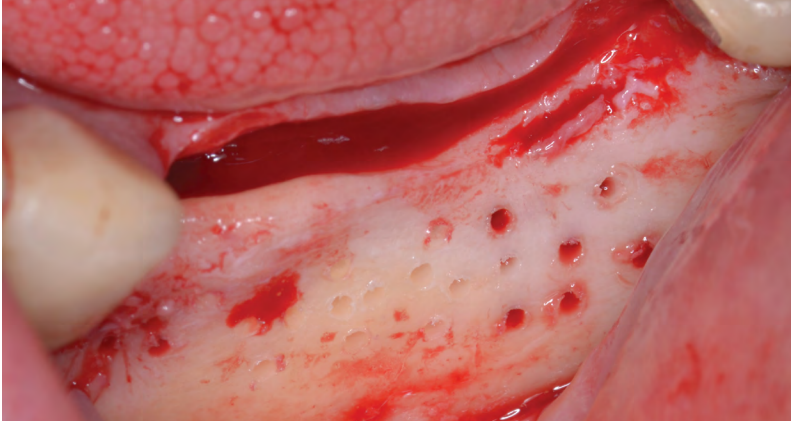


An intraoperative photograph showing a surgical site in the posterior mandible. A large, irregularly shaped, light-colored bone graft is visible, surrounded by red, vascularized soft tissue. The graft appears to be integrated with the surrounding bone structure. The background is dark, suggesting the surgical field is illuminated.

A CASE REPORT BY  
DR. JOHN M. SISTO

## Lateral Ridge Augmentation in the Posterior Mandible



## ► The Situation

A seventy year old female in good health, presented with a fracture of tooth #19 which is the distal abutment for a four unit bridge tooth #19-22, with pontics in the #20 and #21 positions. With the loss of the bridge, the patient desired a fixed prosthetic replacement. A bridge from tooth #22 to an implant placed at the #18 position was not deemed mechanically sound. She opted for implant placement at positions #19, #20 and #21 following lateral ridge augmentation with autogenous bone and Geistlich Bio-Oss® contained with a Geistlich Bio-Gide® membrane.

## ► The Risk Profile

Esthetic Risk Factors	Low Risk	Medium Risk	High Risk
Patient's health	Intact immune system	Light smoker	Impaired immune system
Patient's esthetic requirements	Low	Medium	High
Height of smile line	Low	Medium	High
Gingival biotype	Thick - "low scalloped"	Medium - "medium scalloped"	Thin - "high scalloped"
Shape of dental crowns	Rectangular		Triangular
Infection at implant site	None	Chronic	Acute
Bone height at adjacent tooth site	≤ 5 mm from contact point	5.5 - 6.5 mm from contact point	≥ 7 mm from contact point
Restorative status of adjacent tooth	Intact		Compromised
Width of tooth gap	1 tooth (≥ 7 mm)	1 tooth (≤ 7 mm)	2 teeth or more
Soft-tissue anatomy	Intact		Compromised
Bone anatomy of the alveolar ridge	No defect	Horizontal defect	Vertical defect

### SPECIAL INTEREST

Implants, Bone Reconstruction for Implants and Orthognathic Surgery

*"A bone graft was required to augment the ridge, a CBCT scan was performed prior to surgery to determine bone volume and the amount of bone required to graft."*

