Cosmetic self-surgery in the arm

Mario Xerxes Castelán Castro «Ksenia»
E-mail: ksenia@17beta.top
ORCID iD: https://orcid.org/0000-0002-5831-5828

14 February 2020
Last revised 24 February 2020

Abstract

Self-surgery was performed to remove a small cosmetic defect in the left arm, superior to the cubital fossa. Local anaesthesia was used. The surgery was performed mostly with the right hand because the location of the defect made impossible to use the left hand. Uncommon techniques had to be used. Extensive practical details are given as a chronology including preoperative preparations.

Persistent link to latest version: https://n2t.net/ark:21206/10065. To this version: https://n2t.net/ark:21206/10065/v4.

Contents

1 Overview

The defect to be removed was approximately 6 mm in the longest direction. It was located in the left arm above the cubital fossa and near the radial side (distal in anatomical position). There was no pain during nor after the surgery.

A living room served as the operating room for this procedure. It was deemed unnecessary to sterilize it given that this was a superficial procedure. Windows were closed to reduce contamination by dust. We note that it is usual practice to perform minor cosmetic surgery in surgeon offices.

A reliable person close to the author took the photographs reproduced therein. This person did not participate in the surgery.

We have previously reviewed case reports of self-surgery in the literature[2].

2 Materials

The following surgical instruments were prepared for this surgery. All of them are of stainless steel (alloy not specified anywhere) and had not been used for any previous surgery:

- Scalpel handle type 3
- Scalpel handle type 4 (disinfected but not used)
- Scalpel blade type 10
- Scalpel blade type 15
- Metzenbaum scissors, straight
- Needle holders, 14 cm long
- Dissection forceps
- Adson dressing forceps
- Adson tissue forceps, 1 teeth on one side, 2 teeth on other side

In addition the following material was used during or prior to surgery:

- Sachet of suture thread with needle, atraumatic, monofilament Nylon, 5-0, needle of 3/8 of a circle
- Ampoule with solution of lidocaine, 50 ml, concentration 20 mg/ml
- 2 syringes with built-in needle, capacity 1 ml, needle outer diameter 0.3 mm
- Surgical mask
- Big food-safe pan with lid, blue
- Small food-safe pan with lid, transparent
- Dish sponge
- Toothbrush

- Measuring vessel, capacity 12.5 ml, marked in 2.5 ml increments.
- Bottle of 500 ml of surgical biocide with 120 g/l of benzalkonium chloride (BAC), brand name *Krit*
- Bottle of household bleach brand name *Cloralex*

When procuring the instruments a surgical cap was ordered; the vendor dropped it from the order by mistake.

Toothbrush and dish sponge were only used to scrub material. They had not been used for washing teeth nor dishes.

3 Preparation

The author's long hair was tied up with a ribbon and twisted into a bun. The bun was self-holding; for safety 3 hair pins were used to further secure the bun.

A small table with glass top was sterilized with household bleach. The label stated the active ingredient was sodium hypochlorite; the concentration was not stated; it was assumed to be 52.5 g/l. The table was cleaned of macroscopic contamination with a non-sterile cloth. During the subsequent handling of sodium hypochlorite solution the author used gloves.

Sodium hypochlorite solution was poured from the bottle over 2 cotton swabs. The top surface of the table, the edges, corners and a part of the bottom of the glass top were first wiped with one cotton swab. Then the top surface, edges and corners (bottom of the glass top not wiped again) were wiped with the other cotton swab.

Surgical instruments were cleaned with sponge and toothbrush using dish detergent. Both scalpel handles had some loose stainless steel shavings from factory in the slots for the scalpel blade; they were removed by scrubbing with the toothbrush.

3.1 Sterilization with sodium hypochlorite

Both pans were new and were sealed from factory in distinct plastic envelopes. The plastic envelopes were removed. The pans were scrubbed with sponge and toothbrush using dish detergent and thoroughly washed with running tap water. The blue pan was almost filled with solution of sodium hypochlorite (Na(ClO)) at a concentration of 5.25 g/l, prepared by diluting 1 part in volume of bleach with 9 parts of bottled water. This Na(ClO) solution was used to sterilize some material described next.

The transparent pan (without lid) and measuring vessel were sterilized by immersion in the blue pan for 30 min, then rinsed with bottled water and placed in the glass-top table. The transparent lid was immersed in the blue pan for 30 min, reusing the Na(ClO) solution, then rinsed with bottled water and placed with inner side up in the table.

