

## Post-Operative Drain Use in Patients Undergoing Decompression and Fusion: Incidence of Complications and Symptomatic Hematoma

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### Introduction

Surgical drains are commonly used after spine surgery to minimize the risk of infection and hematoma formation. In an era of routine vancomycin powder use, the added value of surgical drains in decreasing the risk of post-operative infection after thoracolumbar decompression and fusion remains unknown. The aim of this study is to determine if there is a difference in the rate of post-operative surgical site infection and hematoma formation between spine deformity patients undergoing spinal decompression and fusion with and without a postoperative drain.

### Methods

The medical records of 369 adult (=18 years old) spinal deformity patients undergoing elective spinal decompression and fusion at a major academic institution from 2005 to 2015 were reviewed. We identified 332 (90%) who had a post-operative drain and 37 (10%) who did not have a postoperative drain (No-Drain: n=37; Drain-Use: n=332). Patient demographics, comorbidities, intra- and post-operative complication rates were collected for each patient. The primary outcome investigated in this study was the rate of post-operative complications, specifically surgical site infections and hematomas.

### Results

Patient demographics and comorbidities were similar between both cohorts. The median number of levels fused, estimated blood loss, and allogenic blood transfusions were significantly higher in the Drain-Use cohort compared to the No-Drain cohort. Length of hospital stay was significantly higher for the Drain-use cohort compared to the No-Drain cohort (6.3-days vs 3.5-days,  $p < 0.0001$ ). The postoperative complication profile was similar between both cohorts, including deep and superficial surgical site infections ( $p=0.45$  and  $p=0.50$ , respectively), and prevalence of hematoma ( $p=0.41$ ). The 30-day readmission rate was similar between both cohorts (No-Drain: 13.5% vs. Drain-Use: 13.3%,  $p=0.96$ ). There were no significant differences in the prevalence of 30-day wound dehiscence ( $p=0.37$ ), draining wound ( $p=0.64$ ), and incision & drainage ( $p=0.32$ ).

### Conclusions

Our study suggests that use of a postoperative drain in patients undergoing spinal decompression and fusion may not reduce surgical site infection and hematoma rates.

### Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Describe the importance of the implications that post-operative drains bear on surgical site infections and hematoma.
- 2) Discuss, in small groups, the impact drains have on other aspects of post-operative care.
- 3) Identify an effective method to reduce post-operative infections and hematoma.