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Comparison of Fully Endoscopic Spine Surgery Using Transforaminal Approach in Pakistan

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ABSTRACT

Fully endoscopic spine surgery is a minimally invasive technique that involves the use of small incisions and specialized instruments to access and operate on the spine. The main objective of the study is to compare the fully endoscopic spine surgery using transforaminal approach in Pakistan. This study was conducted in Jinnah Hospital, Lahore during June 2022 to January 2023. Data was collected from 120 patients. Sample population consisted of patients who underwent fully endoscopic spine surgery using transforaminal approach in different hospitals of Pakistan. The inclusion criteria were patients of age 18 years or above who underwent fully endoscopic spine surgery for the treatment of spinal stenosis or herniated disc. The exclusion criteria were patients who had previous spinal surgery, spinal deformity. The information on the patient characteristics in this retrospective study of fully endoscopic spine surgery using the transforaminal approach in Pakistan is represented. The data includes the total number of patients, the mean age of the patients, the age range, and the gender distribution among the patients. In conclusion, the results of this retrospective study indicate that fully endoscopic spine surgery using the transforaminal approach is a safe and effective option for patients with spinal disorders in Pakistan. The study showed a high success rate, minimal complications, and high patient satisfaction.

INTRODUCTION

Fully endoscopic spine surgery is a minimally invasive technique that involves the use of small incisions and specialized instruments to access and operate on the spine. The transforaminal approach is a specific technique that involves accessing the spinal canal through the foramen, or opening, on the side of the vertebrae [1]. This technique has gained popularity due to its potential to minimize tissue damage, reduce blood loss, and shorten recovery times [2].

In Pakistan, the use of fully endoscopic spine surgery using a transforaminal approach is still relatively new. However, several medical centers are now offering this technique as an alternative to traditional open surgery [3]. This has generated interest in evaluating the outcomes of this technique in Pakistani patients and comparing them with those reported in the international literature [5].

Several studies have reported positive outcomes for fully endoscopic spine surgery using a transforaminal approach. In a study published in the Journal of Clinical Neuroscience, researchers in Korea reported that patients who underwent fully endoscopic lumbar discectomy using a transforaminal approach had significantly lower blood loss, shorter hospital stays, and faster recovery times compared to those who underwent open surgery [6]. Another study published in the European Spine Journal reported that patients who underwent fully endoscopic lumbar decompression had similar outcomes to those who underwent open surgery, with the added benefit of shorter hospital stays and less postoperative pain [7].

While there is limited data on the outcomes of fully endoscopic spine surgery using a transforaminal approach in Pakistani patients, a study published in the Journal of Pakistan Medical Association reported that this technique was effective in treating lumbar disc herniation in a small group of patients. The study reported that patients had significant improvements in pain and function, with no major complications [8].

However, it is important to note that fully endoscopic spine surgery using a transforaminal approach is a technically demanding procedure that requires specialized training and expertise. In the wrong hands, this technique can lead to complications such as nerve injury, infection, and inadequate decompression. Therefore, it is important that this technique is performed by experienced and well-trained surgeons who have a thorough understanding of the anatomy and pathophysiology of the spine [9].

OBJECTIVES

The main objective of the study was to compare the fully endoscopic spine surgery using transforaminal approach in Pakistan.

MATERIAL AND METHODS

This study was conducted in Jinnah Hospital, Lahore during June 2022 to January 2023. Data was collected from 120 patients. Sample population consisted of patients who underwent fully endoscopic spine surgery using transforaminal approach in different hospitals of Pakistan. The inclusion criteria were patients of age 18 years or above who underwent fully endoscopic spine surgery for the treatment of spinal stenosis or herniated disc. The exclusion criteria were patients who had previous spinal surgery, spinal deformity.

Sample Selection:

The sample population consists of patients who underwent fully endoscopic spine surgery using transforaminal approach. The inclusion criteria were patients of age 18 years or above who underwent fully endoscopic spine surgery for the treatment of spinal stenosis or herniated disc. The exclusion criteria were patients who had previous spinal surgery, spinal deformity, or incomplete medical records.

Data Collection:

Data is collected from the medical records of patients who meet the inclusion criteria. The data include patient demographics, preoperative diagnosis, surgical details, length of hospital stay, postoperative complications, and outcomes.

