Comparison of blood loss between patients with an anatomically designed pressure dressing versus a standard dressing after mastectomy and axillary surgery

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INTRODUCTION

A combination of technique and patient factors mean that early haematoma after major breast surgery remains a disruptive problem. Bleeding following mastectomy is physically and psychologically stressful for patients and may delay commencement of adjuvant therapy. We have developed an anatomic pressure dressing system that applies pressure to the three medial perforators, the lateral pectoral vessels and the axilla.

AIMS

1. To assess whether an anatomically designed pressure dressing reduces clinically relevant post-operative drop in haemoglobin following mastectomy and axillary surgery (AS).
2. To objectively assess if post-operative pain was affected by dressing type.

METHODS

Consecutive perioperative data from one surgeon in 2019 and 2020 was collected. Patients who underwent mastectomy and AS in 2019 had a simple dressing applied to the mastectomy wound. Patients operated on in 2020 had an anatomically designed pressure dressing applied post mastectomy and AS. All patients were followed for 6 weeks to assess for return to theatre and complications. All patients had an intraoperative pectoral nerve block and either one or two drains depending on the extent of dissection.

Disease and patient factors were collected; age, body mass index, neoadjuvant therapy and Nottingham prognostic index.

After allowing for intraoperative blood loss, a post-operative haemoglobin drop of 30 g/L or more, or a return to theatre, were regarded as significant clinical events.

Mean pain scores at 3,6,12 and 24 hours post op were recorded for all patients.

HDEC approval was gained 09.09.2020.

STATISTICAL ANALYSIS

Statistical analysis was performed using R Studio (Version 1.2.1335).

Patients were stratified based on the type of dressing used (simple versus pressure dressings). Missing data were excluded in a listwise fashion for all analyses.

Categorical variables were presented as percentages and analysed using the chi-squared test. Continuous variables were tested for parametricity using the Shapiro-Wilk test, and the student's t-test and Mann Whitney U tests were used as appropriate.

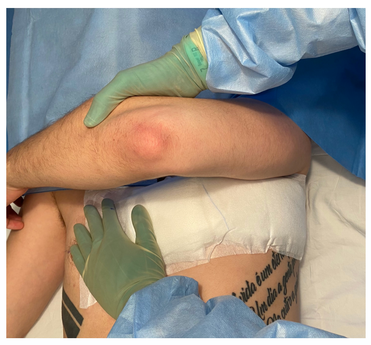
A p-value of <0.05 was considered statistically significant.

APPLICATION OF PRESSURE DRESSING

Main pressure points based on blood supply

Combine folded in half; 2 axilla, 2 medial,1 edge of pectoralis major

HYPAFIX applied as far lateral around chest wall as possible



Shoulder flexed to 90 degrees and adducted across body

Shoulder positioned back to neutral

RESULTS

Eighty-two female patients were included; 37 patients in the simple dressing group, 45 patients in the pressure dressing group. Patients were well matched for age, body mass index, neoadjuvant therapy and oncological stage.

A post operative haemoglobin drop of 30 g/L or more was observed in 5/37 (13.5%) patients in the 2019 simple dressing group and 0/45 (0%) in the 2020 anatomic pressure dressing group. This result was statistically significant (p=0.037).

One patient in the simple dressing group required return to theatre for haematoma.

Mean pain scores at 3,6,12 and 24 hours post op were less than 2/10 in both groups with no significant differences between groups.

	Simple Dressing (N=37)	Pressure Dressing (N=45)	Overall (N=82)	P-value
Age (years) mean (SD)	58.6 (14.0)	57.5 (12.8)	58.0 (13.3)	**0.78**
Axillary Dissection				
None	1 (2.7%)	1 (2.2%)	2 (2.4%)	**(0.70)**
SNB / Level 1	14 (37.6%)	23 (51.2%)	37 (45.1%)	
Level 2/ Level 3	22 (59.4%)	21 (46.7%)	43 (52.4%)	
BMI mean (SD)	31.8 (8.88)	31.8 (8.64)	31.8 (8.69)	**0.98**
Neoadjuvant Therapy	2 (5.4%)	8 (17.8%)	10 (12.2%)	**0.17**
NPI Mean	4.77	4.75	4.76	**0.88**
NPI Range	2.26-7.40	2.16-7.10	2.16-7.40	

Table 1. Demographic and baseline clinical data

	Simple Dressing (N=37)	Pressure Dressing (N=45)	Overall (N=82)	P-value
Pain at 3 hours (0-10) mean (SD)	1.51 (1.61)	2.09 (2.11)	1.83 (1.91)	**0.28**
Pain at 6 hours (0-10) mean (SD)	1.59 (1.83)	1.39 (1.74)	1.48 (1.78)	**0.60**
Pain at 12 hours (0-10) mean (SD)	1.27 (1.56)	1.44 (1.60)	1.37 (1.58)	**0.59**
Pain at 24 hours (0-10) mean (SD)	1.78 (1.57)	1.56 (1.36)	1.65 (1.45)	**0.65**
Change in Haemoglobin (g/L) Mean (SD)	15.7 (15.5)	12.4 (7.65)	13.9 (11.9)	**0.91**
Change in Haemoglobin (g/L) Median [Range]	11.0 [-12.0-67.0]	12.0 [-5.00-29.0]	12.0 [-12.0-67.0]	
Haemoglobin Drop ≥30g/L	5 (13.5%)	0 (0%)	5 (6.1%)	**0.037**
Readmission	8 (21.6%)	8 (17.8%)	16 (19.5%)	**0.88**

Table 2. Results

CONCLUSIONS

1. The anatomically designed pressure dressing reduces clinically significant bleeding following mastectomy and AS.
2. No difference in pain scores between the two groups suggests the pressure dressing is well tolerated.

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