INTRODUCTION
The temporomandibular joint (TMJ) is a diarthroidal joint in which the mandibular condyle articulates into the glenoid fossa. Reconstruction of the TMJ may be required for tumor extirpation, trauma or osteonecrosis. Re-approximation of an osseous graft within the glenoid fossa is critical to reestablish occlusion and allow mastication. We describe a novel technique to promote and sustain this approximation.

METHODS
Three patients undergoing composite resection of the hemi-mandible with condylectomy were evaluated. Surgical indications included osteoradionecrosis, bisphosphonate induced osteonecrosis and a self-inflicted gunshot wound. Post-operative outcomes were assessed with clinical and radiographic measures.

SURGICAL TECHNIQUE
Mandibular reconstruction was performed after composite resection and osteocutaneous graft harvest. A percutaneous stitch was used to approximate the neo-condyle into the glenoid fossa. In reconstructing the TMJ, a pre-auricular incision allowed dissection of the temporal bone segment of the zygomatic root. A 1.3mm prolene encircled miniplate was secured to the zygomatic root using screw fixation. A hollow awl advanced the suture inferiorly to the articular surface of the TMJ where it was threaded through the vascularized bone graft. After the suture was transferred back to the miniplate, applied tension allowed suspension of the approximating graft end to the TMJ and fixation with the suture.

RESULTS
The median patient age was 64 years. Median follow-up was 19 months. There were no flap failures, infections or complications. All patients reported improved facial symmetry, jaw opening and acceptable dental occlusion. Sustained TMJ approximation was seen on post-operative and follow-up CT imaging without evidence of jaw drift. All patients tolerated a soft oral diet following surgery.

DISCUSSION
Several reconstructive techniques, such as costal chondral grafts, titanium prostheses, calvarial bone grafts and Alloderm, have been used in reconstruction of the condylar head.1 Although these techniques describe reconstruction of the articular surface, none address sustained retention of the TMJ. Appropriate approximation is necessary to promote joint remodeling, facial symmetry and adequate function of the TMJ.2,3

CONCLUSIONS
TMJ reconstruction poses challenges in osseous graft alignment and suspension. This novel approach introduces a technique to securely and efficiently suspend the osseous graft within the TMJ during mandibular reconstruction. This promotes sustained facial symmetry, jaw opening and dental occlusion.

REFERENCES