

## Suction Curettage of the Sweat Glands—An Update

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*The author has indicated no significant interest with commercial supporters.*

Suction curettage of the sweat glands has become established in recent years as a standard therapy for managing cases of axillary hyperhidrosis that have proved resistant to conservative therapy.<sup>1-3</sup> Hitherto, a recurrence rate of 20% to 40% has had to be reckoned with for this operation,<sup>2,4-6</sup> but through new methods of operation and new instruments, it has been possible to reduce the rate of recidivation to less than 6%.<sup>4,7</sup> In the case of 168 suction curettages that were kept under follow-up observation after 12 months in our collective, we had to perform nine re-operations (5.3%). The volume of sweat in the axillary regions of all other patients after the operation was reduced approximately 80%. In the case of most patients, this corresponds to a normal level.<sup>8</sup> The following describes our operating procedure in more detail.

### Anesthesia

The operating area is defined as the axillary hairline plus 1 cm. We do not routinely conduct a Minor sweat test,<sup>9</sup> because the aforesaid definition takes in virtually the whole of the area subject to excessive sweat production. We use a high-performance infiltration pump with a flow rate that can be infinitely varied from 0.5 to 20 L/h. We infiltrate at an average rate of 100 mL/min through a 20-G, 7-cm-long cannula operated using a foot switch and repositioned several times. We thus achieve rapid infiltration of up to 400 mL of tumescence anesthesia solution per side. Care must be taken not to infiltrate

too little solution because this is of major importance to the success and feasibility of the operation. The composition of the tumescence anesthesia solution is shown in Table 1. It is important for the solution to be made up only shortly before the procedure because adrenaline, for example, does not remain stable in the solution for long.

Because the amount of solution used is small compared with that required in liposuction, the quantity of adrenaline can be increased to twice the usual amount without substantial risk of systemic side effects. This allows almost bloodless working in the otherwise highly vascularized operation area.

### Operation

The success of the operation depends on how aggressively the surgery is performed.<sup>7</sup> Proceeding too cautiously regularly produces negative results. In this regard, we have achieved significant progress in recent years through the choice of new access routes and new instruments, without any dramatic increase

**TABLE 1. Tumescence Solution for Suction Curettage of the Sweat Glands**

Adrenaline 1/1,000	2 mL
Ultracaine DS 1/200,000	20 mL
Triam 40	1 mL
Sodium hydrogen carbonate 8.4%	10 mL
Sodium chloride 0.9%	1,000 mL

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in side effects. Thus, we have completely abandoned the normal access route at the lower pole of the axilla. We now favor a medioaxillary access route relative to the chest. This access route guarantees that the whole area can be reached in a fanlike movement, without restrictions or obstructions. If the area is too large to be adequately reached using this access, additional access can be achieved at the upper pole of the axilla.

The first step is the rapid and complete detachment of the skin using a Dissector (Medicon Co., Tuttlingen, Germany). This ensures complete but gentle preparation of the operation site.

As the second step, initial suction is performed on the whole area. There are several tip cannulas for this procedure on the market.<sup>10</sup> The most common one is the Gilliland Etching Cannula (Byron Medical Inc., Tucson, AZ). We used a new special suction cannula (Figure 1) (4Umedical s.a.r.l., Boulogne Billancourt, France). The special feature of this cannula is its shape and the protruding sharp edges of the suction ducts (Figure 1). Because the cannula is not intended for re-use, the sharpness of the suction ducts is assured for each operation. It can be used, as we did, with vibrator support. An appropriate screw thread is provided. In view of the aforementioned need to proceed radically, the proper choice of cannula is of key importance.<sup>1</sup> The third, and ultimately decisive, step is manual curettage performed with great care using a 7-mm curette. This mode of curettage corresponds, in modified form, to the Skoog method, which has been successfully employed in plastic surgery for many decades<sup>11-14</sup> and in which the corium of the axilla is folded back using a large incision and then scraped. However, the new, modified method causes significantly less scarring and fewer restrictions for the patient, although with the same results.



**Figure 1.** New suction cannula.

In a further step, the whole area is again completely suctioned in the same manner as in the second step. The medioaxillary access area sometimes has lateral skin branches of a venous plexus. At the end of the operation, these should be cauterized by sight to prevent bleeding into the wound cavity and other attendant complications. We always perform closure of the access wounds by suture because the lesions resulting from the size of the Kai curette are usually too large for closure with plaster stripes.

Finally, a stab incision is made as a drain in the lower pole of the axilla to minimize the risk of seroma formation.

### Dressing

As dressing, we use standard sterile gauze compresses of various sizes and, on each side, sterile shoulder padding obtained from the clothing industry. This adapts well to the shape of the axilla and ensures even pressure without impairment of the blood or nerve supply to the arm.

