

# IMPLANTOLOGIE JOURNAL



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## Use of collagen in dental surgery

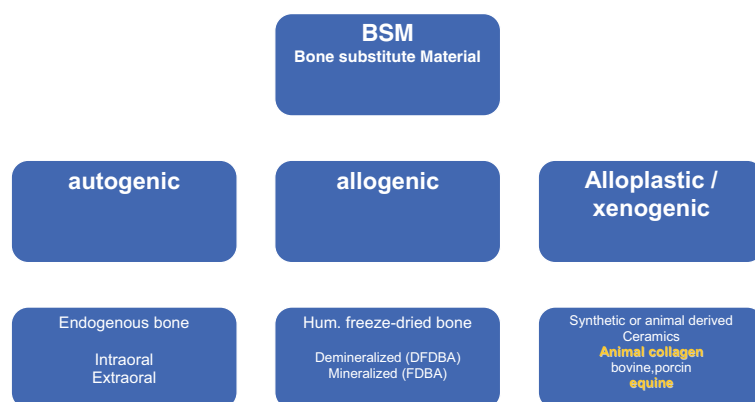
### Augmentation of a large cyst lumen after excision of a residual cyst

For years, use of collagen has been an established method in the field of dentistry and particularly in oral surgery. Absence of dehiscence and uncomplicated wound healing in combination with positive osteoconductive characteristics confirm the importance of this material in the field of bone substitutes. The cost-efficient and user-friendly material represents an alternative to the particular bone substitutes in case of corresponding indications.

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■ The use of equine collagen in the various medical fields has been a proven method for years. Neural surgery, otolaryngology, cardiac and thoracic surgery, general surgery, orthopedics, urology, gynecology and visceral surgery make use of this material. In dental surgery, there are also several indicators justifying the use of collagen as a bone substitute. This

especially includes socket preservation, ridge preservation, apicoectomy, internal and external sinus lift, donor region with free mucosa graft and free connective tissue graft, all types of hemostasis with dental surgical interventions as well as augmentation of small and large bone defects after cystectomies.

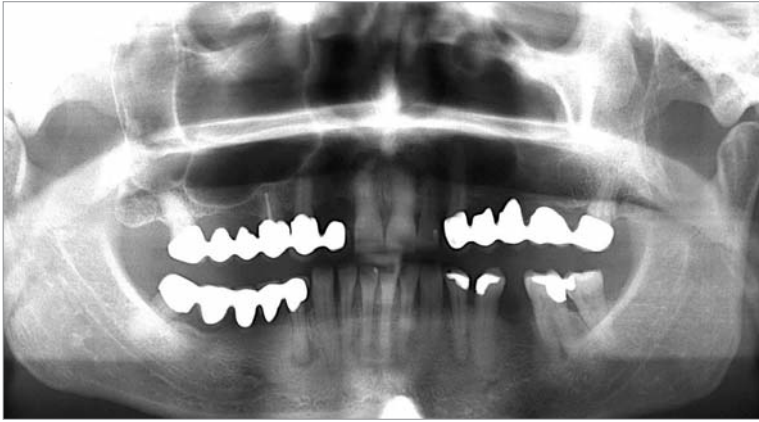


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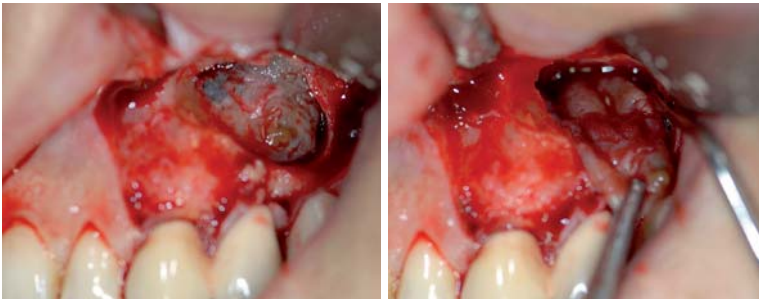
Fig. 1: Positioning of collagen in the field of bone substitutes.

