

## ARTICLE IN REVIEW:

# ViviGen Formable® enabled successful reconstruction of a large mandibular defect in a pediatric patient

**PUBLICATION:** FACE, November 2021

**TITLE:** Immediate Mandibular Reconstruction Using a Cellular Bone Allograft Following Tumor Resection in a Pediatric Patient<sup>1</sup>

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**STUDY DESIGN:** Case study

**SUMMARY:** Reconstruction of large (>6 cm) segmental mandibular defects remains a challenge, particularly in the skeletally immature patient. This case study describes the use of ViviGen Formable, an advanced cellular bone allograft, to reconstruct a large segmental mandibular defect in a pediatric patient. A 10-year-old male patient presented with a large hypodense-hyperdense expansile lytic lesion in the left mandible on computed tomography (CT), which was confirmed by biopsy as juvenile active ossifying fibroma (JAOF). Via intraoral approach, the JAOF lesion was surgically resected using custom-fabricated guides (TRUMATCH® CMF Personalized Solutions, DePuy Synthes). The resultant 6.5-cm long segmental defect was fixed with a custom plate and filled with 5 cc ViviGen Formable. At 7 months postoperative, the patient's mandible was fully healed and solid osseous consolidation was observed on CT, demonstrating successful reconstruction of a large (>6 cm) segmental mandibular defect in a pediatric patient. Use of ViviGen Formable combined with custom-fabricated guides and plates reduced total operative time and eliminated the need for a second surgical site for autograft retrieval, which is especially advantageous in a growing child.

### Successful reconstruction of a large (>6 cm) segmental defect:

ViviGen Formable enabled successful healing and reconstruction of a large segmental mandibular defect, supporting its use in the reconstruction of bone voids larger than 6 cm.

### Elimination of second surgical site in a pediatric patient:

By providing all three essential bone remodeling properties – osteoconductivity, osteoinductivity, and osteogenicity – use of ViviGen Formable eliminated the need for a second surgical site for autograft retrieval, which risks long-term complications in the growing child.<sup>2</sup>

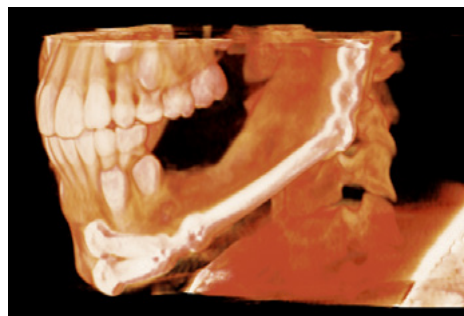
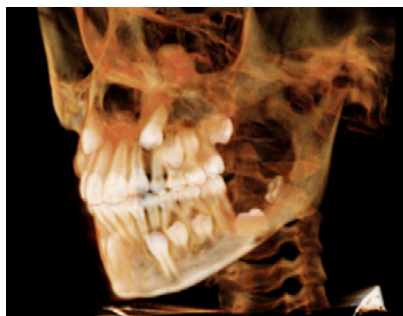
### Reduced total operative time:

The combination of ViviGen Formable with the custom-fabricated guides and plates improved intraoperative efficiency and reduced total operative time to under 3 hours.

### References:

1. Alfi DM, Hassan A, East SM, Gianulis EC. Immediate Mandibular Reconstruction Using a Cellular Bone Allograft Following Tumor Resection in a Pediatric Patient. *FACE*. November 2021. doi:10.1177/27325016211057287.
2. Docquier PL, Paul L, Mousny M, Cornu O, Delloye C. The use of allografts in paediatric orthopaedic surgery. *Acta Orthop Belg*. 2007;73(5):551-557

## Successful Reconstruction of a Large Mandibular Defect Using ViviGen Formable



Left panel: Preoperative CT image revealing a large mixed hypodense-hyperdense expansile lytic lesion, confirmed to be JAOF. Surgical resection of the lesion created a 6.5-cm long segmental defect. Right panel: Postoperative image taken at 7 months demonstrating solid osseous consolidation and full healing of the segmental mandibular defect where ViviGen Formable was implanted.

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Please refer to the instructions for use for a complete list of indications, contraindications, warnings and precautions.

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