

Evaluating the Safety and Feasibility of Same-Day Posterior Lumbar Decompression and Discectomy in a Standalone Day-Surgery Unit

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Abstract

Aim

The aim of this study was to evaluate the safety and feasibility of performing same day posterior lumbar decompression and discectomy (PLDD) for lumbar degeneration in a standalone surgical day-hub.

Methods

We conducted a prospective observational analysis of 20 consecutive patients who underwent same day PLDD in a standalone day surgical hub. Patients were carefully selected based on pre-defined medical, surgical, and social criteria. All procedure were carried out under general anaesthesia using a microsurgical technique.

Results

All patients were discharged home on the same day. 1/20 (5%) of patients had an intra-operative durotomy which underwent primary surgical repair and had no long-term sequelae. There were no unplanned admissions, readmissions, or reoperations in the 30-day follow up period.

Discussion

Same-day lumbar discectomy in a standalone surgical day-hub is a safe option for carefully selected patients. The model has the potential to improve delivery of services to the patients by reducing cancellations secondary to bed shortages.

Introduction

Degenerative disc disease of the lumbar spine represents a significant and escalating burden on healthcare systems globally¹. Same day PLDD has emerged as a safe and effective treatment for selected patients². The prevalence of lumbar degenerative disease is expected to rise and there is a pressing need to develop strategic, efficient models of care to manage the increasing demands on healthcare systems³. The economic burden of degenerative

lumbar pathology encompasses both direct healthcare costs alongside significant indirect costs resulting from a patient's inability to work⁴. In the current economic climate, where healthcare systems are facing increasing financial constraints, optimising resources has become imperative. Rising demand on already overstretched healthcare care systems can lead to the cancellation of elective surgical procedures due to limited bed capacity. To address these challenges, and align with government strategic initiatives, there has been an increasing focus on expanding the use of day-case surgeries in standalone surgical units⁵. This approach aims to enhance efficiency, improve patient flow, and maximise the use of limited healthcare resources.

While same-day PLDD has been successfully implemented in the UK over the last two decades to the best of the authors' knowledge, the introduction of a day-case PLDD within a standalone day surgical centre is a novel concept in the Irish health care system⁶. This model of care represents a promising opportunity to improve surgical throughput, enhance efficiency and maintain high levels of care without overburdening existing hospital infrastructure. The recent COVID-19 pandemic imposed significant restrictions on the provision of elective surgical care worldwide, not least on elective spinal services⁷. Day case spinal surgery emerged as a safe solution to the restrictions in overnight bed availability, particularly during the pandemic, and we believe that this model of spinal surgical should continue to be encouraged and developed in an effort to tackle post-pandemic waiting lists⁸.

The standalone surgical unit at our institute was established in December 2020 allowing the performance of same-day surgical procedures across multiple specialities. This dedicated day-centre is situated adjacent to the main hospital campus, is designed to support streamlined patient flow and efficient resource utilisation.

Patient selection for day-case surgery is guided by strict anaesthetic, surgical, and social criteria. From an anaesthetic perspective, selected patients are typically of American Society of Anaesthesiologists (ASA) classification I or II, indicating normal health or mild systemic disease⁹. Patients of ASA grade III, with well controlled co-morbidities, may also be considered. Surgically, procedures are selected based on their suitability for day surgery. These include minimally invasive procedures, with predictable postoperative pain patterns, controllable with oral analgesics. Social criteria stipulate that selected patients are being discharged in the presence of a responsible adult who is capable of providing care and supervision for at least twenty-four hours post-discharge. Patients should also be resident within a reasonably short distance from the hospital to ensure access to emergency care in the early postoperative period, if required.

Methods

This study was a prospective observational analysis of 20 consecutive patients who underwent same-day lumbar discectomy at the standalone day surgery centre. over a 13-month period, from April 2024 to May 2025. All patients who had a planned lumbar decompression and discectomy and were included. Patients were prospectively identified and entered into a dedicated database at the time of scheduling and admission. Data collection was carried out in real-time and continued through the postoperative follow-up period.

Inclusion criteria comprised adult patients (aged 18 and older) undergoing elective lumbar discectomy for symptomatic lumbar disc herniation, who were deemed clinically suitable for same-day discharge based on preoperative assessment

All procedures used a microsurgical technique under general anaesthesia. Patients were monitored in the post-anaesthesia care unit and discharged once they met standard postoperative criteria, including pain control, mobilization, and voiding. Standard follow-up was conducted via GP wound review at 2 weeks and clinic review at 6 weeks.

Primary outcome measures included readmission within 30 days, postoperative complications, and unplanned overnight stays.

