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Peri-Implantitis Defect Reconstruction Utilizing Bovine Bone Substitute With Hyaluronic Acid.

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Objectives Various biologically active materials have been combined with xenografts to produce successful outcomes in peri-implantitis bone (PI-B) defect management. Hyaluronic acid (HA) was merged with a bovine bone substitute (BBS) to overcome xenografts' lack of osteoinductive and osteogenic properties. The study aimed to assess six- and twelve-month clinical, radiographic, and microbiological outcomes after reconstructive surgical therapy on PI-B defects engaging either BBS with or without HA followed by collagen dermal matrix use.

Methods In total, patients (mean age 49 ± 8.7) with peri-implantitis (diagnosed 6.4 ± 1.1 years of implant loading) were randomly treated either with BBS plus HA (test group) or BBS alone (control group). Clinical parameters including peri-implant probing depth (PPD), bleeding on probing (BOP), implant stability (ISQ), keratinized mucosa width, radiographic changes in vertical and horizontal marginal bone (MB) levels and microbiological quantification were evaluated at six and 12 months postoperatively. Microbiological quantification was provided by real *polymerase chain reaction* (PCR).

Results The treatment was successful in 71% of patients and 85% of implants after 12 months (no BOP, PPD < 5 mm, and no further MB loss). No significant difference was found between groups in terms of PPD during follow-ups. The test group displayed a complete reduction in BOP compared to the control one (0.17 ± 0.39), six months postoperatively. Subsequently, the ISQ value in the test group significantly increased six months after surgery, however, no differences were noted between the groups at 12 months. The vertical MB gain achieved substantially greater values in the test group ($p < 0.01$) over time. Six and twelve months postoperatively, both groups demonstrated a significant reduction of the bacteria total amounts ($p < 0.05$).

Conclusions A short-term twelve-month outcome suggested that bovine bone substitute merged hyaluronic acid could be successfully utilized in peri-implantitis defects management.