

DynaClose Clinical and Economic Highlights

Topical Pre-operative Skin Expansion:

- Using a simple, inexpensive and non-invasive method of pre-operative tissue expansion, results in a 93% reduction in split-thickness skin grafts and 87% (\$36 vs \$277) reduction in total wound care cost per patient.¹
- Healing time of radial forearm free flap donor sites after pre-operative tissue expansion with DynaClose was 5.7 days vs. 32.5 (82% faster) for the control group, with surgical pain and cost also significantly lower.²
- Using DynaClose for pre-surgical skin expansion, 81-93% of radial forearm free flap donor sites were closed primarily without a partial-thickness skin graft from the thigh.^{3,4}
- Dynamic pre-operative expansion facilitates primary skin closure of wide excision for malignancy in difficult anatomic locations.⁵

Topical Skin Closure:

- DynaClose approximates wound margins after debridement of necrotic tissue.⁶
- Failed or infected wounds are approximated on an outpatient basis using DynaClose.⁷
- DynaClose approximates skin after cyst removal, eliminating the need for a second-stage excision and repair.⁸
- DynaClose closes small and large acute incisions such as skin over subdermal sutures and fasciotomies.¹⁰⁻¹³
- [DynaClose] gradually approximates the edges of the ulcer, significantly reducing the size then closing the ulcer.⁹

The published articles and posters make reference to the challenges of primarily closing infected or failed wounds, closing skin after wide excisions, and closing ulcers and non-healing wounds in general. Traditional methods include the use of skin grafts and implanted balloon expanders, which do not consistently achieve a primary closure, can cause further trauma, and result in more procedures for the patient. **DynaClose** is an advancement that pre-surgically expands skin and achieves a low-tension primary closure, accelerating healing time, eliminating skin grafts and their associated complications, and directly resulting in significant patient benefits and cost savings.

References and Details

1. *Cost-effectiveness of a topically applied pre-operative tissue expansion device for radial forearm free flaps: a cohort study(1)*. Bonaparte, J., Corsten, M. and Allen, M. *Clinical Otolaryngology*. 2011 Aug;36(4):345-51.

Thirty-four patients were enrolled and randomised in this cohort study. Patients were randomised to either the treatment (pre-operative tissue expansion using DynaClose) or control group. Results showed a 93% reduction in the use of split-thickness skin grafts and a significant reduction in total wound care costs for patients in the treatment group (P<0.0001).

2. [Healing Time of Radial Forearm Free Flap Donor Sites After Pre-operative Tissue Expansion: A Randomized Controlled Trial](#). Bonaparte JP, Corsten M, Allen M. *Journal of Otolaryngology – Head and Neck Surgery*. 2011 Feb;40(S1):S20-7.

Twenty-nine patients were randomized to either the treatment (Tissue pre-expansion using DynaClose) or control (Split Thickness Skin Graft) groups. Mean (95% C.I.) healing time was 5.7 (3.9-7.6) days for the Treatment Group and 32.5 (12.2-53.0) days for the Control Group (p<0.001). Overall surgical pain (p<0.001) and estimated economic cost (p<0.001) was significantly lower in the treatment group.

Note: Early results were presented at the Canadian Society of Otolaryngology Conference (abstract), Niagara Falls, ON, May 24, 2010. This presentation won the First Prize: Poliquin Residents Award and the PSI Resident Research Award.

3. *Reduction of donor site morbidity in the radial forearm free flap by use of topical tissue expanders*. Gupta M, Allen M, Corsten M. *Journal of Otolaryngology - Head & Neck Surgery*. 2009 Dec;38(6):628-31.

Twenty-one radial forearm free flap (RFFF) donor sites were treated pre-operatively with DynaClose (formerly known as DynaStretch) used as tissue expanders. It was possible to close the donor site without a partial-thickness skin graft from the thigh in 81% of these patients (17), significantly reducing donor site morbidity without the risks of implantable skin expanders.

4. *Tissue Expansion of Radial Forearm Free Flap Donor Sites*. Corsten M, Bonaparte JP, Allen M. The Ottawa Hospital, Ottawa, ON, Canada.

- o [Abstract published: Otolaryngology-Head and Neck surgery, 2010 Aug;143\(2S2\):P44-45](#)
- o Presentation: AAO-HNSF (American Academy of Otolaryngology-Head and Neck Surgery Foundation) Annual Meeting, Boston, MA, Sept 26, 2010.

Twenty-four patients with head and neck cancer requiring reconstruction with a radial forearm free-flap (RFFF) were randomly assigned to either the treatment (pre-operative tissue expansion) or control group. Pre-operative tissue expansion decreased the use of a distant split-thickness skin graft (STSG) for closure of a RFFF defect by 93%. Expert observers noted improved scar cosmetics in the treatment group.

5. *Pre-operative Use of a Novel Adhesive Skin Expanding Device for Primary Closure of Complicated Wide Local Excisions.* Berg R, Hristov H, George R. Department of Surgery, Division of Surgical Oncology, Queen's University, Kingston, ON, Canada.

- [Abstract published: Canadian Journal of Surgery. 2007 Aug;50\(Suppl.\):22-23.](#)
- [Poster presentation: Canadian Association of General Surgeons Forum, Toronto, ON, Sep 7-8, 2007.](#)

Using DynaClose to pre-operatively expand the skin surrounding areas of planned wide excision for malignancy facilitated primary closure after excision in difficult anatomic locations.

6. *Liposuction sepsis – be alert.* Bell MSG, Doherty GP, Gutauskas A. [Canadian Journal of Plastic Surgery. 2009 Winter;17\(4\):e29-e32.](#)

In this case of postoperative infection in a liposuction patient, DynaClose was used to close the wound after extensive debridement of the necrotic tissue.

7. *Saving the failing wound.* Bell MSG. [Canadian Journal of Plastic Surgery. 2009 Autumn;17\(3\):e15-e16.](#)

There is a new dynamic dressing tape on the market that holds considerable promise in salvaging failing wounds, providing a method of treatment that has never been previously been available.

8. *Facial cysts – Minimizing the scars.* Bell MSG. [Canadian Journal of Plastic Surgery. 2009 Autumn;17\(3\):e13-e14.](#)

DynaClose eliminated the necessity of performing a second-stage excision and repair after facial cyst removal.

9. *Chronic plantar ulcer secondary to congenital indifference to pain.* Simpson, A., Graham, M.E., Williams, J. *Journal of Wound Care.* Vol. 20, No 11, November 2011.

This report presents a 17-year old boy with congenital indifference to pain and the successful management of his longstanding plantar ulcer. Using DynaClose, the ulcer was reapproximated, indicating the potential benefits of DynaClose for closing non-healing wounds in general.

Case Summaries

10. [Case #215](#) – Removal of Epidermal Inclusion Cyst
11. [Case #135](#) – Hand Fasciotomy Closure
12. [Case# 196](#) – Forearm Fasciotomy Closure
13. [Case# 216](#) – Forearm Fasciotomy Closure

Copies of these and other supporting references are available from Canica Design on request.