Conservative management of ossification of the posterior longitudinal ligament. A review
Pham MH, Attenello FJ, Lucas J, He S, Stapleton CJ, Hsieh PC

CRD summary
This review concluded that patients without myelopathy had a high chance of remaining progression free at follow-up whereas patients with myelopathy may have benefited from surgery due to high rate of progression. The reliability of the conclusions is uncertain due to lack of quality assessment, variation in studies and one study contributing most of the data to the analysis.

Authors' objectives
To evaluate the conservative management of ossification of the posterior longitudinal ligament (OPLL).

Searching
MEDLINE was searched from January 1975 to October 2010. Search terms were reported. Reference lists of relevant articles were also searched. Only studies published in English were eligible for inclusion.

Study selection
Studies which included ossification of the posterior longitudinal ligament patients, who were conservatively managed without surgical intervention and that reported the progression of myelopathy after clinical follow-up were eligible for inclusion. The outcome of interest was change in clinical progression of myelopathy after follow-up.

The included studies reported the following conservative management: clinical follow-up; bed rest; neck immobilisation; cervical brace with mandibular support; decreased activity levels; in-patient traction; short duration of dexamethasone treatment; neck brace; and rehabilitation. Most of the patients presented without any signs of myelopathy. Reasons for non-surgical intervention varied between studies. Some studies used Japanese Orthopaedic Association scores to evaluate the severity of myelopathy (highest score was 17 points).

Three reviewers independently selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data were extracted for the number of patients conservatively managed (%), mean duration of follow-up and radiological change on follow-up. Mean Japanese Orthopaedic Association scores were extracted if available.

Three reviewers independently performed the data extraction; disagreements were resolved through consensus.

Methods of synthesis
The studies were combined in a narrative synthesis and presented as the proportion of patients with and without myelopathy at initial presentation and after clinical follow-up.

Results of the review
Eleven studies were included in the review (480 patients, range 1 to 359). Mean follow-up period was 14.6 years (range 0.4 to 26 years).

During follow-up of 330 patients who initially presented without myelopathy, 83.3% remained progression free whereas 16.7% developed signs of myelopathy. In 76 patients who already had signs of myelopathy at presentation, 51.3% either remained unchanged or improved, while 48.7% showed further progression or worsening of their myelopathy with conservative management.

Follow-up Japanese Orthopaedic Association scores were available in only three studies. In the first study the scores decreased after mean follow-up of seven years and eight months, but the changes were not significant. The scores were
decreased after mean follow-up period of three years in the second study. In the third study, scores were improved after the follow-up of four years and five months.

**Authors' conclusions**
The indications for conservatively managing patients with ossification of the posterior longitudinal ligament remained unclear. Patients who presented without myelopathy at initial presentation had a high chance of remaining progression free at follow-up. Those who presented with symptoms or signs of myelopathy may benefit from surgery due to a high rate of progression over continued follow-up.

**CRD commentary**
The review question was clear. The authors searched only one database and limited the review to published studies reported in English which increased the likelihood that some relevant studies were omitted, and that language or publication biases were introduced. The quality of the studies was not reported which made it difficult to determine the reliability of the data. Attempts were made to reduce reviewer bias in the study selection and data extraction processes.

It may not have been appropriate to combine studies with different study types (clinical, radiological, case report) and different follow-up periods, conservative management strategies and severities of myelopathy (mild, moderate, severe). One study conducted in Japan included most of the patient population (74.8%) and the result may not be completely applicable to all patients with ossification of the posterior longitudinal ligament, which the authors acknowledged. A number of the studies were retrospective in design and the authors acknowledged limitations associated with these.

The authors' conclusions appeared to reflect the results of the review. The reliability of the conclusions was uncertain due to the lack of quality assessment, variation in studies and one study contributing most of the data to the analysis.

**Implications of the review for practice and research**
The authors did not state any implications for practice and further research.

**Funding**
Dr. Hsieh was reported being a consultant for DePuy Spine and Medtronic, and he received support from DePuy Spine for non-study-related clinical or research effort.

**Bibliographic details**

**PubMedID**
21434818

**DOI**
10.3171/2011.1.FOCUS10273

**Original Paper URL**
http://thejns.org/doi/abs/10.3171/2011.1.FOCUS10273

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Clinical Trials as Topic /methods; Decompression, Surgical /methods; Disease Management; Disease Progression; Humans; Longitudinal Ligaments /pathology /surgery; Ossification of Posterior Longitudinal Ligament /complications /diagnosis /therapy; Spinal Cord Compression /diagnosis /etiology /therapy

**AccessionNumber**
12012004168
Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.