

## **Executive summary**

### **Percutaneous endoscopic laser discectomy**

(Adapted from the report of the Review Group by Ms Maggi Boulton)

#### **Background**

Herniated intervertebral lumbar discs are a common cause of pain in the population. The herniation is the result of a protrusion of the nucleus pulposus through a tear in the surrounding annulus fibrosus (the capsule enclosing the gelatinous centre of the disc). The annulus fibrosus may rupture completely resulting in an extruded disc or may remain intact but stretched resulting in a contained disc prolapse. This may then compress one or more nerve roots, resulting in pain along the sciatic nerve.

Most herniated lumbar discs are successfully managed conservatively but some require surgical intervention. The standard procedure is an open removal of the herniated disc. This is often done with the aid of an operating microscope.

Percutaneous Endoscopic Laser Discectomy (PELD) is a minimally invasive surgical procedure that combines endoscopic visualisation of the disc space with laser decompression. Proponents of the system claim this provides symptomatic relief by reducing pressure on the nerve roots from a contained disc prolapse. During the procedure a probe is inserted into the disc through a small incision in the patients' back. Laser energy is delivered through the probe and used to vaporise part of the nucleus pulposus. The rationale for this procedure is that the laser ablation will cause a reduction in the volume of the nucleus pulposus with a concomitant decrease in the intradiscal pressure. If the protrusion is contiguous with the nucleus pulposus this may result in a migration of the extruded disc away from the nerve root.

#### **Methods**

The systematic literature search conducted for this review in September 1998 retrieved 13 articles relating to percutaneous endoscopic laser discectomy. None of the papers offered high quality evidence. There were no controlled, blinded or randomised studies. At best, the evidence came from time studies (level III evidence), and case series (level IV). Other papers provided descriptions of the technique. A reappraisal of the literature took place in January 2000, however no further references were located for the year following the primary literature search.

#### **Results**

Adverse effects from the PELD procedure were reported in four patients: infection, suspected discitis, contralateral transient dermatomal discomfort and transient nerve block.

#### **Conclusion and recommendations**

Due to insufficient and poor quality supporting evidence for the PELD procedure, nothing could be concluded about its safety and efficacy.

## **The ASERNIP-S procedure classification**

2. *The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. It is recommended that further research be conducted to establish safety and/or efficacy.*

## **Recommendations Regarding the Need for Further Research**

In order to strengthen the evidence base regarding the procedure it is recommended that a controlled clinical trial, ideally with random allocation to an intervention and control group, be conducted. The Royal Australasian College of Surgeons recognises that it may not always be possible to undertake a controlled clinical trial. Under such circumstances, it is recommended that at the very least, data be contributed to an audit for further assessment, in collaboration with ASERNIP-S, until such time as a controlled clinical trial is undertaken.

## **Review Group Membership**

Review Surgeon	Professor Rob Fraser
Protocol Surgeon	Professor Nigel Jones
Nominated Surgeon	Mr John Liddell
Nominated Surgeon	Mr Orso Osti
Invited Surgeon	Mr Peter Dohrmann
Other Specialty Surgeon	Professor Peter Donnelly
ASERNIP-S Researcher	Ms Maggi Boulton
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**Important note** The information contained in this report is a distillation of the best available evidence located at the time the searches were completed as stated in the protocol. Please consult with your medical practitioner if you have further questions relating to the information provided, as the clinical context may vary from patient to patient.

## **For further information about ASERNIP-S**

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