### Clinical effect of collagen

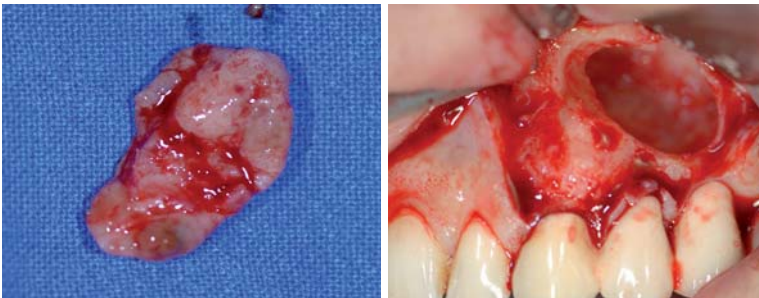
When used in osseous lumens, the first effect of collagen in oral surgery is the placeholder function. From the field of socket preservation, it is known that the material particularly supports the thin bony confine. Furthermore, the increased local thrombocyte aggregation results in adherence to the surrounding bony confines. Stabilization of blood coagulum generates a defined regeneration matrix that promotes angiogenesis and correspondingly enables enrichment of oxygen, nutrients and endogenous growth factors. These prerequisites then re-



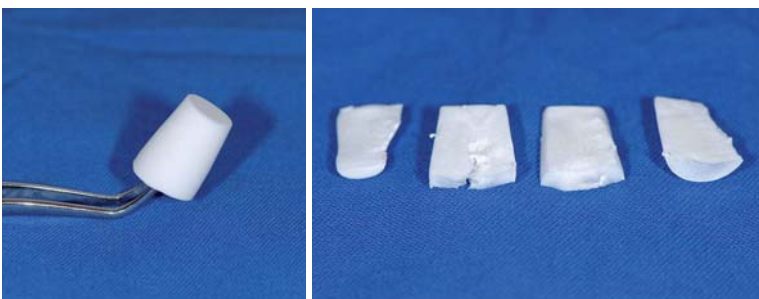
**Fig. 2:** Preoperative radiological findings.



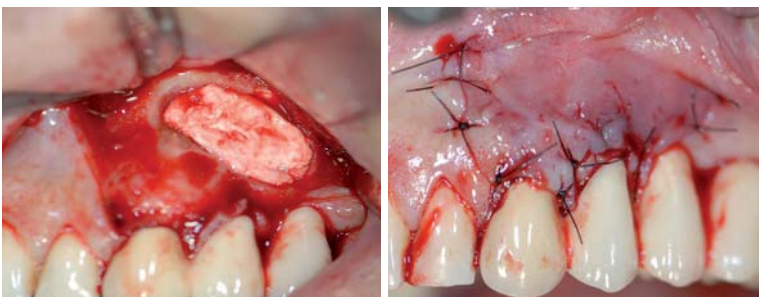
**Fig. 3:** Residual cyst intraoperatively in situ. – **Fig. 4:** Enucleation of cyst in all.



**Fig. 5:** Cyst enucleated in all. – **Fig. 6:** Bone cavity.



**Fig. 7:** Genta Coll® HD Cone. – **Fig. 8:** Genta Coll® HD Cone cut to slices.



**Fig. 9:** Cyst lumen augmented with Genta Coll® HD Cone. – **Fig. 10:** Wound closure with single interrupted suture. – **Fig. 11:** OPG five months after surgery.

sult in osteoconduction and finally in osteogenesis. This mechanism is the explanation for the increased formation at the mineralized bone that was shown in a dog-based model by Cardaropoli et al. in 2005.

The absence of particular bone substitute lowers the probability of wound dehiscence and microbiological infiltration of such materials. Rarely occurring dehiscences with exposed collagen shares usually heal without problems and do not require plastic covering. Today, the collagen for augmentation of circumscribed osseous defects represents an alternative to the particular bone substitutes (Fig. 1).

### Description of case

The following case involves a 61-year-old female patient with positive oral hygiene and restoratively and/or prosthetically treated dentures. Periodontal findings showed bone resorption corresponding to age. Routine X-ray check showed cystic translucency, i.e. a residual cyst, in regions 23 to 26. Tooth 23 showed positive reaction with CO<sub>2</sub> snow vitality test. According to anamnesis, teeth 24 to 26 have been missing for more than six years. Formation of fistula was clinically excluded. The patient was symptom-free (Fig. 2).

### Therapy

Under local anesthesia, complete cystectomy was performed in regions 22 to 26 after creation of a complete trapezoidal lobe. Partial osteolysis of the facial compact bone had already occurred. In the area of the fenestration, the cyst was sharply dissected from the mucosa; then, the cyst was enucleated completely. The highly reduced bony confines were preserved, and the existing compact bone was manually debrided on the lumen side by using the bone curette to increase bleeding. The large lumen was





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