High-grade L5-S1 spondylolisthesis is challenging to treat, and there is no standard recommended operative technique. The authors performed a systematic review of the literature evaluating the efficacy and safety of modern transsacral instrumentation techniques for high-grade L5-S1 spondylolisthesis. METHODS: A systematic PubMed search adherent to PRISMA guidelines included relevant clinical studies reporting transsacral instrumentation for high-grade L5-S1 spondylolisthesis in adult humans from 1980 onward. Available data regarding clinical and radiographic outcomes for individual patients were abstracted. RESULTS: Nine of 311 studies were eligible for detailed review. They reported on 38 patients (mean 33.1 years; range 18-66 years) treated with transsacral instrumentation. Transsacral cages (6 articles, n = 23), screws (2 articles, n = 12) and rods (1 article, n = 3) were used. Posterior (86.8%) and combined anteroposterior approaches were used, both with (55.2%) and without decompression, partial reduction (23.7%), posterior pedicle screw fixation (94.7%), and adjacent level inter-body fusion (42.1%). Four patients had 6 perioperative complications (15.8%). Mean follow-up time was 30.1 months (range 2-58 months; n = 37). All patients had adequate fusion on follow-up imaging (n = 34) and no progression of slip (n = 32). All patients had improvement in pain (n = 32) and at least average function postoperatively (94.7%; n = 33/35). CONCLUSION: Operative techniques for managing high-grade L5-S1 spondylolisthesis are evolving. In our systematic review, modern transsacral instrumentation resulted in good clinical outcome and fusion rates, and acceptable complication rates. Risks and benefits should be individualized for each patient. Transsacral instrumentation is a viable and effective treatment option for this pathology [1)].

1)
Rindler RS, Miller BA, Eshraghi SR, Pradilla G, Refai D, Rodts G, Ahmad FU. Efficacy of Transsacral Instrumentation for High-Grade Spondylolisthesis at L5-S1: A Systematic Review of the Literature. World Neurosurg. 2016 Nov;95:623.e11-623.e19. doi: 10.1016/j.wneu.2016.05.030. Epub 2016 May 20. Review. PubMed PMID: 27216924.