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FUSION RATES FOLLOWING POSTERIOR CERVICAL LAMINECTOMY AND FUSION SURGERY

Introduction/Aim

Posterior cervical laminectomy and fusion (PCLF) is a frequently performed procedure to address multilevel cervical spinal pathology; however, literature evaluating fusion rates after this procedure is lacking. The purpose of this study was to perform a systematic review of the literature analyzing published manuscripts that assessed fusion rates after PCLF in patients with multi-level degenerative disease of the subaxial cervical spine.

Materials and Methods

A search was performed in Medline and Pubmed with keywords including: "Posterior cervical laminectomy and fusion", "Pseudarthrosis", "Fusion rates", and "Nonunion". Articles not clearly defining the surgical indication or reported fusion rates for treatment of anterior pseudoarthrosis, trauma, tumor and infection in the cervical spine were excluded. Only articles that reported fusion rates after posterior laminectomy and lateral mass/pedicle screw and rod fixation for the management of degenerative subaxial cervical spine pathologies were included in the analysis.

Results

The initial search yielded a total of 412 articles. Thirty-five articles were selected on the basis of title relevance for abstract/full text review. Five articles met inclusion criteria. All of the articles were retrospective in nature and reported fusion rates that varied between 62% -100%. Only one of the reviewed articles investigated fusion rates as the primary outcome of the study. Fusion assessment consisted of flexion/extension plain film radiographs in four articles and both dynamic radiographs and computer tomography (CT) scan in one of the reviewed articles. Iliac crest bone graft was the most common type of bone graft (3/5 articles). Bone morphogenetic protein was used in one article.

Discussion

Although PCLF is considered the standard in the management of multilevel degenerative cervical spine pathology, there is a paucity of literature specifically evaluating fusion rates associated with this common surgical intervention. The reported fusion rates, as well as the type of bone grafts utilized, varied widely in the published literature.

Conclusions

There is a need for high quality clinical studies with large sample sizes to better assess the fusion rates after PCLF and determine the type of bone grafts or bone graft substitutes associated with a successful arthrodesis.