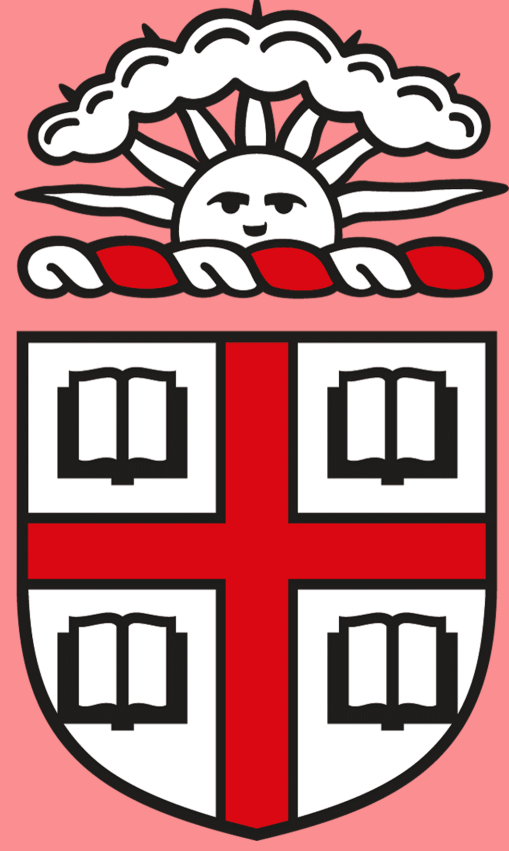




# Accidental Drain Dislodgement is Associated with Post-Operative Complications after Abdominal Contouring Surgery

Navya Baranwal, BA; John Slate-Romano, MD; Sophia Ahn, BA; Damon McIntire, MD; Nikhil Sobti, MD; Raman Mehrzad, MD MHL MBA; Paul Liu, MD; Rachel Sullivan, MD  
Division of Plastic Surgery, Warren Alpert Medical School of Brown University



## Background

- Surgical drains are integral in post-operative management after abdominal contouring surgeries
  - Remove excess fluids that accumulate in the wound bed
  - Help prevent seromas, infections, and delayed wound healing
- Drain removal is typically guided by specific volume criteria
  - Removal when daily output < 30cc
  - Some surgeons adhere to fixed-duration protocols
- Lack of standardized guidelines for managing accidental drain dislodgement
- Precise consequences of premature drain loss remain unknown

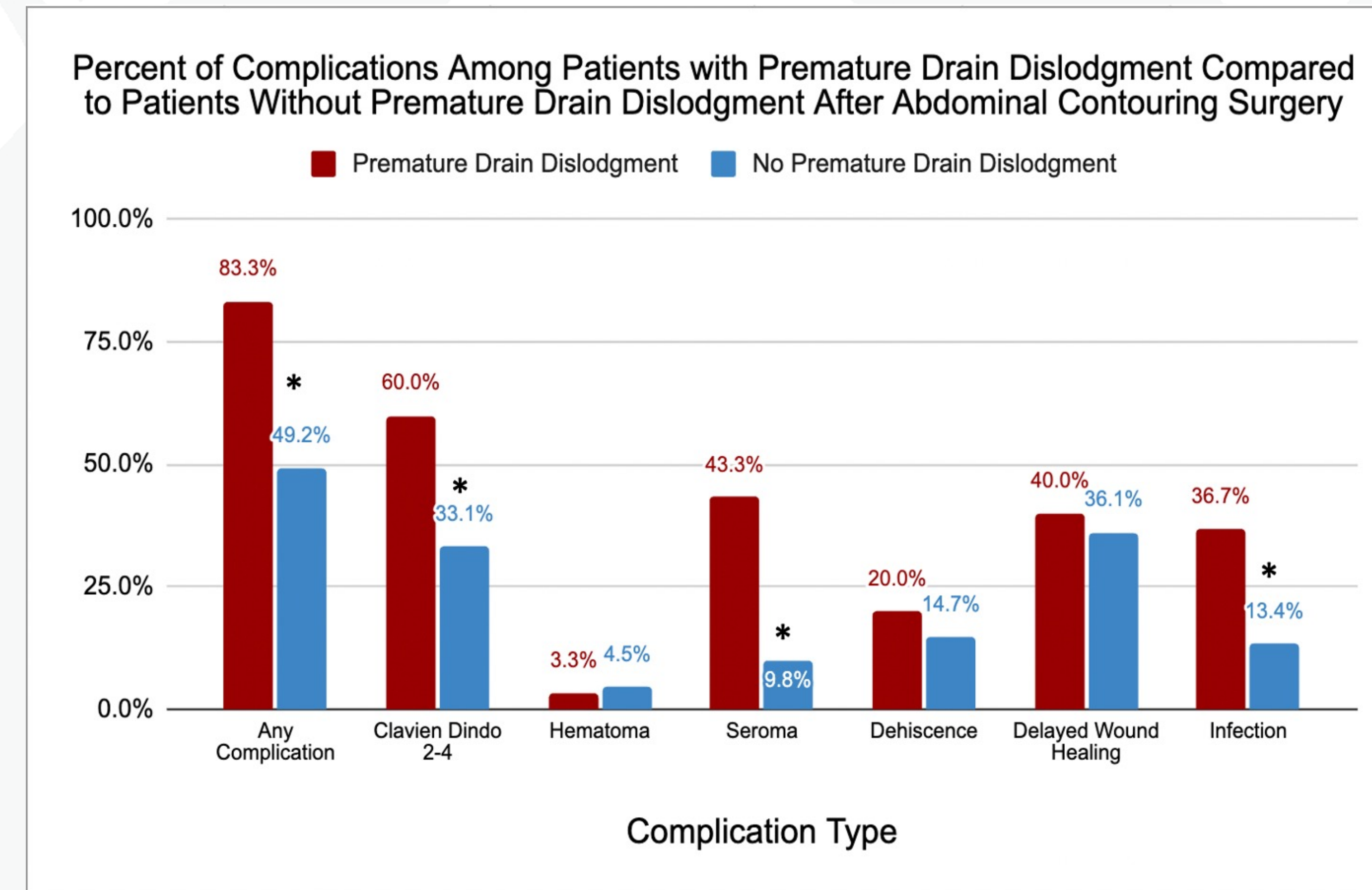
## Objective

To explore the relationship between accidental drain dislodgement and post-operative complications after abdominal contouring surgeries.

## Study Design

- Retrospective analysis of patients undergoing abdominal contouring procedures (abdominoplasty or panniculectomy)
- Study Period:** April 2015 – February 2023
- Data Source:** Electronic Medical Records
- Independent Variable:** premature drain dislodgement status
  - Premature drain dislodgment** defined as accidental drain dislodgment while output was > 30 cc/day
- Outcome:** Post-Operative Wound Complications
  - Complications categorized by Clavien Dindo System (Grades 1-4), taking complication severity, and requirement for interventions, reoperations, and readmissions into consideration
  - Hematoma, Seroma, Infection, Dehiscence, Delayed Wound Healing
- Statistics:** Multivariate logistical regression model to assess association between premature drain dislodgement and complications
  - Adjusted for age, smoking status, diabetes, BMI, resection mass, and combined surgery

## Results



## Conclusions

- Accidental drain dislodgment is associated with significantly increased wound complications after abdominal contouring surgery.
  - Increased risk of complications requiring higher grade interventions (Clavien Dindo 2-4), seroma, and infection
- Demonstrates importance of maintaining surgical drains until appropriate time
- Plastic surgeons should be aware of potential increased risk of complications after premature drain dislodgment.
- Comprehensive drain care education should be emphasized
  - Accurate drain output documentation
  - Careful drain maneuvering
  - Reporting drain dislodgment to surgeon



## Limitations

- Single-institution study
- Small sample size of patients with premature drain dislodgment
- Drain daily output was not always recorded in the charts

## Future Directions

- Prospective study examining association between drain dislodgment and post-operative complications
  - Have patients complete drain output log for output accuracy
- Improve patient drain care education
- Explore additional strategies for improved drain securement, including taping and stitching techniques

| Patient Surgical Drain Dislodgement Characteristics |                 |
|-----------------------------------------------------|-----------------|
| Drain Dislodgment Status                            | Overall (N=471) |
| No drains dislodged                                 | 398 (84.5%)     |
| 1 drain dislodged                                   | 60 (12.7%)      |
| 2 drains dislodged                                  | 13 (2.8%)       |
| Premature Drain Dislodgement<br>Output > 30 cc/day  | 30 (6.4%)       |

| Multivariate Logistic Regression Showing Association Between Premature Drain Dislodgment and Post-Operative Complications |                  |         |
|---------------------------------------------------------------------------------------------------------------------------|------------------|---------|
| Complication Type                                                                                                         | OR (95% CI)      | P-value |
| Any Complication                                                                                                          | 4.38 (1.72-13.4) | 0.004*  |
| Clavien Dindo 2-4                                                                                                         | 2.38 (1.08-5.37) | 0.03*   |
| Hematoma                                                                                                                  | 0.64 (0.03-3.40) | 0.67    |
| Seroma                                                                                                                    | 5.73 (2.45-13.1) | <0.001* |
| Dehiscence                                                                                                                | 0.83 (0.27-2.19) | 0.72    |
| Delayed Wound Healing                                                                                                     | 1.01 (0.45-2.18) | 0.97    |
| Infection                                                                                                                 | 2.83 (1.16-6.59) | 0.01*   |