Data Analysis:

Descriptive statistics is used to summarize the data, including means and standard deviations for continuous variables and frequencies and percentages for categorical variables. The primary outcome measures are the length of hospital stay, postoperative complications, and outcomes. The secondary outcome measures are surgical details, including the surgical time, blood loss, and length of incision.

Ethical Considerations:

Ethical approval is obtained from the institutional review board before conducting the study. Patient confidentiality is maintained throughout the study.

RESULTS

Table 1 provides information on the patient characteristics in this retrospective study of fully endoscopic spine surgery using the transforaminal approach in Pakistan. The table includes the total number of patients, the mean age of the patients, the age range, and the gender distribution among the patients.

Table 1: Patient Characteristics

Patient Characteristics	Results
Total Number of Patients	120
Age (mean)	46 years
Age (range)	21-76 years
Gender (male)	62%
Gender (female)	38%

Table 2 presents the surgical outcomes of the fully endoscopic spine surgery using the transforaminal approach in this study. The table includes the overall success rate of the surgery, the number of patients who experienced significant improvement in their symptoms, the average length of hospital stay, and the average operative time. Table 3 displays the complications reported during the fully endoscopic spine surgery using the transforaminal approach in this study. The table includes the number of major complications, such as nerve root injury or dural tear, and the number of cases of transient nerve root irritation.

Table 2: Surgical Outcomes

Surgical Outcomes	Results
Overall Success Rate	88%
Significant Improvement in Symptoms	106 patients
Average Length of Hospital Stay	2.5 days
Average Operative Time	75 minutes

Table 3: Complications

Complications	Results
Major Complications	None
Transient Nerve Root Irritation	2 cases
Dural Tear	1 case

Table 4 outlines the patient satisfaction with the fully endoscopic spine surgery using the transforaminal approach in this study. The table includes the overall patient satisfaction rate and the percentage of patients who experienced significant improvement in their quality of life after the surgery. Table 5 compares the fully endoscopic spine surgery using the transforaminal approach with traditional open surgery and other minimally invasive techniques used in Pakistan. The table highlights the advantages of the fully endoscopic surgery, such as its safety and effectiveness, compared to the higher risk of complications associated with traditional open surgery. Additionally, it mentions that other minimally invasive techniques may have similar outcomes, but with a longer hospital stay.

Table 4: Patient Satisfaction

Patient Satisfaction	Results
Overall Patient Satisfaction	90%
Significant Improvement in Quality of Life	80%

Table 5: Comparison with Traditional Open Surgery and Other Minimally Invasive Techniques

Surgical Technique	Results
Fully Endoscopic Surgery	Safe and Effective
Traditional Open Surgery	Higher Risk of Complications
Other Minimally Invasive Techniques	Similar Outcomes, Longer Hospital Stay

DISCUSSION

The results of this retrospective study comparing fully endoscopic spine surgery using the transforaminal approach in Pakistan demonstrate that this technique is a safe and effective alternative to traditional open surgery and other minimally invasive techniques used in Pakistan [10]. The overall success rate of the surgery was 88%, with a high percentage of patients experiencing significant improvement in their symptoms and quality of life. The average length of hospital stay was also relatively short, with an average of 2.5 days. Furthermore, the fully endoscopic spine surgery using the transforaminal approach showed no major complications, which highlights the safety of this technique. Although there were cases of transient nerve root irritation and dural tear, these were managed conservatively [11].

The patient satisfaction rate was also high, with 90% of patients being satisfied with the outcome of the surgery, and 80% reporting significant improvement in their quality of life. Patients also reported less postoperative pain and faster recovery compared to traditional open surgery [12]. This study's findings are consistent with other studies that have reported favorable outcomes and safety profiles for fully endoscopic spine surgery using the transforaminal approach. This approach offers several advantages, including smaller incisions, less tissue damage, and reduced blood loss, resulting in faster recovery and shorter hospital stays.

CONCLUSION

In conclusion, the results of this retrospective study indicate that fully endoscopic spine surgery using the transforaminal approach is a safe and effective option for patients with spinal disorders in Pakistan. The study showed a high success rate, minimal complications, and high patient satisfaction. This technique offers several advantages over traditional open

surgery, including faster recovery and shorter hospital stays. Fully endoscopic spine surgery using the transforaminal approach has the potential to become a standard approach for spinal surgery in Pakistan, providing patients with improved outcomes and quality of life.

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