ABSTRACT

Objective: To evaluate the degree of patient satisfaction and complications after endoscopic surgery for the treatment of lumbar disc herniation. Methods: We retrospectively evaluated 94 patients with lumbar disc herniation undergoing endoscopic lumbar discectomy through the MacNab questionnaire and four subjective questions related to the procedure. Results: Approximately 82% of the patients had good and excellent results, and 91.4% reported being satisfied with the surgical result obtained with endoscopy. The rate of complications with the method was 9.5%, with recurrent disc herniation being the most common complication (5.4% of cases). Conclusions: Endoscopic surgery proved to be an effective and safe method, and an alternative to conventional open surgery. Level of evidence; III. Therapeutic studies - Investigation of treatment results.

Keywords: Spine; Endoscopy; Sciatica; Complications.

RESUMO

Objetivo: Avaliar o grau de satisfação dos pacientes e as complicações após cirurgia endoscópica para tratamento da hérnia discal lombar. Método: Avaliados, retrospectivamente, 94 pacientes com hérnia discal lombar, submetidos a discectomia lombar endoscópica, através do Questionário MacNab e por meio de quatro perguntas subjetivas relacionadas ao procedimento. Resultados: Aproximadamente 82% dos pacientes tiveram excelentes e bons resultados e 91,4% relataram estar satisfeitos com o resultado cirúrgico obtido com a endoscopia. A taxa de complicações com o método foi de 9,5%, sendo a recidiva da hérnia discal a complicação mais comum (5,4% dos casos). Conclusão: A cirurgia endoscópica se mostrou um método eficaz, seguro e uma alternativa à cirurgia aberta convencional. Nível de evidência; III. Estudos terapêuticos – Investigação dos resultados do tratamento.

Descritores: Coluna vertebral; Endoscopia; Ciática; Complicações.

INTRODUCTION

Lumbosciatalgia is one of the most common complaints in orthopedic practice and approximately 5% of the cases seen result from disc herniation. According to the natural history of disc herniation, around 95% of patients improve completely after three months of conservative treatment.\(^1,2\) Among surgical treatments, the open microdiscectomy is considered the gold standard.\(^3,4\)

With technology advances and the interest in making modern surgical treatment techniques available, minimally invasive surgeries have been developed.\(^3,5,6\) Despite the fact that less invasive techniques have a long learning curve, higher cost, and longer surgical time, this treatment is the trend and literature data have shown that this method is safe, and its indication is increasing in as the technique gains acceptance.\(^3,6-10\)

Minimally invasive spinal surgery has gradually evolved, endoscopic equipment being improved and demonstrating progressive success and, currently, two percutaneous decompression techniques are the most used: transformaminal, described in 2004 by Tsou and Yeung, and interlaminar, described by Choi in 2005.\(^7\)

The advantages of using minimally invasive techniques are a smaller surgical incision and less aggression of the soft tissues (multifidus muscles) around the disc.
muscles, ligaments, and the facet joint capsules). Less aggression generates less local pain, in addition to using minimal bone resection for the discectomy, which can prevent possible spinal instability.6,9,11,16

The objective of this study was to evaluate the surgical results obtained using endoscopic discectomy to treat lumbar disc herniation and the complications associated with the method.

METHODS

This was a retrospective descriptive study, approved by the Institutional Review Board of the Hospital do Trabalhador as CAAE number 64275817.3.0000.5225. Data was collected from 94 patients who underwent endoscopic surgery (transforaminal or interlaminar) at the Hospital do Trabalhador, Curitiba-PR, during the period from January 2104 to December 2016. The interlaminar approach was indicated for patients with central or central-lateral herniations, while we opted for the transforaminal approach in patients with foraminal and extraforaminal herniations. The clinical assessment was conducted by means of the MacNab questionnaire,17 with the addition of four yes or no questions to be answered by the patients, as shown in Table 1.18

Epidemiological data such as age, sex, return to work, were evaluated together with postoperative complications, including infection of the surgical site, neurological changes (pareses, paresthesias), neural lesions, and iatrogenic durotomy. We also collected data about recurrence of the disc herniation.

Patients previously submitted to surgical spinal treatment for any other reason, those below 18 or above 80 years of age, those with postoperative follow-up less than 6 months, and those who did not sign the informed consent form were excluded. All patients participating in this research signed the informed consent form.

