

Innovative Use of Abdominoplasty Specimen

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Abstract

Simulator training is important for understanding nipple–areolar complex reconstruction. Human tissue is the best tissue simulator for surgical training. Abdominoplasty specimen is a useful tissue simulator, which is suitable for practicing nipple–areolar complex reconstruction. It is similar to the natural mound created in breast reconstruction. Authors have shared their experience of using abdominoplasty specimen for simulator training of nipple–areolar complex reconstruction for plastic surgery residents. Abdominoplasty specimen is cost-effective, readily available, and an efficient tool for plastic surgery training for the residents.

Keywords: Abdominoplasty specimen, nipple–areolar reconstruction, plastic surgery trainee, tissue simulator

Key Messages: Abdominoplasty specimen is a useful tissue simulator suitable for practicing nipple–areolar complex reconstruction. It is cost-effective, readily available, and an efficient tool for plastic surgery training for the residents.

INTRODUCTION

Simulation training is very important for a plastic surgery trainee before operating on live patients. For flap surgery training, human tissue provides the best simulation as it is the natural skin with subcutaneous fat and fascia. Father of Modern Plastic Surgery, Sir Harold Gillies, had quoted that “never throw anything away.”^[1] In some plastic surgery procedures, healthy tissue is excised, which need not be sent for pathological examination. This human tissue can be used for surgical practice.^[2] One such procedure is the abdominoplasty.

Abdominoplasty is a commonly performed procedure. The idea of using abdominoplasty specimen for surgical training has already been described.^[3] Abdominoplasty specimen can be used for the practice of suturing techniques, skin graft harvesting (split thickness and full thickness), fat graft harvesting, and local fasciocutaneous flaps.^[3,4] The practice of flaps for designing new nipple or umbilicus over abdominoplasty specimen has also been proposed.^[5] Here, we share our experience of using abdominoplasty specimen as a simulator for training plastic surgery residents in the creation of new nipple.

MATERIALS AND METHODS

A hands-on workshop on local flap techniques of nipple reconstruction was organized at our institute. Six plastic surgery trainee residents participated in this workshop. We used abdominoplasty specimens from three patients operated at our institute. Each specimen was divided into two pieces, and one piece was provided to each participant. Written informed consent was obtained from all the patients. Under the guidance of consultant plastic surgeon, the participants designed local flaps and created new nipple–areolar complex (NAC) over these specimens. Multiple flaps were practiced over one specimen. At the end of the workshop, the participants gave their feedback in written format [Figures 1 and 2].

RESULTS

The feedback responses of the participants after completion of the workshop are shown in Table 1.

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DISCUSSION

NAC reconstruction is a challenging surgery with multiple possible reconstructive options. Some of the local flaps for nipple reconstruction are skate flap, star flap, C-V flap, arrow flap, bell flap, top hat flap, S-flap, and spiral flap.^[6] Each method of nipple reconstruction has unique characteristics. It is important to understand all these methods to make a correct decision regarding NAC reconstruction.

The nipple is reconstructed over the breast mound, and the techniques are based on the use of subcutaneous fat along with the skin. The abdominoplasty specimen is similar to the breast mound. The abdominoplasty specimen consists of the skin, fat, and superficial fascia from the lower abdomen. The same tissue is commonly used for the breast mound reconstruction in pedicled or free transverse rectus abdominis myocutaneous flap. Again, the skin and fat content of abdomen is similar to the skin and fat content of back tissue, which is transposed during latissimus dorsi flap. Abdominoplasty is a common procedure, and the specimen is readily available in the plastic surgery department. The specimen can be preserved in formalin. It does not cost any extra charges.

In our experience, practicing NAC reconstruction over abdominoplasty specimen is useful for the plastic surgery

residents. All the participants found this workshop helpful in understanding different flap techniques. Designing and operating these flaps increased their confidence level and refined their skills. The participants suggested for arranging such workshops frequently. They pointed out that preserving the specimen negatively affects the quality of tissue simulator, and a fresh specimen is better for the flap practice.



Figure 1: C-V flap nipple reconstruction over abdominoplasty specimen



Figure 2: Resident practicing nipple reconstruction over abdominoplasty specimen

Table 1: Feedback responses of participants after completion of the workshop

Questions	Participants					
	1	2	3	4	5	6
Was the workshop helpful for you?	Yes	Yes	Yes	Yes	Yes	Yes
Was the tissue simulator provided similar to breast mound?	Yes	Yes	Yes	Yes	Yes	Yes
Were you able to understand the flap technique demonstrated by the instructor over the tissue simulator?	Yes	Yes	Yes	Yes	Yes	Yes
Were you able to practice multiple nipple flaps over one tissue simulator?	Yes	Yes	Yes	Yes	Yes	Yes
Were you able to mark the flap planning over the skin of tissue simulator?	Yes	Yes	Yes	Yes	Yes	Yes
Were you able to reconstruct a nipple with adequate projection and shape?	Yes	No	No	Yes	Yes	Yes
Was the suturing of the tissue simulator skin similar to actual case?	Yes	Yes	Yes	Yes	Yes	Yes
Did the preservation in formalin negatively affect the quality of tissue simulator?	Yes	Yes	Yes	No	Yes	No
Would you like to participate in similar workshop again?	Yes	Yes	Yes	Yes	Yes	Yes

CONCLUSION

Abdominoplasty specimen is a useful tissue simulator suitable for practicing NAC reconstruction. It is cost-effective, readily available, and an efficient tool for plastic surgery training for the residents. Preferably fresh specimen should be used for the flap practice.

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Conflicts of interest

There are no conflicts of interest.

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