

Online Resource 5. Complete Search Strategies

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PubMed/MEDLINE

((("spinal metastasis" OR "spinal metastases" OR "spine metastasis" OR "spine metastases" OR "metastatic spine" OR "vertebral metastasis" OR "vertebral metastases" OR "spinal tumor" OR "spinal tumour" OR "spine tumor" OR "spine tumour") AND ("cement augmented" OR "cement augmentation" OR "PMMA" OR "polymethylmethacrylate" OR "fenestrated screw" OR "fenestrated pedicle" OR "cannulated screw" OR "cannulated pedicle" OR "cement screw") AND ("hardware failure" OR "screw loosening" OR "screw pullout" OR "screw pull-out" OR "rod fracture" OR "construct failure" OR "implant failure" OR "mechanical complication" OR "instrumentation failure" OR "cage migration" OR "cage subsidence" OR "screw breakage" OR "fixation failure")))

Results: 47 records

Embase

('spinal metastasis'/exp OR 'vertebral metastasis' OR 'metastatic spine disease') AND ('cement augmented pedicle screw' OR 'polymethylmethacrylate augmentation' OR 'fenestrated pedicle screw' OR 'cannulated pedicle screw' OR 'PMMA screw') AND ('hardware failure' OR 'screw loosening' OR 'implant failure' OR 'construct failure' OR 'mechanical complication' OR 'instrumentation failure' OR 'screw pullout' OR 'rod fracture')

Results: 23 records

Cochrane CENTRAL

("spinal metastases" OR "spine metastases" OR "metastatic spine") AND ("cement augmented" OR "cement augmentation" OR "fenestrated screw" OR "PMMA" OR "polymethylmethacrylate") AND ("hardware failure" OR "screw loosening" OR "construct failure" OR "implant failure" OR "mechanical complication")

Results: 4 records

Web of Science

TS=("spinal metastas*" OR "spine metastas*" OR "vertebral metastas*" OR "metastatic spine") AND TS=("cement augment*" OR "PMMA" OR "polymethylmethacrylate" OR "fenestrated screw*" OR "fenestrated pedicle" OR "cannulated screw*") AND TS=("hardware failure" OR "screw loosening" OR

"screw pullout" OR "rod fracture" OR "construct failure" OR "implant failure" OR "mechanical complication" OR "instrumentation failure")

Results: 12 records

Scopus

TITLE-ABS-KEY(("spinal metastasis" OR "spinal metastases" OR "spine metastases" OR "metastatic spine") AND ("cement augmented" OR "cement augmentation" OR "PMMA" OR "polymethylmethacrylate" OR "fenestrated screw" OR "fenestrated pedicle" OR "cannulated screw") AND ("hardware failure" OR "screw loosening" OR "construct failure" OR "implant failure" OR "mechanical complication" OR "screw pullout" OR "rod fracture"))

Results: 6 records

Total database records: 92

Additional records from citation searching: 4

Total records before deduplication: 96

Supplementary citation searching

Backward citation tracking was performed on all 13 included studies and on 3 relevant review articles identified during full-text screening. Reference lists were manually screened for additional eligible studies not captured by the electronic search. Four additional studies were identified through this process.