

Patients' Perceptions Of Lumbar Spinal Stenosis And Experiences After Surgical Treatment

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Abstract

PURPOSE: Research has shown that surgery gives patients with lumbar spinal stenosis health advantages compared to conservative treatment. This qualitative study aimed to investigate the perception of symptoms from lumbar spinal stenosis by patients, and their experiences after surgery. The purpose was to create a comprehensive understanding of patients' experiences before and after treatment. **METHOD:** We chose purposive sampling and conducted ten semi-structured interviews in early 2018. Thematic analysis was adopted. **RESULTS:** The patients stated that a strong and constant pain characterized their life situation before the operation. After surgery, the patients experienced rapid recovery from pain. The patients stated that the pain had led to considerable functional limitations. After surgery, they experienced remarkable improvement on a functional level. The patients shared their experience about how pain had prevented them from participating in meaningful activities and tasks. Some of the patients said that they had experienced depression due to the difficult situation before surgery. The patients found that treatment led to an improvement in their quality of life. **CONCLUSION:** The study showed that the patients who lived with severe symptoms of lumbar spinal stenosis experienced a decline in their quality in life. The condition prevented them from participating in daily activities. After surgery, they were able to participate in meaningful activities and tasks. They felt an increased participation in society. Social support and information from health care providers enables patients to make knowledge-based choices.

Introduction

Lumbar spinal stenosis is one of the most common reasons for lumbar surgery in elderly people over the age of 65 [1]. In the United States, this is the group of patients who have had the greatest increase of surgical treatment since the year 2000 [2]. Lumbar spinal stenosis means a narrowing of the spinal canal, leading to compression of nerves and vessels in the spinal cord [3]. It is caused by degenerative changes and gives clinical symptoms such as pain in the lower back, numbness and pain in the feet, especially when walking (neurogenic claudication). The condition may also result in a reduced functioning level due to pain. Little or moderate pain often leads to conservative treatment, and the assessment of potential benefit of the operation should exceed any risk from surgical treatment [4]. People with symptoms of lumbar spinal stenosis seeking treatment for their disorder usually have back pain or pain in one or both of their lower extremities. In some cases it may be difficult to make a specific diagnosis for this group of patients [5]. The diagnosis is often made on the basis of the patient's clinical symptoms with corresponding findings from radiological investigations [6].

Posterior decompression is a collective term for multiple posterior decompression techniques used to relieve the compression of the nerves in the spinal canal [7]. Using one of these different techniques, one creates better conditions for the nerve structures of the spinal cord. This is created by removing deposits and surrounding tissues [3].

A comprehensive survey was conducted in the United States, showing that surgical treatment of lumbar spinal stenosis led to a significant improvement for patients, as compared with conservative treatment. They reported an improvement in terms of pain and function, and that patients were more pleased with their progression after surgery [8]. A similar study documented patients' improvement in terms of physical progress [9]. Corresponding studies also show positive outcomes considering both the lower back pain and pain in the feet [10]. Previous studies further confirm that the patient's outcome after surgery is considered to be superior to conservative treatment [1]. All the studies mentioned above are based on a quantitative research design evaluating different Patient Reported Outcome Measures.

Several qualitative studies concerning patients' experiences with no surgical treatment of lumbar spinal stenosis have been published. The results show that the effect of treatment with medical care and exercise was generally temporary and that no surgical treatment was most often associated with minimal effect [11]. Qualitative research regarding patients' experiences after decompression surgery is lacking. In this study we intended to achieve a comprehensive understanding of the patient's experience, through a qualitative research design. This study was undertaken as a supplement to the existing quantitative knowledge in this field.

Method

A qualitative design was applied and semi-structured interviews were used in order to collect data [12]. Audio-recordings were transcribed and analyzed using an inductive thematic method [13]. We focused on each patient's experience of pain, mobility and quality of life as these phenomena are considered key symptoms of this condition [14, 15]. The study was approved by the Regional Committee for Medical and Health Research Ethics (No: 2017/2372). Informed consent was obtained prior start-up from all participants.

