Open vs laparoscopic repair of secondary lumbar hernias: a prospective nonrandomized study


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Open and laparoscopic prosthetic repair of secondary lumbar hernias were studied.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with a secondary lumbar hernia.

Setting
The setting was secondary care. The economic study was carried out in Spain.

Dates to which data relate
The effectiveness and resource use data related to the period from January 1997 to January 2003. No price year was reported.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The cost data were collected retrospectively from the same patient sample that provided the clinical effectiveness data.

Study sample
The paper did not describe how the patient sample was identified. A total of 16 patients were included in the study. Of these, 9 underwent laparoscopic surgery and 7 had open surgery. No sample size or power calculations were reported.

Study design
The study was of a single-centre cohort design. The patients were followed up for a mean of 28 months (range: 12 to 50). The loss to follow-up was not reported. No blinding to treatment appears to have been used.
Analysis of effectiveness
All of the patients who entered the study were included in the analysis. The health outcomes used were:

- length of hospital stay,
- operating time,
- postoperative morbidity,
- analgesic consumption,
- reoccurrences, and
- length of time before normal activities resumed.

The two patient groups were shown to be comparable in terms of their age, history, site and hernia type, but those undergoing open surgery had larger hernias.

Effectiveness results
The mean operating time was 43 minutes in the laparoscopic group compared with 71 minutes in the open surgery group, (p<0.001).

Postoperative morbidity was higher in the open surgery group (86%) than in the laparoscopic group (33%), (p<0.05).

Patients who had open surgery took a mean of 25 days to return to normal activities, compared with 12 days in the laparoscopic group, (p=0.4).

Patients who received open surgery consumed analgesics for a mean of 19 days, compared with 7 days for laparoscopic patients, (p<0.001).

Clinical conclusions
The authors concluded that laparoscopic surgery is more efficient than open surgery for secondary lumbar hernias.

Measure of benefits used in the economic analysis
No summary measure of health benefit was used in the economic analysis. In effect, a cost-consequences analysis was undertaken.

Direct costs
The direct costs of the hospital were identified. Resource use and unit costs were identified using hospital systems. No breakdown of resource use and unit costs was provided in the paper. The resource use data related to the period from 1997 to 2003. No price year was reported.

Statistical analysis of costs
The difference between costs in the two patient groups was tested using Student's t-test.

Indirect Costs
No indirect costs were included in the analysis.

Currency
Sensitivity analysis
No sensitivity analysis was undertaken.

Estimated benefits used in the economic analysis
No summary measure of benefit was reported. See the 'Effectiveness Results' section.

Cost results
The mean total cost was EUR 5,010.92 (standard deviation, SD=830.73) for open surgery patients compared with EUR 3,433.12 (SD=325.72) for laparoscopic patients, (p<0.01).

Synthesis of costs and benefits
Not relevant.

Authors' conclusions
Laparoscopic surgery for secondary lumbar hernias is more effective and has lower costs than open surgery.

CRD COMMENTARY - Selection of comparators
This study compared open and laparoscopic surgery for secondary lumbar hernias. Neither of these procedures was explicitly identified as the comparator in the paper. You should consider how these options compare with usual practice in your own setting prior to applying the results of this study.

Validity of estimate of measure of effectiveness
The measure of clinical effectiveness was taken from a cohort study. The clinicians treating the patient decided on the surgical technique to be used, meaning that there was potential for allocation bias. A randomised controlled trial would have provided a more robust estimate of the clinical effectiveness of the two procedures. The two patient groups were not shown to be comparable. The group receiving open surgery had larger hernias than those undergoing laparoscopic surgery. This factor could explain some of the reported differences between the two patient groups. The paper did not compare the patient sample with the wider patient population, so it is unclear how representative this study sample is.

Validity of estimate of measure of benefit
No summary measure of health benefit was used in the economic analysis. As a result, a cost-consequences analysis was, in effect, undertaken.

Validity of estimate of costs
The authors did not report the economic perspective of the study, but that of a hospital appears to have been adopted. All appropriate costs from this perspective appear to have been included. No breakdown of resource use and unit costs was reported. This will limit the generalisability of the study results. No sensitivity analysis was undertaken, but the difference in costs between the two patient groups was tested statistically. This means that the extent of uncertainty around the difference in costs was considered. No price year was reported, which will prevent any future reflation exercises.

Other issues
The authors do not appear to have presented their results selectively and their conclusions reflect the analysis. They did
not compare their study results with other similar studies, nor did they consider how their findings could be generalised to other settings.

**Implications of the study**
The authors did not make any recommendations for further research or changes to practice.

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None stated.

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