The bottle of Hartmann solution and vial of lidocaine were new. Their protective lids were removed, then they were sterilized by immerson in Na(ClO) for 20 minutes. The bottle of the Hartmann solution floated, leaving a small fraction of one side outside the solution. Likewise, the vial of lidocaine was wide enough that one side was left outside the solution. Therefore, both were rotated

180 degrees halfway through the sterilization procedure to ensure all the extenal surface had been in contact with the sterilizant.

A decision was made to not to sterilize the surgical instruments with sodium hypochlorite because they were new and sodium hypochlorite can damage them [1].

3.2 Disinfection of surgical instruments

The author donned the surgical mask to avoid contaminting the disinfectant solution with saliva; this surgical mask was only removed after the surgery. The author handled all material during the subsequent disinfection with BAC with sterile latex examination gloves.

The transparent pan was used to disinfect the surgical instruments. It was filled halfway with biocide solution prepared from bottle water and BAC-based surgical biocide dissolved to 5 g/l. The BAC solution was noted to be blue and slightly foam-forming.

All the surgical instruments, the unopened sachet of suture and the needles were immersed. The plunger of the syringes was pulled all the way to fill them with biocidal solution, then pushed again. This ensured that the dead space was filled with biocidal solution rather than air. The syringes came each with an orange plastic protector for the tip and another protector for the handle of the plunge; these were also disinfected in the aforementioned solution, detached from the syringes. The scalpel blades in their individual wraps were also immersed in the disinfectant solution. The wraps had previously been cleaned on the outside with a toothbrush, dish soap and running tap water. A cotton swab was cut in half with scissors and both parts soaked in the benzalknoium chloride solution. One half was put over the rubber of the Hartmann solution and another half over the rubber of the lidocaine solution.

3.3 Disinfection of site to be operated

The author cleaned an area around to be operated with a cotton swab soaked with aqueous solution of ethanol. Using sterile examination gloves the author soaked a different cotton swab into the pan with biocide solution, disinfected the area to be operated with this cotton swab and placed it over the arm, secured with tape. The pan with biocide solution was covered with its corresponding lid and left unperturbed for 30 min.

3.4 Donning of gloves

As mentioned, the author was already wearing the surgical mask at this point. The author consumed coffee and 5 mg of methylphenidate, both oral, to increase attentiveness and endurance to tiredness and pain, then removed the cotton swab secured to the arm.

The surgical gloves came packaged in 2 bags. The outer bag was cleaned with a wet cloth, then discarded. The author washed hands with household soap, then dried them with ambient air. The inner bag of the gloves was opened, placed on a clean surface, and then the gloves were donned with care of not touching the outer surface except in the cuffs. Care was taken to not to touch any non-disinfected surface with the gloves until the surgery was finished. Care

was taken to not to touch the table because of any possible leftover of sodium hypochlorite.

4 Surgery

Figure 1: The material as laid during the surgery. From left to rigth: Blue pan with instruments, transparent pan with biocide, lid with cotton swabs with biocide, vial of lidocaine, bottle of Hartmann solution.

The surgery was performed by the author sit with crossed legs on a bed near the edge. In front of the bed was the glass-top table with instruments and material (figure 1). The author sit in the bed and only got up after the surgery was finished. The author moved the surgical instruments from the biocide solution to the dry pan. The author filled a syringe with half Hartmann solution and half lidocaine. Before the first incision 5 injections were made, one just below the defect to be removed and 4 around it in an quincux pattern. There was loss of tactile sensitivity in a matter of seconds. The author massaged the site while waiting for further loss of sensation, occasionally proving for thermal sensitivity with the closed tip of the needle holders. More anaesthesia was applied during the course of the surgery as needed; individual occasions are not listed. At some point near the start of suturing the author switched from 10 mg/ml of lidocaine (diluted with Hartmann solution) to 20 mg/ml lidocaine (undiluted from vial). Motor control of the left limb and sensitivity far from the area operated on were preserved at all times. Attenuated tactile sensitivity was present around 30 % of the time during the surgery; some incisions and sutures were felt; however there was no pain. Complete loss of tactile sensitivity was deemed unneccessary.

Blade type 15 was placed in the scalpel handle. In all occasions where scalpel blades were placed on the handle or removed from it this was done with the needle holder to avoid accidental cuts.

Figure 2: The technique used to remove the portion of skin to be excised and the leftover of subcutaneous tissue.

