# Mandibular Reconstruction with an Endoprosthesis: Optimizing Bone Height and Border Contour

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## Methods

Four patients, ages 11–18, underwent en bloc mandibular resection for tumors of the jaw and immediate reconstruction using a custom endoprosthesis between August 2018 and March 2019.

Preoperative surgical planning sessions were completed to design cutting guides and an endoprosthesis for each patient.

**For contour**, the normal side of the mandible was mirrored to the reconstructed side, allowing for accurate recapitulation of the native mandible.

**For vertical position**, a thin titanium ledge was integrated along the medial surface of the endoprosthesis to support the bone in a cephalad position, optimizing its distance from the occlusal plane.

## Results

All patients underwent resection and reconstruction with the endoprosthesis with autologous rib graft, iliac graft, or fibular flap.

There were no immediate perioperative complications. 2 patients required revision surgery for minor complications (1 orocutaneous fistula, 1 intraoral granuloma). None of the endoprostheses required removal.

Excellent cosmetic outcomes were achieved in all patients with imaging verifying adequate height of the bone construct for implant placement. Fixed dental bridges have placed in two patients already.

## Conclusions

We demonstrate the successful application of a custom mandibular endoprosthesis compatible with both bone grafts and microvascular flaps, in skeletally immature and mature patients alike.

This design simultaneously optimizes the contour and height of the reconstruction to allow for fixed dental bridge placement.

For young patients whose ultimate goals include dental restoration and rehabilitation, this endoprosthesis is an attractive and powerful reconstructive option.