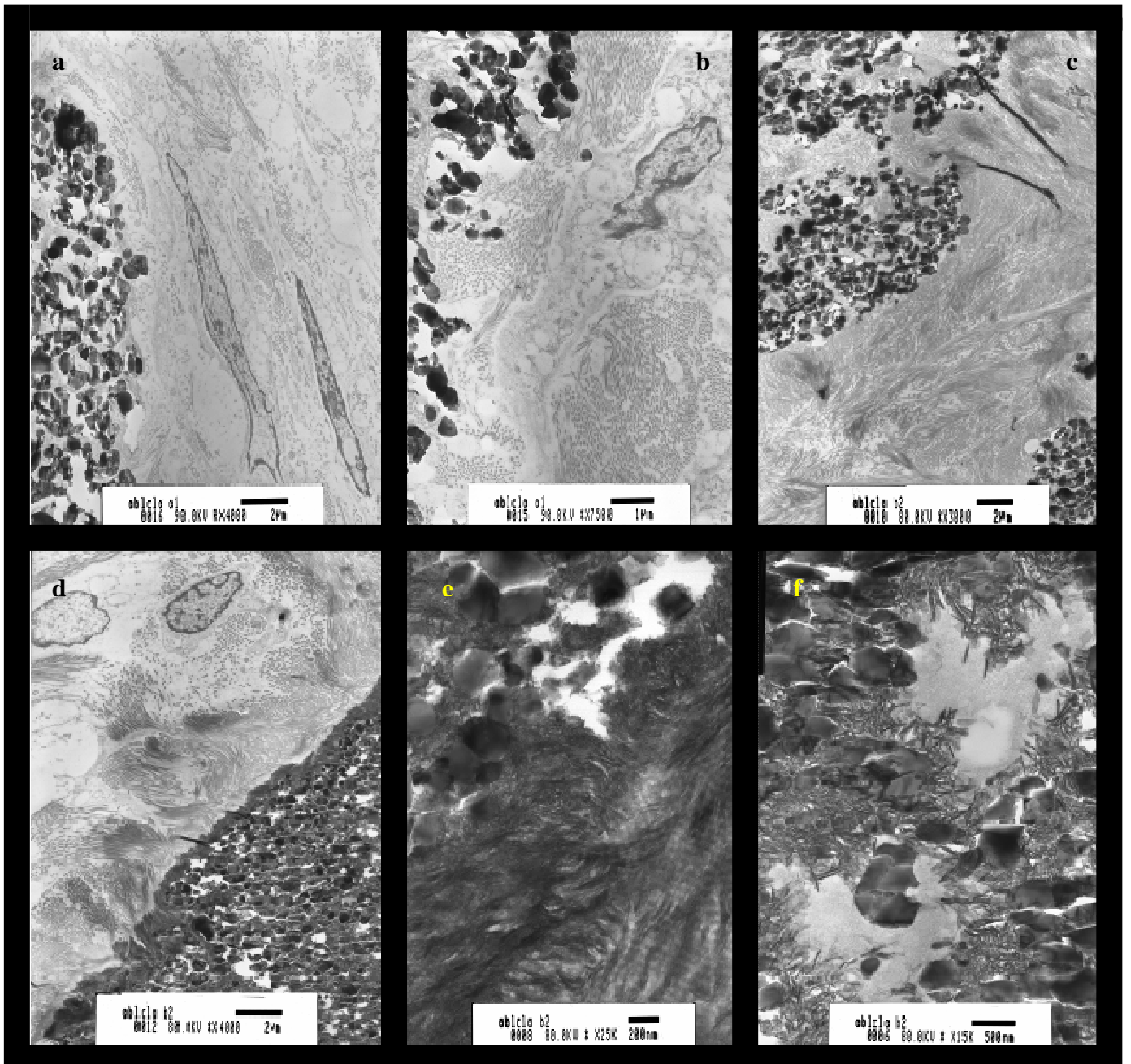


Figure 8: Analysis of the biopsy harvested 3 years after filling the dental socket with ICPCS (case 3). (a) SEM micrographs exhibiting abundant mineralized bone in contact with few ceramic granules, (b) micro-tomography 3D picture showing 3D bone growth, (c) polarized light microscopy picture with orientated mineralized collagen fibers and (d) histology thin section showing abundant mineralized bone tissue and some osteoid tissue (Goldner's trichrome stain).

