the use of a posterior based 'fusion mass screw' (FMS) as a primary or salvage fixation point in a revision spinal deformity following a previous posterior spinal fusion (PSF). Our experience of this technique in a case report and the clinical and radiological results are reported.

Objectives: To describe the technique and uses of the FMS as a primary/salvage fixation point in osteotomies in previously arthrodesed spinal deformity surgery. Obtaining fixation points to correct and stabilize a spinal deformity with coronal and sagittal imbalance in a previously arthrodesed spine during revision surgery can be challenging. Several alternate pedicle fixation techniques and laminar screw techniques have been described in the literature. However, there is no description of these techniques in the presence of a spinal fusion with distorted anatomy. A pedicle screw placed coronally across a thick posterior fusion mass can provide an alternate method of fixation in these cases with complex anatomy.

Methods: Two cases of complex spinal deformity and corrective spinal osteotomies using fusion mass screws (FMSs) placed coronally across the posterior fusion mass are described. The first case is an 8-year-old patient with Marfan's syndrome who developed a crank shaft phenomenon and severe thoracolumbar kyphoscoliosis following a previous PSF. The second case is a 53-year-old patient with coronal imbalance following PSF as a child using Harrington instrumentation who developed distal degeneration with stenosis in her remaining mobile segments. Both patients underwent vertebral column resection and osteotomy closure plus stabilisation using FMS. The clinical and radiological results and technique for insertion of the FMS are described.

Conclusion: In this report, we present a novel method of using posterior FMSs to achieve fixation and correction in cases of revision deformity surgery with difficult anatomy. While we feel pedicle screws are the gold standard in deformity correction, knowledge of alternatives such as the FMS can allow surgeons to achieve stable constructs when faced with challenging situations [1)].

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Lewis SJ, Arun R, Bodrogi A, Lebel DE, Magana SP, Dear TE, Witiw C. The use of fusion mass screws in revision spinal deformity surgery. Eur Spine J. 2014 May;23 Suppl 2:181-6. doi: 10.1007/s00586-013-2843-0. Epub 2013 Jun 7. PMID: 23744035.