

## Treatment of Axillary Hyperhidrosis/Bromidrosis Using VASER

Treatment of axillary hyperhidrosis/bromidrosis with VASER should only be performed by surgeons experienced with the VASER System for fatty tissue emulsification. At least 10 cases of standard VASER-Assisted Lipoplasty are recommended before moving to superficial application in the axillae.

**Anesthetic options:** Treatment of the axillae with VASER for hyperhidrosis/bromidrosis may be done with any anesthetic approach that is preferred by the patient and the surgeon. Options include 1) general anesthetic with wetting solution, 2) light IV sedation with wetting solution, 3) pill sedation with wetting solution, or 4) purely local anesthetic via wetting solution. The following protocol assumes a purely local anesthetic via wetting solution. The wetting solution drug concentrations may be appropriately modified for each anesthetic approach.

1. Indicated Patients: Patients seeking axillary sweat and/or odor reduction where sweat and /or odor are expected to be a result of overactive secretions from axillary eccrine and/or apocrine glands.
2. Informed Consent. Indicate that the procedure objective is to reduce sweat and/or odor to normal levels, not 100% elimination of sweat and/or odor. Indicate that a 'dry' condition may be achieved, but cannot be guaranteed.
3. Pre-operative marking and planning. Mark an area one centimeter beyond the periphery of the axillary hair-bearing area. This area will contain the vast majority of the sweat glands. Shaving prior to surgery is not required and may be the patient's choice. Light colored axillary hair can make it difficult to identify the border of the hair-bearing area if shaved.
4. Patient positioning and Incision:
  - a. Option one: Patient in the supine position with arms abducted 90 degrees on arm rests. One incision is made within the natural axillary crease one centimeter beyond the anterosuperior border of the axillary hairline.
  - b. Option two: Patient in the supine position with hand held behind their head and elbow relaxed to the side. One incision is made in the inferior axillae.
5. Wetting solution. 500cc of LR with 100 cc 1% plain lidocaine and ½ amp of epinephrine.
6. Infusion. Use a short (15 cm) infusion cannula, 16 gauge or smaller. 18 gauge is preferred. Do not use a NEEDLE. Infuse slowly at 100 cc/min to 150 cc/min maximum. Infuse uniformly and evenly into any and all locations where the VASER may be applied and at least 1cm beyond the marked field. Typical expected infusion volume is 250-350 cc's per axillae, depending on size of patient's axillae (see Table below for volumes). The vasoconstriction from the epinephrine at 1:500,000 concentration is sufficient after 10 minutes, but the numbing effect of the Lidocaine may take an additional 5 minutes to be sufficient. The recommended wait is 10-15 minutes. The infiltrate in the axillae dissipates rapidly. If more than 20 minutes has elapsed since initial infusion it may be necessary to add 50 cc of additional fluid before application of the VASER to provide the proper fluid environment.
7. Skin protection: used in each incision. After blunt dilation with a Kelly clamp, place a protective plastic skin port (part of VASER System) in the stab incision. Stretch the incisions and tissues below the incision with a hemostat to ease insertion. Stitch the skin port disc into place (3 anchor sutures) using 3x0 or 4x0 Nylon. Make sure the knots are tight as the silicone disc tends to cause the knots to unwind. These skin ports protect the incision edges and greatly reduce visible incision scarring. *Make sure that the wetting solution is placed all the way back to the skin port and under the skin where the skin port is placed.*
8. Emulsification: 2.9mm diameter, 3 ring, 11cm long VASER probe.
  - a. Phase one: amplitude setting 80%, continuous mode. The probe is passed in an even fashion throughout the subdermal plane with radial strokes, covering the entire marked area. Care is taken to monitor the skin surface temperature. Very gentle warming of the skin is acceptable, resulting from the superficial application of the VASER, but hot spots or any form of excessive heating should be avoided. When an area of skin starts to warm, move to another area and

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continue the treatment. The goal in Phase 1 is to complete a ‘discontinuous release’ throughout the targeted area, resulting in smoother passage of the VASER probe.

- b. Phase two: the amplitude setting is reduced to 70%, continuous mode. Again, the probe was passed in an even fashion throughout the subdermal plane with radial strokes, covering the entire marked area. Never sweep the probe in a side-to-side motion. *Never press the tip of the probe into this thin-skinned area, resulting in an ‘end-hit’. Always keep the probe tip flat (parallel) to the skin surface as much as possible.* Care is again taken to monitor the skin surface temperature. The application times for each phase for three different sizes of axilla are shown in the table below.
  - c. Have an assistant press the axillae flat during application of the VASER. This will greatly reduce the possibility of end-hits and will facilitate maintaining the VASER probe flat to the skin.
  - d. During Phase Two it is helpful to use a backstroke curettage motion of the VASER probe. **THIS IS ONLY DONE ON THE BACKSTROKE.** The objective is a gentle application of the VASER energy on the backstroke where the tip of the probe is more firmly pressed into the superficial area. Treat the entire marked area.
  - e. Monitor the skin temperature. Maintain a flat and uniform probe movement.
9. Aspiration. 3.0 mm VentX short cannula (17 cm). Avoid aggressive use of suction. Apply the suction only as long as it takes to remove the free fluids and tissue, usually about 2-5 minutes. Expected aspiration volumes are around 10-50 cc, possibly as high as 70 cc, depending on infused volume and size of patient.
  10. Closure: close incision with 2.0 or 3.0 Prolene sutures or deep dermal resorbable sutures, and cover incision site with a Tegaderm.
  11. Post-op taping/dressing/support. Cotton batting is placed into the axillae and secured with either two Kerlix rolls using a figure of 8 dressing or a complex arm jacket used with arm liposuction. Minimal activity restrictions are placed on the patient. The patient may remove dressing the following day.
  12. Follow-up. 5-6 days after surgery for follow-up and suture removal (if required).

### VASER Amplitude and Application Time for 3 Sizes of Axillae

Size of Axillae	Phase 1 (amplitude -minutes)	Phase 2 (amplitude/minutes)	Infusion per Axillae
Small	80% C – 5 minutes	70% C – 5 minutes	250cc
Medium	80% C – 6 minutes	70% C – 6 minutes	300cc
Large	80% C – 7 minutes	70% C – 7 minutes	350cc