To provide additional pressure, a clavicle bandage should be worn throughout the day for 3 to 5 days, although it should be removed at night. It should then be worn sporadically during the day for a further 5 to 7 days with slight padding under the armpits as support. In the majority of cases, this ensures that the skin is able to heal back in place without complications.

### After Care

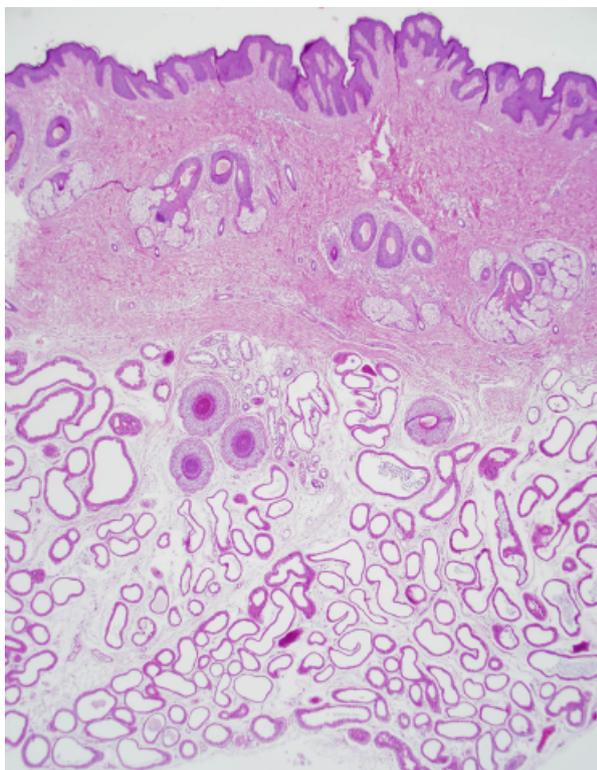
Severe pain normally occurs only on the day of the operation as the effects of the anesthetic wear off. Adequate pain medication must be given to manage this. On the following day, most patients are pain free. The stitches should be removed 7 to 10 days after the surgery. Starting from the seventh day after the operation, it is recommended to massage the armpits gently with commercial skin oil to lessen the

formation of nodules and hardening. However, hardening is normal and can continue for up to 3 months.

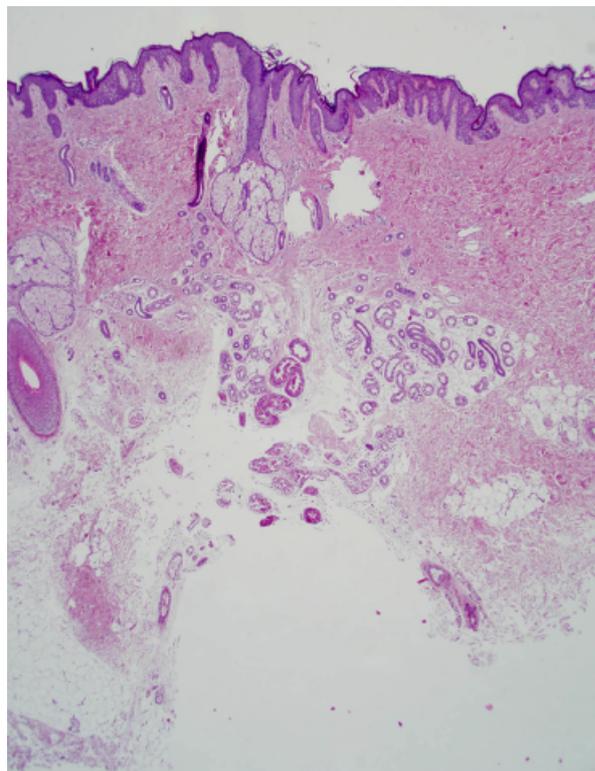
### Complications

After approximately 10 days, flaking off of the top layer of the skin in the middle of the surgical area, similar to that following a scald injury, occurs in up to 15% of cases. This merely delays the wound healing process by 7 to 10 days and is harmless. We always treat it with a normal antiinflammatory cream.

Seroma formation under the wound occurs in approximately 2% to 3% of cases and should be removed by punctation as quickly as possible because it significantly impairs the healing process. Bleeding in the axilla is a complication that occurs rarely but must be taken seriously and urgently remedied.



**Figure 2.** Histology before suction curettage.



**Figure 3.** Histology after successful suction curettage of the sweat glands.

### Histology

The histologies in Figures 2 and 3 show the situation before and after suction curettage successfully performed by us on a 23-year-old woman. A marked reduction in the subcutaneous sweat glands down to the lower corium can be seen.

### Conclusion

Given correct diagnosis and performance of the operation, good results can be achieved with the new methods and instruments. The outcome gives the patients a new outlook and enhanced quality of life.<sup>8</sup>

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