### JOHN M. SISTO D.D.S. PARK RIDGE, ILLINOIS

Oral and Maxillofacial Surgeon

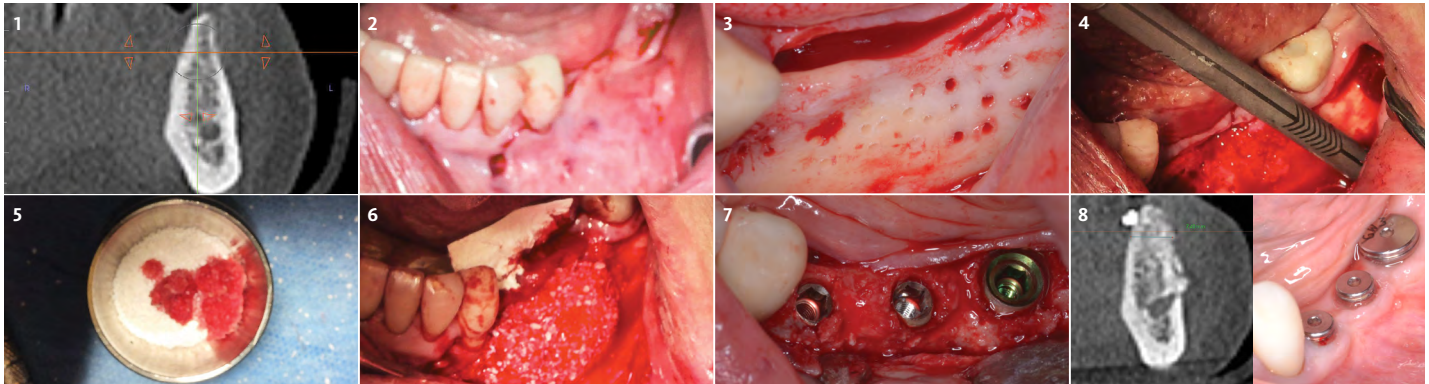
Dr. John M. Sisto received his Doctorate in Dental Surgery degree from Loyola University and completed his residency and certification in Oral and Maxillofacial Surgery at the Cook County Hospital in Chicago. Dr. Sisto was the Director of Residency Education at Cook County Hospital from 1985 to 2010 and started the residency program in oral and maxillofacial surgery in 1990. He held teaching positions at both Northwestern and University of Illinois Dental schools as a clinical assistant professor, and also at Northwestern Medical School. He was the Division Chief of Oral and Maxillofacial Surgery at Cook County Hospital and Chairman of Dentistry at Resurrection Medical Center. Dr. Sisto has published papers on dental implant surgery, trauma surgery, orthognathic surgery and maxillofacial infections. He has lectured both locally and nationally at various educational forums.





## ► The Approach

A subperiosteal flap with a mid-ridge incision was performed with anterior and posterior releasing incisions which were placed the distance of one tooth mesial and one tooth distal from the graft site. The posterior releasing incision allowed for exposure of the ramus for harvesting of the autologous bone. The grafted site was allowed to heal for a period of 8 months at which time the implants were placed. Abutment connection occurred 4 months following implant placement.



1 CT scan showing insufficient bone width for implant placement < 4mm.

2 Initial incisions on the midcrest of the ridge were performed for full-thickness flap preparation.

3 Four mucoperiosteal flaps were done with vertical releasing incisions and interosseous holes created to stimulate bone formation (RAP phenomenon).

4 Harvesting of the autologous cortical bone from the lateral surface of the ramus, utilizing the Geistlich Microsaw.

5 Geistlich Bio-Oss® granules mixed with harvested autologous bone chips.

6 Geistlich Bio-Oss® and autologous bone mixture was placed and covered with Geistlich Bio-Gide®. Pins and screws were utilized for fixation to provide primary stability.

7 Re-entry 8 months post-grafting: sufficient bone has been regenerated to place implants in the desired positions.

8 Follow-up at the time of implant uncovering and placement of the healing abutments, (4 months post-implant placement). All implants were successfully reverse torqued at 20ncm.

### 8 Month Healing

Sufficient bone with for implant placement at time of re-entry

*“At Re-entry 8-months post-grafting, the width of the bone had increased significantly and measured 7.46mm at position #21.”*

*(See image to the left)*

## ► The Outcome

Following 8 months of healing, the augmented site showed sufficient bone width that was assessed with a CT scan. After examination, it was determined that the bone width was adequate for implant placement in the desired position to allow an esthetically pleasing and functional outcome for the patient.

# Briefly Speaking

## ► Keys to Success

1. Wide subperiosteal dissection on the lingual and buccal with periosteal releasing incisions to prevent tension on incision closure to prevent wound dehiscence
2. Appropriate pre and post-operative antibiotics to prevent infection
3. Geistlich Bio-Oss® (small granules, 0.25-1 mm) and autologous bone in a 50:50 ratio for long-term graft maintenance
4. Geistlich Bio-Gide® membrane (40 x 50 mm) to cover and contain graft with pins and/or screws for membrane fixation

## ► My Instruments

1. Geistlich Micros Bone Harvesting Instrument
2. The Buser periosteal elevator is key in elevating flaps without perforation
3. CBCT Scan
4. Planning tool Anatomage Invivo 6 software

*"The Geistlich Micros is essential in harvesting bone from the lateral ramus in an efficient and stress free manner"*



## ► My Biomaterials

Geistlich Bio-Oss® is a biocompatible bone substitute, its osteoconductive properties lead to effective and predictable bone regeneration.