RESULTS

Ninety-four patients who underwent endoscopic surgical treatment for lumbar disc herniation were included in this study. Fifty-two (55.3%) patients were female and 42 (44.7%) were male. Their ages ranged from 18 to 79 years, with a mean of 39 years of age. Of these patients, seventy-eight (82.9%) were treated using the interlaminar technique and 16 (17.1%) with the transforaminal technique. (Figure 1)

A total of 116 levels were operated, with L5-S1 being the most often indicated for patients with central or central-lateral herniations, while indicated for patients with foraminal and extraforaminal herniations. The clinical assessment was conducted by means of the MacNab questionnaire,17 with the addition of four yes or no questions to be answered by the patients, as shown in Table 1.18

Epidemiological data such as age, sex, return to work, were evaluated together with postoperative complications, including infection of the surgical site, neurological changes (pareses, paresthesias), neural lesions, and iatrogenic durotomy. We also collected data about recurrence of the disc herniation.

Patients previously submitted to surgical spinal treatment for any other reason, those below 18 or above 80 years of age, those with postoperative follow-up less than 6 months, and those who did not sign the informed consent form were excluded. All patients participating in this research signed the informed consent form.

Table 1. Questionnaire given to the patients.

<table>
<thead>
<tr>
<th>Question</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Since the endoscopic surgery, have you had lumbar symptoms at the same level?</td>
<td>54</td>
</tr>
<tr>
<td>Are you satisfied with the results of the endoscopic surgery?</td>
<td>53</td>
</tr>
<tr>
<td>Based on your experience, would you undergo the same endoscopic surgery in the future or recommend it to someone you know?</td>
<td>53</td>
</tr>
<tr>
<td>Did your spine or leg symptoms worsen following surgery?</td>
<td>53</td>
</tr>
</tbody>
</table>

As regards return to work, 68 (72.3%) patients returned to work and 26 (27.6%) did not return. Of those who did not return, seven (7.4%) were involved in labor grievances, two (2.1%) were retired, eight (8.5%) had recurrences/complications, and 10 (10.6%) patients had no complications, but had been evaluated as MacNab 3 or 4, and were on leave receiving benefits. (Figure 4)

DISCUSSION

The gold standard treatment for lumbar disc herniation is open microdiscectomy, however, with advances in medicine and in minimally invasive techniques, endoscopic discectomy is gaining acceptance as an alternative.

Since the endoscopic surgery, have you had lumbar symptoms at the same level?

Are you satisfied with the results of the endoscopic surgery?

Based on your experience, would you undergo the same endoscopic surgery in the future or recommend it to someone you know?

Did your spine or leg symptoms worsen following surgery?

Figure 1. 1- and 2-level interlaminar and transforaminal approaches.

Figure 2. Total number of levels operated by technique used.

Figure 3. Patient satisfaction index according to the MacNab questionnaire.
invasive techniques, modern discectomy techniques have recently gained popularity, as is the case with endoscopic surgery.\textsuperscript{17,19}

In this study, we conducted a retrospective evaluation of patients submitted to endoscopic surgery with an average follow-up of 14 months, ranging from 6 to 34 months. Using the MacNab questionnaire, approximately 82% of the patients had excellent and good results, similar to open technique success rates in the literature that range from 70 to 84% good results.\textsuperscript{20} Ruetten et al and Yeung and Tsou observed 85% and 81%, respectively, for the same technique, corroborating our findings.\textsuperscript{9,12} As regards the questions related to satisfaction with the surgical result, 91.4% of the patients reported being satisfied with the result obtained and 94.6% would undergo the procedure again if necessary or would indicate it for someone who needs it. Only 5 (5.4%) cases whose symptoms worsened would not indicate the surgery or would not do it again. In similar questionnaires, Yeung and Tsou obtained 90.7% and Choi et al. 90.8% satisfaction among the operated patients.\textsuperscript{9,12,13,15}

CONCLUSION

Endoscopic surgery for the treatment of lumbar disc herniation presented 82% excellent and good results as evaluated by the MacNab questionnaire and 91.4% of the patients reported being satisfied with the surgical outcome. The option to use minimally invasive techniques is a trend in medicine and endoscopic surgery has proven to be a safe and effective technique with results that are comparable to the traditional approach.

All authors declare no potential conflict of interest related to this article.

CONTRIBUTION OF THE AUTHORS: Each author made significant individual contributions to this manuscript. CG (0000-0002-3709-2880)*, XSG (0000-0002-9636-9165)*, and ALK (0000-0002-0132-6083)* were the main contributors to the writing of the manuscript. ALK performed the surgeries. MLB (0000-0002-2903-8550)*, who also evaluated the statistical analysis data. CG, XSG, and ALK (0000-0002-9636-9165)* were the main contributors to the writing of the manuscript. ALK performed the surgeries.

REFERENCES