PARTICIPANTS AND RECRUITMENT

Purposive sampling was conducted [12]. Patients that had undergone surgery for lumbar spinal stenosis were selected. They had not benefited from conservative treatment and had undergone a posterior decompression of the effected level of the spine. Exclusion criteria were patients with cognitive impairment and other criteria that could have an impact on the outcome, reoperations, fixations and disc hernia surgery. The subjects were drawn consecutively from the Health Agency's register, between 16th of May 2017 and 31st of October 2017. All respondents had had surgery for the first time, comprising only decompression. Ten patients participated in the study. Five were women and five were men, aged 61 to 79 years.

PARTICIPANTS

Table 1: Participants. N1 is female, and age is given. N2 is male.

Average age

N1	65	65	65	61	78	67
N2	77	79	76	63	65	72

DATA COLLECTION

The participants were recruited by phone by a healthcare professional who was not involved in the studies. The semi-structured interviews were audio-recorded and took place in the participant's home or in the hospital, during early 2018. The interviews lasted between 60 and 90 minutes. In order to answer the research question an interview guide, with open-ended questions regarding pain, mobility and quality of life, was constructed [7, 12]. The transcription was done immediately after each interview. The data that were gathered in each category were rich and thick and until each category intended to be repetitive and redundant [16].

Interview guide:

1. How was your situation before the operation?
2. How did you experience pain and mobility before treatment?
3. How did you experience quality of life before treatment?
4. What information did you receive before the operation?
5. How did you experience pain and mobility after surgery?
6. How did you experience quality of life after surgery?
7. Do you have anything else you want to tell?

Three topics were addressed in the interviews: pain, mobility and quality of life.

ANALYSIS

The first author conducted the interviews. She was trained in qualitative interviews. The analysis started from the first interview. When ten interviews were conducted no new information was obtained and redundancy was achieved [12]. Two of the authors performed the thematic analysis, L.B. and M.K., in collaboration with the research team. [13]. The analysis was undertaken in different steps. At first, three of the authors L.B., M.K. and E.H. read all the interviews. Then the first author coded the data regarding pain, mobility and quality of life in the pathway. The data were coded into subthemes systematically, before and after surgery. It started with each interview, then searched across the interviews in order to look for similarities and differences that could describe patients' lived experiences regarding pain, mobility and quality of life in the pathway [13]. Further gathering of all data relevant to each theme was

Loading [MathJax]/jax/output/CommonHTML/jax.js ysis. Continuous analysis was necessary to identify themes

that were abstractions of the data below each category. In this way we could define the final themes from the data collected. Final analysis was done to ensure the themes were related to the research question and the actual literature in the study [13].

The purpose was to create a comprehensive understanding of patient's experiences before and after surgery. This required that one had to be reflective and analytical throughout the process [17].

Table 2: Illustration of analytic steps in identifying relevant themes

CODING	Quotations	sub theme	Final theme
Patients' experiences of pain before surgery	«It felt like an iron stitch toward the hip»	Strong and constant pain for many years	Rapid recovery from pain
Patients' experiences of pain after surgery	"I felt free from pain"	Recovery from pain	

Results

Ten informants, five women and five men expressed how they experienced Lumbar Spinal Stenosis symptoms before surgery, and their situation after treatment. They were aged 61 to 79 years. Three themes express their experiences: (1) Rapid recovery from pain (2) Significant improvement in functional level (3) Remarkable improvement in quality of life after surgery.

Rapid recovery from pain

The patients spoke of having experienced pain for many years. They described the pain as long lasting, strong and constant. Mostly they had experienced pain during activity. The pain was located in the lower back and in one or both of the lower extremities. The pain was described as «a glowing iron stitch toward the hip» (N1), and «it felt as though it was squeezing my thighs and sometimes the pain went down to the ankles» (N3). Those who had pain in the backbone experienced a soothing effect when they sat down or whilst they bent forward. Several of the informants reported that they had experienced palsy in one or both of the lower limbs. They described it with words like «tingling, pricking and numbness». Most experienced palsy in the bottom and thighs, some completely down to the toes.

