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Published In/Presented At

Hallock G. G. (2007). To VAC or not to VAC?. *Annals of plastic surgery*, 59(4), 473–474. <https://doi.org/10.1097/SAP.0b013e3181579dbb>

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To VAC or Not to VAC?

Geoffrey G. Hallock, MD

To VAC or not to VAC? That no longer is the question. This household word has become synonymous as an acronym for the Vacuum-assisted Closure device (VAC) (Kinetic Concepts International, San Antonio, TX). The rapidity of its ubiquitous and universal adoption has been amazing. During hospital rounds at a recent international meeting, I admit I became more intrigued by the patient in the next bed who would otherwise have been overlooked. Her leg dressing was plugged into the same VAC device we use stateside. I even took pictures! Back home, I recently was consulted for my opinion in a case of Fournier gangrene where a partial scrotoectomy had removed all necrotic tissues. The urologist suggested that we place that black “spongy” thing in the wound and send the patient home. I suggested we take advantage of the natural tissue redundancy and invoke a secondary closure with a few sutures. The patient did well, avoiding further dressings changes, not to mention the significant associated costs and paperwork on my part. This in turn reminded me of when, as a resident (just yesterday), the dictum was “no wound went home unhealed.” Today, no healed wound goes home. Instead, a visiting nurse provides the requisite hospital care. One just called me about one of my free flap disasters. She wanted to know if I wanted a wound care consultant, and scolded me for not considering the VAC—“I needed to catch up to the 21st Century.” Woe is me, maybe I *am* missing something.

Nevertheless, I think I have a very rudimentary understanding of the basic theory of the physiologic mechanisms invoked by the VAC. Here goes. Subatmospheric pressure is communicated via open-cell polyurethane foam sponges cut to fit the given wound contour. Tissue blood supply essential for transport of oxygen and removal of evil metabolites is indirectly enhanced by the removal of excess interstitial fluid with a resulting diminution of tissue turgor.¹ Local edema is thereby controlled, excess fluid drainage evacuated, development of healthy granulation tissues promoted, and wound bacterial counts decreased.¹ Since typically, VAC dressings are changed only every other day, this reduction in the frequency of dressing changes reduces but does not eliminate all pain suffered by the patient. The nursing burden is also lessened so that extra time hopefully will be spent on other patient issues. A related indirect benefit is that the deleterious risk of wound dessication or other untoward sequela if dressing changes are postponed or even sometimes omitted by a busy nursing staff can be minimized. Some even proselytize a paradigm shift in that the VAC allows a revision downward of the “reconstructive ladder,” so that perhaps the free flap can even become passé.² And all of this will be accomplished less expensively with shorter hospital stays.

I vividly remember, again from my impressionable residency days, a lecture on the multitude of available approaches to wound management given by our soon to be editor emeritus. Hammered home was the fact that the most important ingredient for obtaining healing of a complex wound was not the device or substance used, but the keen interest on the part of the practitioner. How will the VAC fit into this schema? At the moment, the VAC seems to have ascended to be a panacea for the treatment of all wounds at all times. On the contrary, the literature has just begun to spell out pitfalls and contraindications.³ My specific major consternation is that it is impossible to make an assessment during an emergency wound consult because the wound is obscured by the VAC. Do I dare peek under it? My zeal for further daily wound evaluation and bedside debridement is similarly impeded. In some hospitals, an appointment must be made with the Physical Therapy

Department “VAC team” to coincide with their dressing change (preferably before 5 PM). Is it just a coincidence that the other surgical subspecialists seem to indiscriminately use the VAC for all wounds? Even more incredulous is the ordering of the VAC by medical subspecialists who are convinced that this is all that is needed to get a healed wound. Initial requisite debridement appears to have become a lost art. Of course, in all these cases the plastic surgeon now gets involved only after wound healing failure. Sometimes this is months later. By then, if poorly vascularized structures or hardware are exposed, they invariably have a deep-seated infection impossible to eradicate with our traditional approaches that are better suited for acute wound management, which now also are doomed to failure. With the introduction of the VAC, this scenario of futility repeats itself weekly in my current practice. I contend, as have others,⁴ that the timing to allow successful definitive wound closure appears not to be prolonged by use of the VAC.

There is literally no utopia [sic. “nowhere.”].⁵ Don’t misinterpret this to mean that the VAC cannot be used to advantage. I shamelessly will admit its convenience for the long-term management of wounds of patients that are not candidates for even minor surgery. Sometimes I can stall by appearing to be doing “something” until my schedule allows or until operating room time becomes available. Perhaps

others use the VAC to preclude our involvement, and hopefully not because we seek exclusion. The real role of the VAC, though, may be to serve as a bridge for definitive wound closure.⁶ In this regard, plastic surgeons and our principles still have an important function. I believe we are not yet expendable. Expedient, efficient, and effective wound care should always require the deliberate consideration of the entire continuum of available modalities. There is really no single answer. Does nature abhor a vacuum? Say it isn’t so.

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