Glaucoma continues to be the leading cause of irreversible blindness worldwide, profoundly impacting the quality of life of those it affects. In the United States, the prevalence rate remains highest among those of African descent and is expected to increase across all racial and ethnic groups given the changing demographics of our rapidly growing, elderly population. New initiatives and a need for exploration of additional alternatives are means by which we can contribute to advancements in this field. We hypothesized that the utilization of both Goniotomy and Xen Gel Stent techniques may improve outcomes in patients with advanced glaucoma while still reducing the complications associated with trabeculectomy procedures and glaucoma tube shunts placements. Little to no data exists on the mix-methods approach to Xen subconjunctival MIGS procedures and its efficacy in the reduction of intraocular pressure for patients with glaucoma. Therefore, the purpose of the case series is to evaluate the effectiveness of a combined Xen Gel Stent and Goniotomy technique in improving outcomes in patients with severe primary angle glaucoma. Postoperative results from this prospective, noncomparative, and interventional case series demonstrated a reduction in IOP and medication usage at 6 months in four eyes of four patients. These findings suggest that this novel approach may contribute to the implementation of a more efficient strategy to improve outcomes for this patient population. A combined Goniotomy and Xen Gel Stent implantation going forward may be clinically indicated in some patients with moderate and advanced glaucoma given it may have a higher success rate relative to the stand-alone techniques, while maintaining the reduced postoperative complications - a venerated characteristic of MIGS approaches.