After surgery, the patients spoke of rapid recovery from pain. They had experienced immediate change and referred to being without pain even before leaving hospital. «As soon as I woke up, and was able stand on my feet, I realized I couldn't feel any pain. I cried, it felt fantastic, it was like giving birth» (N4). The patients' narratives about surgical treatment were communicated in an emotional and grateful manner. Some of the patients said that the recovery was gradual. One of them declared that after two months he felt «free of pain» (N1). However, another said that he still experienced pain. Most patients who had experienced paralysis and weakness of the lower extremities before the operation had noted a

feeling of improvement immediately after the surgical treatment. This was always the first real experience of improvement mentioned after treatment. A short time after the operation, a few of the informants could still feel a slight numbness in the toes, but to a far lower degree.

Significant improvement in functional level

The patients communicated that the pain due to Lumbar Spinal Stenosis had led to reduced functional capacity and put limitations on their daily activity and social participation. One of the symptoms that was communicated was that the foot began to shake. A sense of stiffness and pain when starting any activity was described. This led to walking with small steps in fear of the foot giving way. Several had experienced an occasional failure of one of the lower limbs. The patients described the functional limitations they had to face in everyday life and that it was crucial for when one would try to embark on any daily activity. One of the patients described his experience of limitations with »at all times it was not easy, I asked my wife about things I usually could do by myself« (N5).

The patients said that they used crutches and were even supported by available fixtures in the house during relocation. The patients described an isolated existence. It was described for example as »for almost a year I couldn't manage to do anything« (N4). They spoke of how difficult it was to participate in recreational activities. One of the patients said that he had to reduce using his car and also described his limitations by «I walked only short distances before the pain started» (N1). Most described a walking distance of 200-300 meters, while for some it was even more limited.

After surgery most patients described the situation as «much better», however some patients reported experiences with less positive outcomes. Among the patients who had experienced significant improvement in function, most could perform daily tasks and gradually resume leisure activities. One of the patients said that walking steps was still a challenge, because muscles were still weakened due to prolonged immobility. Another said that after a year of isolation he could go fishing daily; he shone during the conversation and showed great pleasure in his new life situation. A patient spoke about improvement of function and described it as «being able to walk all the way through the corridor, and that she even was able to walk up the steps». After returning home, she could report «*Imdo ∈ gexactlywÎwant, Im doing my housework and cooking, I walk longer distances, up to five kilometers*» (N2). There were reports of cases of complications with outcomes such as reduced activity levels and increased fallout. One of the patients could announce immediate improvement of paresis but that the pain gradually had returned.

Remarkable improvement in quality of life after surgery

Quality of life before the operation was described as bad. Life was mostly about short evenings and poor sleep quality. Some of the patients felt depressed because of this overall poor quality of life. The patients spoke of how crucial their own motivation and will power had been to overcome the challenges of everyday life. They felt loss of freedom and «useless and helpless» (N3). Patients described that they «mostly stayed inside their home» (N4). The patients explained that the poor quality of life was the

reason for choosing the operation. The stories conveyed the feeling that several had been waiting too long before receiving treatment.

After treatment, the quality of life was described as good by most of the patients. One of the patients told us how good the quality of life had become compared to what it had been the past few years. «I can now go further distances without doing any exercise» (N1). Another reported that although he had high expectations of the outcome of surgery, he had none the less not realized the outcome would be so successful, «I felt like a new person» (N2), another described it as «the feeling of a completely new life» (N8). The patients spoke of the remarkable and strong contrast as they described their quality of life before and after the surgical treatment. One of the patients spoke of the possibility to participate more in social life by «now I work 100%, there's nothing to stop me» (N3). It was not everyone who experienced improvement in quality of life as a result of treatment. It was also described as a small improvement (N7). Another reported that she was unsure about the final result of treatment (N6).

