THE USEFUL OF PERCUTANEOUS ENDOSCOPIC LUMBAR DISCECTOMY IN OVER 75 YEAR’S OLD PATIENTS WITH LUMBAR DISC PROLAPSE

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Background: treatment of disc prolapse of the lumbar spine by the technique of endoscopic spinal surgery has become widely used nowadays. And this is due to its advantage of minimal tissue scar, shorter time of recovery, less invasive. And can be performed under (local, spinal, or general) anesthesia. Here I describe the outcomes of percutaneous endoscopic discectomy. Methods: cross-sectional of > 75 years old patients with lumbar spine disc prolapsed are confirmed. Treated by percutaneous endoscopic lumbar discectomy (PELD) between January 2016 to May 2018. The demographic and clinical data were collected, and data of postoperative Oswestry disability index (ODI) and visual analog scale (VAS) at 3, 6, 18 months. Results: the successful percentage of PELD is 90% after a median follow-up of 14 months, with 67% of cases went home after a median time of 26 hours. Conclusion: This study suggests that percutaneous endoscopic lumbar discectomy is a safe procedure for prolapsed disc treatment in elderly patients.

Keywords: PELD, disc prolapsed, open spine surgery, micro spine surgery.

INTRODUCTION:
The increasing interest in endoscopic spinal surgery for degenerative spinal diseases. A percutaneous lumbar discectomy has 2 subtypes, and these are, the 1st one is transformational (PTELD) \(^1,^2\) and 2nd one is interlaminar (PIELD) \(^3\). These procedures are safe and fast in the management of prolapsed disc \(^4,^5\); by this way, it is helpful with a prolapsed disc in the elderly. Because it is minimally invasive, with a shorter time to recovery, and has less scar formation compared to microdiscectomy \(^1,^4\). After all, we try to show in this study that percutaneous endoscopic lumbar discectomy is a viable and safe technique for older patients with comorbidities. Such procedures are currently of great interest. Considering the elderly patient needs this type of operation that is PELD.

METHODS:
A 275 patient age of more than 75 years old suffering from a prolapsed disc was collected from January 2016 to January 2018 at the institution of spine surgery in Baghdad Iraq (150 patients are included). The criteria included age more than 75 years old, clinical diagnosis of the prolapsed lumbar disc, the procedure of treatment was PELD, disc prolapse confirmed by MRI, no response to medical treatment for 6 weeks, and at least one year follow up. Exclusion criteria were lumbar canal stenosis, recurrent disc prolapse, spine instability, Cauda equina syndrome, and a calcified disc. Data collected, and neurological status, sex, back pain, and leg pain by VAS scours were evaluated preoperatively and 3, 6, and 18 months post-operation ODI. Three points or more considered a satisfactory postoperative outcome less than the preoperative VAS score. More than 60% suffered from chronic diseases (DM, HT, IHD), and not more than 30% had (renal, pulmonary illness).

Surgical technique:
In PTELD, the patient positioned in the prone chest hip below is used to free the abdomen. The Posterolateral approach was performed. Starting by local anesthesia at the site of operation by using spinal needle gage 18 start from skin to lateral vertebral foramen, 10 ml of 1% lidocaine

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used for local anesthesia then remove the stylet of needle replaced by the guidewire, then remove the needle and keep guidewire in position, after that introduce trocar over the guide till it is in the annulus then introduce sleeve over the trocar then remove trocar and inserted the endoscope, all this procedure under c-arm fluoroscopy guided [3]. Fig 1

![Fig 1: percutaneous transforaminal endoscopic lumbar discectomy](image1)

In PIELD, patients are in a prone position under either spinal or epidural anesthesia. Under the guide of c-arm fluoroscopy identification of interlaminar space of affected level then made an incision of 0.5 cm. It separated paraspinal muscle by trocar after that introduce sleeve over trocar then remove trocar and introduce endoscope [7]. Fig 2

![Fig 2: percutaneous interlaminar endoscopic lumbar discectomy](image2)

**RESULTS:**
150 patients were included with lumbar disc prolapsed treated with PELD, age of more than 75 years old, was collected from January 2016 to January 2018 at the institution of spine Baghdad Iraq.
The mean age was 76.9 years (range: 76 – 85). Male to female ratio was 1:1.2, (55%) of patients were female and (45%) male. The leg pain is found in all patients, and no response to medication and physical therapy at least six weeks of treatment for all patients with VAS scores between 6-9. About 96 patients (54%) at L4-5, 38 patients (25%) at L5-S1 level, 12 patients (8%) at L3-4, 4 patients (3%) at L2-3 lumbar level. A 32 patient (21%) with a multiple levels disc prolapsed table no. 1. 128 patients (85%) underwent transforaminal, 22 patients (15%) had interlaminar PELD table no. 2.

