Aesthetic Plastic Surgery

A simple method for the quantitative assessment of suction drains

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Abstract:	Suction drains are widely used in surgical practice, but a consensus is yet to be found around their use in plastic surgery. Nowadays, patients are frequently discharged from hospitals with drains still in place. Soft drains are easier to manage at home because of the reduced weight and size. The content can be disposed of when the container is full, but volume assessment is only possible when the reservoir is inflated. Evaluating the total drained volume alone is a flawed assessment method, as it might lead to erroneously decide whether a drain should be kept or removed. What we should use as a reference instead is the output quantity from the last 24 hours. We can precisely determine the amount of collected material on a daily basis by closing the clip of the tubing, opening the exit valve to inflate the container, measuring then emptying the container. However, this whole process can be complicated and put the sterile environment at risk of contamination, which is why it cannot be performed by the patient at home. We therefore ask our patients to daily weigh the container using a kitchen scale, and to write down the obtained values. When the patient returns for a post-operative check-up, they can report their measurements, thus making it is easier for the surgeon to decide whether to remove the drain or not. We believe that this simple method can be safely implemented to track drains in the post-operative period after the patient is discharged.

Rome 10-03-2020

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Please find enclosed and consider for publication in your journal the following Letter to the Editor: "A simple method for the quantitative assessment of suction drains" Paolini G. MD, PhD, Sorotos M. MD, Firmani G. MD, and Santanelli di Pompeo F. MD, PhD.

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Informative Title: A simple method for the quantitative assessment of suction drains

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Disclosure: We here declare We have no conflict of Interest and disclose any commercial associations or financial disclosures that might pose or create a conflict of interest with information presented in the submitted manuscript.

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Level of Evidence: Level V, descriptive study

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Letter to the Editor

Title: A simple method for quantitative assessment of suction drains

Suction drains are widely used in surgical practice, but a general consensus is yet to be found around their use in plastic surgery.[1,,2] Drains are composed of two elements: a silicone drainage tube with multiple side holes, and a container with measurement marks on the side for the collection of secretions. Drains can be divided into two categories, based on the type of container and suction system. They can either be the high-negative-pressure type (with a rigid container) or the low-negative-pressure type (with a soft container)[3]. Rigid containers form a closed off system that cannot be emptied, if not by changing the reservoir with a new one whenever full. However, the volume output is easier to assess as it can be read on the side with measurement marks. Soft containers collapse when compressed, thereby creating the vacuum. The content can be disposed of when the container is full, but volume assessment is only possible when the reservoir is inflated. Nowadays, patients are frequently discharged from hospitals with drains still in place. Soft drains are easier to manage at home because of the reduced weight and size. Usually, patients are asked to look after the drains, making sure they do not let them dangle freely, to prevent them from being accidentally removed. Aside from these instructions, patients are not asked to do anything with the drains at home and just return for post-operative follow-up 2-3 days later, where the total amount of secretions is measured. Evaluating the total drained volume alone is a flawed assessment method, as it might lead to erroneously decide whether a drain should be kept or removed. What we should use as a reference instead is the output quantity from the last 24 hours. We can precisely determine the amount of collected material on a daily basis by closing the clip of the tubing, opening the exit

valve to inflate the container, measuring then emptying the container if need be, compressing it back to the desired position and releasing the clip to apply the negative pressure. However, this whole process can be complicated and put the sterile environment at risk of contamination, which is why it cannot be performed by the patient at home. A safer way to monitor the amount of secretions was needed, which is why we thought about measuring daily outputs in the container by measuring its weight increase. Assuming that the container weight increase is equal to the secretions volume increase, we ask our patients to weigh the container using a kitchen scale, and to write down the obtained values. Containers are weighed on day first after discharge (Fig.1) and then once a day (Fig.2) at the same time until the next follow-up visit. When the patient returns for a post-operative check-up, they can report their measurements, thus making it is easier for the surgeon to decide whether to remove the drain or not.[4] Nowadays, more and more studies advocate for a reduction in surgical drains use in plastic surgery.[5] But, when their use is mandatory we believe that this simple method can be safely implemented to track drains in the post-operative period after the patient is discharged.

Compliance With Ethical Standards

(1) The authors declare that they have no conflicts of interest to disclose.

(2) This article does not contain any studies with human participants or animals performed by any of the authors.

(3) For this type of study informed consent is not required.

References:

1) Phillips BT, Wang ED, Mirrer J, Lanier ST, Khan SU, Dagum AB, Bui DT. (2011) Current practice among plastic surgeons of antibiotic prophylaxis and closed-suction drains in breast reconstruction: experience, evidence, and implications for postoperative care. Ann Plast Surg. May;66(5):460-5. doi: 10.1097/SAP.0b013e31820c0593. PMID:21407050

2) Nagarkar P, Lakhiani C, Cheng A, Lee M, Teotia S, Saint-Cyr M (2016) No-drain DIEP Flap Donor-site Closure Using Barbed Progressive Tension Sutures. Plast Reconstr Surg Glob Open. 4 (4), e672 .PMID: 27200234 PMCID: PMC4859231 DOI: 10.1097/GOX.0000000000000049

3) Lu N. (2015) Portable surgical wound drainage / suction reservoir: Types, Uses, and Complications. Available at http://www.disposable-med.com/news/Portable-surgical-wound-drainage-suction-reservoir-Types-Uses-and-Complications-45.html . Ucomfor (Changshu) Co.,Ltd. . Accessed August 29, 2015

4) Lyons N, Heron P, Bethune R. (2015) Improving the Recording of Surgical Drain Output. BMJ Qual Improv Rep, 4 (1) Sep 4 eCollection 2015. PMID: 26732350.PMCID: PMC4693076.DOI: 10.1136/bmjquality.u209264.w3964

5) Rodby KA, Stepniak J, Eisenhut N, Lentz CW 3rd. (2011) Abdominoplasty with suction undermining and plication of the superficial fascia without drains: a report of 113 consecutive patients. Plast Reconstr Surg. Oct;128(4):973-81. PMID: 21681122 DOI: 10.1097/PRS.0b013e3182268d88

Legend to Figures

Fig. 1: Drain quantitative measurement on a kitchen scale the first postoperative day.

Fig. 2. Drain quantitative measurement on a kitchen scale the second postoperative day.

A simple method for quantitative assessment of suction drains

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Legend to Figures

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Figure1

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Figure 2

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