Discussion

The study showed that the patients experienced remarkable benefits after the surgical treatment. They spoke of rapid recovery from pain, and that they had achieved a significant improvement in functioning level after surgery. They also talked about improvement in quality of life after the intervention. The study showed that most patients felt a relief of numbness and pain immediately after surgery.

The patients described the pain intensity and how the pain brought limitations for meaningful activities and tasks. This is in accordance to earlier quantitative studies which document patients' recovery from pain as a result of operative treatment [7]. The current study illustrated the emotional consequences of the long lasting and strong pain. After treatment, they described an experience of rapid recovery from pain in the lower extremities, a gradual recovery of function and that they were satisfied with their progress after surgery.

The current study showed that the patients' situation before surgery was related both to pain and loss of function. The study refers to significant improvement in function as a result of surgery. The patients described the experience of the specific change in activity level and how quickly they experienced improvement of function after the surgical procedure. Previous research further supports the results in this study. A study supports patients' experience of functional improvement after treatment [18].

In this study some of the patients indicated that the difficult situation had led to depression. The study showed that patients benefited from surgical treatment and that they felt an improvement in quality of life. Previous research strengthens this result. One study showed that people living with constant pain and reduced functioning level were significantly more likely to struggle with anxiety and depression [15]. Both functional status and symptoms of pain are factors that affect patients' quality of life [19].

The definition of pain shows that pain is composed of both the patient's sensory and emotional

Loading [MathJax]/jax/output/CommonHTML/jax.js howed how the patients' experienced pain before surgery and

how the pain had affected them emotionally. Another study strengthens this knowledge by showing that patients suffering from chronic pain are being affected both physically and emotionally. The study shows that this experience may cause both reduced mobility and isolation [21]. Several participants expressed themselves emotionally when they spoke of their experiences both before and after surgery. The patients described a clear connection between the experience of pain, function and quality of life.

The current study has developed knowledge that deepens our understanding of patients' emotional experiences both before and after surgery. Their experiences are described by nuanced and rich language, which describes both their physical and emotional outcome of treatment. It is important to investigate patient outcomes after different back surgery procedures, in order to strengthen patients' ability to make informed choices before undergoing surgical treatment. One study supports the importance of strengthening patient information in a timely manner, in order to validate the patient's final decision making [22].

LIMITATIONS AND STRENGTH

A limited number of patients participated in the study but rich and nuanced data were obtained. Therefore the results can be transferred to other patients with same diagnosis, surgical treatment and health care options [12]. The results in this study are also supported by earlier research [7].

Participants were recruited by staff unrelated to the study. The verbatim transcription of data collected was done by the first author immediately after each interview. The transcription was done with great accuracy [23]. The researcher's decisions are carefully documented to achieve transparency in the research process [12].

Two of the authors had professional positions close to the topic being studied. It was therefore important to discuss the analysis with the coauthors who did not have the same proximity to the research field [23].

Conclusion

This study shows the personal consequences regarding the diagnosis of lumbar spinal stenosis and the benefit of decompression surgery. Rapid recovery of pain and improvement of mobility led to increased quality in life after surgery. The patients experienced enhanced quality of life because they could be more involved in family life and participate in meaningful activities. It is important that this knowledge is disseminated to other patients so they will have the opportunity to take knowledge-based choices before receiving treatment. Social support and information from health care providers with good communication skills may lead to patients receiving treatment for their disorders at an earlier stage in the course of the disease [11]. There is a need for further qualitative research in order to document patients' experiences after different types of back surgery.

Abbreviations

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L.B. (Liv Bakke) , M.K. (Marit Kvangarsnes), E.H. (Erland Hermansen).

Declarations

Ethics approval: 2017/2372/REK midt. Ethical approval was obtained in writing before study started.

All data collected is stored accordingly to REK's requirement for storing of sensitive research material at More and Romsdal Hospital Trust.

Competing interests: The authors report no conflicts of interest.

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