<table>
<thead>
<tr>
<th>level</th>
<th>Pat. No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4-5</td>
<td>96</td>
<td>54</td>
</tr>
<tr>
<td>L5-S1</td>
<td>38</td>
<td>25</td>
</tr>
<tr>
<td>L3-4</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>L2-3</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

**Tab (1): number and % of disc prolapse levels.**
Tab 2: number and % of patients in different 2 types endoscopic procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Pat. No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTELD</td>
<td>128</td>
<td>85</td>
</tr>
<tr>
<td>PIELD</td>
<td>22</td>
<td>15</td>
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Outcomes of patients

Time of operation from 45-120 min, with a mean of 67 min. 141 patients (98.1%) fell pain-free immediately postoperatively. 67% of patients were discharged home within (12-48 hours) with a median of 26 hours, 4 patients reoperated, and 5 patients needed 12 days to feel better. The VAS score was 4.9 at three months, 3.1 at six months, and 2.3 at 18 months table 3. The mean of VAS scores postoperatively of leg pain is significantly decrease compared to preoperative at three months of follow up, and the P-value is < 0.001 table 4, and also evaluate the postoperative back pain comparing in both PIELD and PTELD in which there is no difference in VAS score follow up (p >0.05). ODI value decreased from 70.2% to 38.5% in three months. 22.4% at six months, 17.7% at 18 months, and it are significantly lower than preoperative ODI (p =0.002).

The median follows up 14 months (range 12-18 months), and 90% of patients were satisfied by the surgical procedure.

Tab 3: follow up patients by VAS and ODI at 0, 3, 6, 18 months post-operative

<table>
<thead>
<tr>
<th>Month</th>
<th>VAS score</th>
<th>ODI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-operative</td>
<td>6-9</td>
<td>70.2%</td>
</tr>
<tr>
<td>0 immediate opst op.</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>3 post op.</td>
<td>4.9</td>
<td>38.5%</td>
</tr>
<tr>
<td>6 post op.</td>
<td>3.1</td>
<td>22.4%</td>
</tr>
<tr>
<td>18 post op.</td>
<td>2.3</td>
<td>17.7%</td>
</tr>
</tbody>
</table>

P value ≤ 0.05 (significant).

DISCUSSION:

PELD treatment in disc prolapse in the lumbar region has a good to excellent success in 75 percent to 90 percent of patients [4, 8, 10, 11, 13]. Other large sets by Schubert and colleagues [11], the satisfactory postoperative outcome was >90% of patients without serious complications reported. In other studies, showing the same rate of success [10, 12, 13], PELD had a significantly better result than open discectomy, with a shorter surgical and hospitalization time and a better final follow-up [5]. Although, in elderly patients, the risk of operation increased with general anesthesia due to comorbid of the general condition of the elderly patient [6, 9, 16, 17], even with elderly patients may have a more complex degenerative spinal condition, some authors showed the successful endoscopic technique especially in lumbar stenosis [1,3,14]. The description of the use of local anesthesia for lumbar discectomy is mentioned in several studies [2, 9, 20, 21], and in elderly patients, postoperative morbidity is significantly decreased. The mean operation time is 67 min. This time was between the lowest and the highest of the operative meantime for the endoscopic technique was (40–120 min) [9, 15, 22].
There was no significant difference between PIELD and PTELD in postoperative pain by VAS and no significant difference in postoperative complications. All were consistent with other similar studies [2, 16, 20]. The endoscopic discectomy in elderly patients is not a procedure that can be taken easily. Both PIELD and PTELD need surgeons to have high knowledge of spinal anatomy and endoscopic techniques (at least 80 cases) and spinal surgery in general. We also believe that the surgeon should be able to switch from endoscopic to open surgery as needed in order to serve the patient better.

CONCLUSION:
Because there are so few studies on endoscopic discectomy in the elderly, we anticipate that this study will be of interest to many surgeons who deal with such old patients. However, the benefit of PELD in older patients following lumbar discectomy requires further randomized studies and larger series.

REFERENCE: