

Abstract

Background: Thyroidectomy incisions are quite visible and prone to surgical site complications, such as infection and seroma formation. Using negative pressure wound therapy (NPWT) for the management of closed incisions has recently emerged. We compare the rate of seroma formation post-thyroidectomy in patients that underwent primary closure vs patients that had NPWT in the form of PREVENA™ applied to their incisions. There is no published literature on application of NPWT on closed incisions in head and neck surgery.

Methods: Retrospective chart review was performed on patients that underwent thyroidectomy by a single surgeon from February 2018 to June 2021.

Results: 215 patients that underwent thyroidectomy were included in the study. 129 patients underwent primary closure only. 90 patients underwent primary closure with NPWT, of which 4 were excluded due to device malfunction. In the group that underwent primary closure only, 24 (18.6%) developed seromas. In the group that had application of NPWT, 3 (3.5%) developed seroma. There was a significant reduction (P=.0001, CI 95%) in post-operative seromas in the NPWT treatment group.

Conclusion: In the setting of thyroidectomy, there is a significant reduction in post-operative seromas with application of continuous NPWT to the incision line



Figure 1: Patient with application of continuous NPWT dressing over incision post-substernal thyroidectomy

Introduction

- In the setting of thyroidectomy, incisions are quite visible and incisional complications, such as seromas, hematomas, and infection, are not uncommon
- While previously used to manage open wounds, negative pressure wound therapy (NPWT) is an emerging approach to managing closed incisions.
- Multiple studies, from animal models to meta-analysis have noted significant reduction in post-operative seroma formation with application of NPWT to closed incisions.
- PREVENA™ is a NPWT system that delivers continuous negative pressure at -125mmHg for up to seven days.
- There is currently no published literature on the utilization of NPWT on closed incisions in head and neck surgery. In this study, we compare the rate of seroma formation post-thyroidectomy in patients that underwent primary closure vs patients that had NPWT in the form of PREVENA™ applied to their incisions.

Methods

- A retrospective comparison study was conducted.
- The charts of patients that underwent thyroidectomy from February 2018 to June 2021 were reviewed.
- Patients that underwent primary closure only were compared to patients that underwent primary closure with NPWT application.
- Primary closure consisted of interrupted subcuticular 4-0 vicryl sutures.
- The main outcome that was measured was number of post-operative seromas that formed.
- Chi-squared test was utilized to compare rate of seroma formation in both groups.
- Patients with surgical drains placed were excluded from the study.

Results

- 129 patients underwent primary closure only. 90 patients underwent primary closure with NPWT through PREVENA application.
- 4 patients experienced device malfunction with absence of proper vacuum seal. These 4 patients had their dressings removed prior to post-op day four and were excluded from the study.
- 215 patients that underwent thyroidectomy were included in the study
- In the group that underwent primary closure only, 24 (18.6%) developed seromas.
- In the group that had application of continuous NPWT, 3 (3.5%) developed seroma.
- There was a significant reduction (P=.0001) in post-operative seromas in the NPWT treatment group as determined by Chi-squared analysis.
- The most common complaint with the PREVENA dressing was itchiness at the incision site (6.7%).

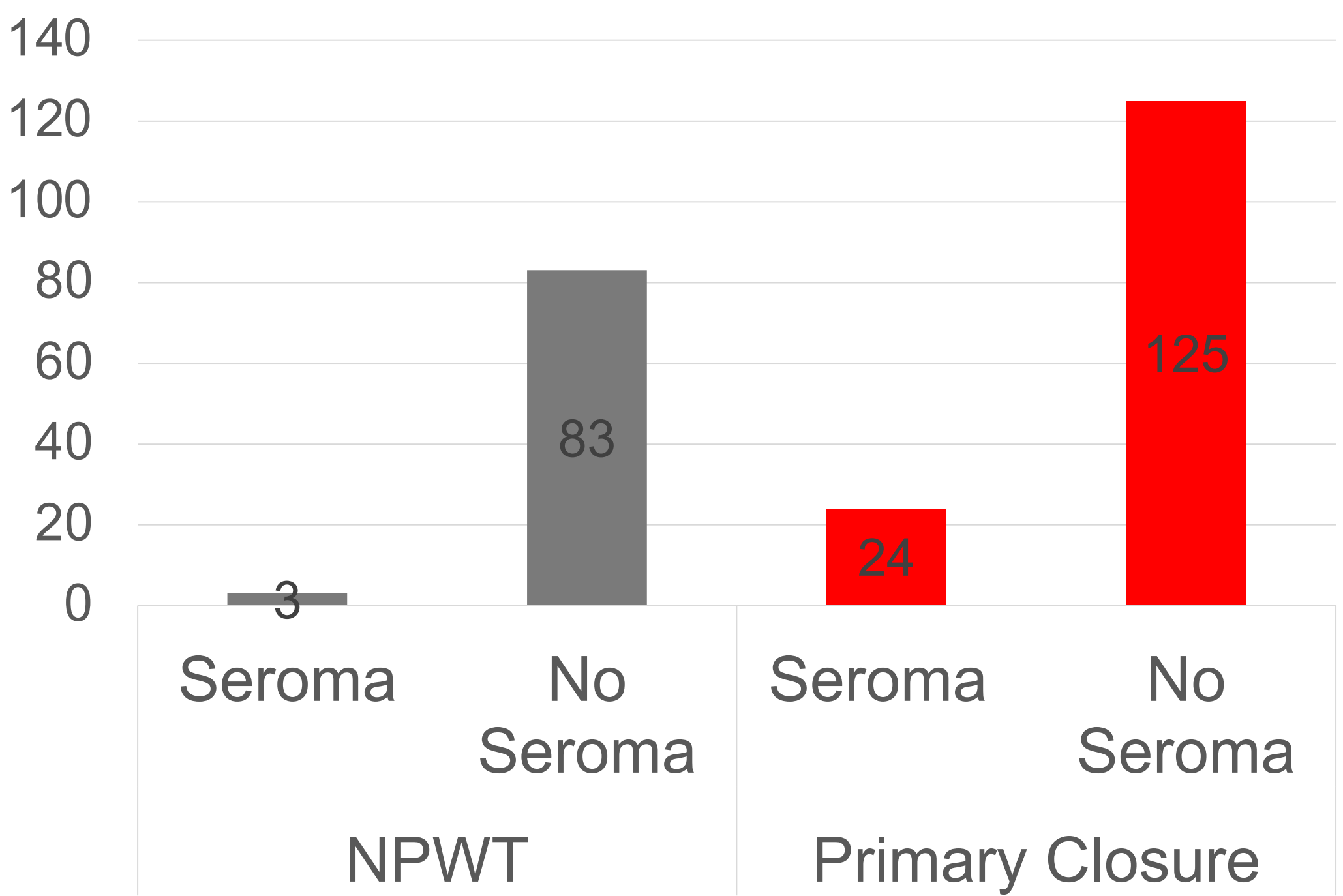


Figure 2: Comparison of number of post-operative seromas in patients with application of NPWT vs primary closure only

Discussion

- Our study shows that in the setting of thyroidectomy, there is a significant reduction in post-operative seromas with application of continuous NPWT to the incision line.
- NPWT allows for application of continuous, consistent suction and pressure at the post-surgical suite to aid in wound healing.
- Multiple studies have noted decreased rates of post-operative seroma formation with application of continuous NPWT to incision sites.
- NPWT is not commonly used in head and neck surgery, and our knowledge, there is currently no published literature on the utilization of NPWT on closed incisions in head and neck surgery.
- PREVENA itself is low-maintenance and does not require any patient maintenance in comparison to surgical drains. It automatically turns off in 7 days and may be easily removed in an outpatient setting.
- Utilization of PREVENA on incisions post-thyroidectomy offers a low-maintenance dressing that has the ability to reduce seroma formation.

References

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