4.1 Incision

The author performed an incision with a rhombus shape that encompassed the cosmetic defect; inner angles were approximately 30° and 120°; the longest diagonal was in longitudinal direction along the arm. The rhombus of skin remained attached through subcutaneous tissue. The author attempted to cut with the scalpel the subcutaneous tissue that held the rhombus of skin. Given the position of the incision, the left hand was unavailable to hold the rhombus of skin to excise it. The attempt to cut it directly with the scalpel failed because the rhombus of skin slipped. The author then held the rhombus of skin with the tip of the needle holder, locked, and put the needle holder over the arm, held by its own weight and static friction. The author then cut the skin to be excised slipping a scalpel between the needle holder and the arm (figure 2). In this manner the rhombus of skin was excised with one hand. Shortly after starting to excise the rhombus of skin the author changed from blade type 15 to blade type 10. The blade type 15 was placed in the blue pan in case it was neccessary again.

Some subcutaneous tissue remained near the proximal end of the rhombus. Most of this subcutaneous tissue was excised in portions with the aforementioned procedure using the needle holder. When very little subcutaneous tissue remained it could no longer be held with the needle holder. The needles of the syringe (attached to the syringe) were used to hold it in a similar manner as the needle holder for excision. Some excess skin remained near the distal end of the rhombus. This was also excised aided with the tip of a syringe as done with subcutaneous tissue.

During the orginal incision and the subsequent removal of subcutaneous tissue there was enough bleeding to impair visibility. The right hand pressed the wound as needed for hemostasis. The pieces of cotton swab previously used to disinfect the bottle of Hartmann solution and the vial of lidocaine were used to clean the blood in the wound and the area around the wound. The pan with BAC biocide was used to rinse the blood from the swabs. The solution in

Figure 3: The wound after excising the cosmetic defect.

the pan changed color from blue to green because of the blood. The blood on the author's arm and gloves also became green because of the biocide solution (figure 6).

4.2 Suture

Before suturing local anaesthesia was applied again. Suturing was by simple interrupted suture; this type of suture was chosen for its good capacity for eversion and control of tension of individual knots. 3 stitches were given starting with the middle one, then proximal, then distal.

Suturing was performed with the right hand. With the left hand the author held the non-needle end of the thread in order to prevent it from hanging and touching non-sterile surfaces; the thread was grabbed slightly after the needle rather than grabbing the needle itself, to avoid the risk of the thread becoming detached from the needle.

Passing the needle through the skin was done using the needle holder the usual way. After the thread went through both sides of skin, the thread was pulled leaving most of it on the side of the needle end. The right hand held the needle holder to tie the first step of the knot (first 2 throws of surgeon's knot). To tighten the knot with one hand, the needle holder was used to hold the short end of the knot (non-needle end of the thread). The needle holder was in turn held between fingers 3-5 and the arm; fingers 1-2 were used to pull the long end of the knot (needle end of the thread); see figure 4. On each stitch was tied a surgeon knot followed by half a square knot. As is usual practice, each step was tied in direction opposite to the last one, so as to make a square knot and not a slip knot. The ends were clipped with the Metzenbaum scissors. For the last iteration the thread was short enough that it could no longer be grabbed with the left hand and it did not hang low enough to touch any non-disinfected surface; therefore the needle end was left to hang.

Figure 4: The technique used to tighten the knots with one hand.

4.3 Wound dressing and cleaning

The sutured wound was covered with sterile gauze held in place with tape. Instruments were cleaned of blood and detritus by rubbing them with the cotton swabs using during surgery, still soaked in disinfectant solution. The cotton swab was held with the dissection forceps when cleaning the scalpel blades to avoid accidental cuts. The blades were removed with the needle holder and placed in a sharps-resistant container along with the leftover suture. The exterior surface of the gloves –still in the author's hands– were washed with hand soap. The surgical instruments were scrubbed with the toothbrush under running tap water and left to dry on top of a towel, then saved in a plastic bag. The gloves were removed. To reduce wastage they can be re-used for some non-sterile procedure.

At this point a slight aroma similar to pineapple but sweeter was noticed in the OR, attributable to the BAC solution. This aroma was not noticed during the surgery.

5 Removal of stitches

Stitches were removed 5 days after the surgery with one hand using a similar procedure than for suture. The needle holder was held between fingers 4-5 and one arm with the other fingers used to cut the thread with a scalpel with type 15 blade.

6 References

[1] S. Brown et al. (2004) "Effects on instruments of the World Health Organization–recommended protocols for decontamination after possible exposure to transmissible spongiform encephalopathy–contaminated tissue". DOI: `https://doi.org/10.1002/jbm.b.30125`. Open access.

Figure 5: The sutured wound just after the surgery. Wound dressing was lifted to take the photography and is visible to the right of the wound.

[2] M. X. Castelán Castro (living document, no year) "Case reports of self-surgery". ARK: `https://n2t.net/ark:21206/10028`. Open access.

Figure 6: The author holding a needle holder after the surgery. The glove has dry blood, most of it turned green by benzalkonium chloride.