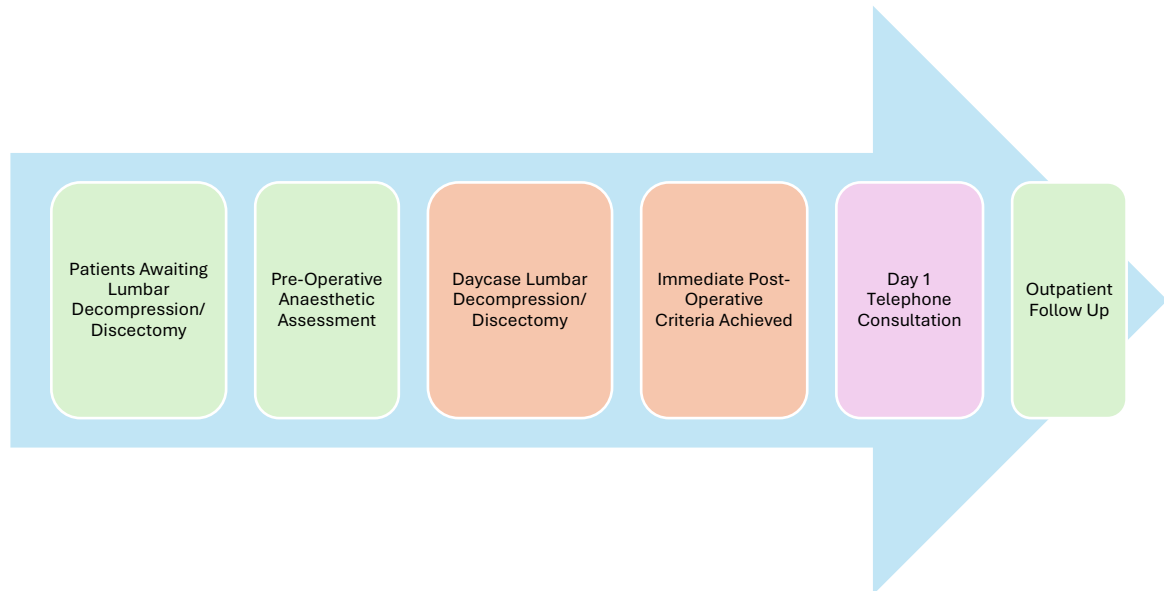
This methodology was designed to assess the safety, feasibility, and clinical outcomes of same-day lumbar discectomy within a standalone day-case surgical pathway in the context of resource optimization and service efficiency.

Results

A total of 20 consecutive patients underwent same-day discectomy in the standalone day surgery centre. A single intra-operative durotomy occurred, which was primarily repaired and the patient was subsequently discharged home the same day.

During the 30-day postoperative period, there were no surgical reinterventions. One patient represented to the emergency department one week postoperative. They underwent urgent MRI and were discharged home from the emergency department with analgesia and reassurance.

These findings support the safety and effectiveness of same-day discectomy in a standalone surgical unit. The low complication rate, zero readmissions, and absence of reintervention support the use of same-day discectomy in a standalone surgical unit.



Discussion

Degenerative lumbar disease continues to place a significant burden on both patients and healthcare systems¹⁰. Symptomatic patients who have failed conservative management may benefit from surgical intervention¹¹. Historically, patients undergoing PLDD required an overnight hospital stay for postoperative monitoring and pain management. However, same-day PLDD has been shown to be a safe and effective treatment in carefully selected patients¹². Approximately, 30% of patients who require PLDD are suitable for same day discharge².

Healthcare systems worldwide grapple with an increasing service demands, rising costs, and limited resources on the background of an increasingly uncertain economic background. The need for innovative approaches that optimise both care and resources has become increasingly important.

One critical resource in healthcare systems is bed capacity, especially when both acute and elective services are located on the same site. During periods of increased demand, elective procedure is often cancelled due to a lack of bed. In alignment with government strategic plans, the aim is to relocate elective procedures to standalone elective units⁵. The separation of acute and elective services is intended to reduce cancellations, delays, and to improve the efficiency of the service.

Suitable surgical procedures for same-day surgery should ideally be performed in standalone day surgery units to maximise efficiency and reduce pressure on inpatient resources. With our study demonstrating the efficacy of same-day lumbar decompressions and discectomies, we hope that institutions across Ireland can move to implement similar programmes. Day-case surgical programmes for anterior cervical decompression and fusions (ACDF) have also been demonstrated to be safe and can offer a potential solution to a delay in inpatient bed availability for suitable patients awaiting primary ACDF surgery¹³.

The implementation of day-case spinal surgical services has proven to be safe, with low levels of complications seen in treated patients, with a reduced incidence of postoperative infection, enhanced patient satisfaction and favourable postoperative mobilisation¹⁴. Our patient cohort's results compare favourably with similar day-case spinal surgical programmes elsewhere, with none of the included patients requiring re-admission or encountering a postoperative complication¹⁵. While one patient required primary intra-operative repair of a dural tear, this did not prevent same day discharge. We feel that our results underscore the safety of day-case lumbar spinal surgical programmes as a viable option for appropriately selected patients.

In the setting of limited healthcare resources, same-day discectomy offers a clear financial benefit. A same-day discectomy costs approximately €1660 less compared to inpatient discectomy with a similar safety profile¹⁶. In addition to the cost-saving, the introduction of same-day discectomy has decreased waiting times by reducing the number of cancellations due to a lack of beds.

Although this study includes a relatively small sample size, the results are promising. The results suggest that performing same-day discectomy in standalone elective day surgery hospitals can effectively address some of the pressures facing the wider healthcare system in terms of utilisation of resources without compromising patient safety. Limitations to this study include its retrospective nature and relatively small sample size, but it serves to highlight the safety and efficacy of this novel surgical programme within the Irish healthcare system.

Declarations of Conflicts of Interest:

None declared.

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