Geistlich Bio-Gide® with its unique bilayer structure not only prevents the ingrowth of soft-tissue into the augmented site but also integrates with the surrounding soft-tissues.

**Geistlich  
Bio-Gide® &  
Geistlich Bio-Oss®**

The ideal combination  
for Minor Bone  
Augmentation

*"The use of Geistlich Bio-Oss® in combination with autogenous bone provides an excellent recipient site for the placement of dental implants and long-term maintenance of bone volume for implant survival."*



Geistlich Bio-Oss® provides long-term bone volume stability



Geistlich Bio-Gide® provides excellent wound stability and graft containment



**Click here to view the webinar**

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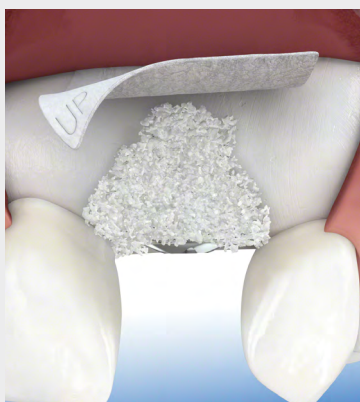
**ABOUT BIOBRIEF**

We know that exposure to new or refined treatment approaches brings innovation to practice. Geistlich Biomaterials is pleased to introduce a periodic opportunity to get up close and personal with creative clinicians from around the world. Focused on peer-to-peer exchange, BIOBRIEF features clinically relevant cases and techniques in specific therapeutic areas – highlighted with valuable insights about materials and instrumentation, as well as KEYS TO SUCCESS.

Geistlich Biomaterials – bringing you *regeneration on time*.

## ► The Therapeutic Area

Geistlich biomaterials optimally compliments autogenous bone in Minor Bone Augmentation procedures. Due to its high resorption stability and osteoconductivity Geistlich Bio-Oss® protects human bone grafts against degradation, ensuring long-term volume preservation. When combined with Geistlich Bio-Gide® healing is undisturbed and provides significantly enhanced bone regeneration.



**CAUTION:** Federal law restricts these devices to sale by or on the order of a dentist or physician.

**Indications:**

Geistlich Bio-Oss® is indicated for the following uses: Augmentation or reconstructive treatment of the alveolar ridge; Filling of periodontal defects; Filling of defects after root resection, apicoectomy, and cystectomy; Filling of extraction sockets to enhance preservation of the alveolar ridge; Elevation of the maxillary sinus floor; Filling of periodontal defects in conjunction with products intended for Guided Tissue Regeneration (GTR) and Guided Bone Regeneration (GBR); and Filling of peri-implant defects in conjunction with products intended for GBR.

**Warnings:**

Possible complications which may occur with any surgery include swelling at the surgical site, flap sloughing, bleeding, local inflammation, bone loss, infection or pain.

**Indications:**

Geistlich Bio-Gide® is indicated for the following uses: Augmentation around implants placed in immediate or delayed extraction sockets; localized ridge augmentation for later implantation; alveolar ridge reconstruction for prosthetic treatment; filling of bone defects after root resection; cystectomy and removal of retained teeth and guided bone regeneration in dehiscence defects.

**Warnings:**

As Geistlich Bio-Gide® is a collagen product allergic reactions may not be totally excluded. Possible complications which may occur with any surgery include swelling at the surgical site, flap sloughing, bleeding, dehiscence, hematoma, increased sensitivity and pain, bone loss, redness and local inflammation.

For more information on contraindications, precautions, and directions for use, please refer to the Geistlich Bio-Oss® and Geistlich Bio-Gide® Instructions for Use at: [www.dental.geistlich-na.com/ifu](http://www.dental.geistlich-na.com/ifu)