OPEN

PRS GLOBAL OPEN

VIDEO
Education

Minimizing the Risk of Wrong-site Dermatologic Surgery: The Five "I"s Process

Elizabeth Rajiah, MRCS (Eng);* Ana Borges, MRCS*; Mahaba Hamad, MRCS*; Trinettra Ruben†; Ruben Y. Kannan, FRCS(Plast), PhD*

INTRODUCTION

Wrong-site surgery remains a problem in surgery despite the WHO surgical checklist,[1] reported as one per 100,000.[2] The current process is nonspecific and does not form part of the process management.[2] NHS England reports that 27.4% of general surgical never events were related to wrong skin condition surgery.[3] Within dermatologic surgery, this impacts skin lesions, assessed by one practitioner and excised by another, and is accentuated by the high-volume nature of these clinics. Anatomic risk factors include misperception of patient orientation or poorly visualized areas, for example, back, head, and neck. Patient risk factors include multiple lesions at a similar site or communication issues, for example, mental capacity or mental/ physical disabilities. Therefore, there is a need to refine the process.

TECHNIQUE

Here, we propose a simple five-step process, deemed the five I's process, for all skin lesions:

1. Ink—mark the patient preoperatively with the intended incision
2. Image—use secure photography or the patient's smartphone[4]
3. Inject local anesthetic along the markings
4. Incise along the markings
5. Illustrate the surgery graphically

These principles also draw relevance to other surgical domains, for example, illustrating procedures with limited visualization, such as complex head and neck reconstruction, or marking a donor site for tendon reconstruction.

Ink

When consenting a patient, the incision should be marked. In skin cancer excision, marking an adequate margin of uninvolved skin often leaves a bigger defect than the patient anticipates. This also helps the surgeon plan a suitable reconstructive method.

Image

A photograph with a hospital-approved device or medical photography is helpful, enabling the patient to understand the surgical plan and help to provide informed consent. For reconstruction of a scalp defect, a local flap requires more extensive incisions resulting in a larger postoperative wound but is likely to be more aesthetic in the long term. However, a patient may prefer coverage with a skin graft despite a contour defect and no hair growth from the grafted area for a simpler wound. Consent must be taken beforehand to ensure patient privacy and data protection compliance. Photographs should be securely stored and accessed via a centralized system, which most centers have. The UK has no restrictions for photography using a patient's phone; however, this practice varies from country to country.

Inject

The first pause in the WHO checklist is to avoid wrong-site injections. Local anesthetic should be infiltrated along the inked lines. Preoperative markings of local flaps/sites for skin grafts help anticipate the type and volume of local anesthetic required.

Incise

The second surgical pause of the WHO checklist is incise. Then, the skin should be cut along the marked lines.

Illustrate

An illustration drawn on the operation note clarifies the exact surgical site and reconstruction method. This documentation should be uploaded to a centralized system or

*From the *Department of Plastic Surgery, Queen Victoria Hospital, East Grinstead, UK; and †Imberhorne School, East Grinstead, UK.*

Received for publication September 16, 2022; accepted November 15, 2022.

Copyright © 2023 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Plast Reconstr Surg Glob Open 2023; 11:e4749; doi: 10.1097/GOX.0000000000004749; Published online 18 January 2023.

Disclosure: *The authors have no financial interest to declare in relation to the content of this article.*

Fig. 1. This figure details the five I's process.

be available during follow-up to aid continuity of care, particularly if done by another physician or by virtual means.

CONCLUSION

The five I's process is a memorable method to supplement the WHO checklist and minimizes miscommunication between patients and surgeons, and therefore, wrong-site surgery (Fig. 1). (**See Video [online]**, which displays the five I's process in the preoperative management of a patient.)

Elizabeth Rajiah, MRCS (Eng)
Department of Plastic Surgery
Queen Victoria Hospital NHS Trust
Holtye Road
East Grinstead
RH19 3DZ, UK
E-mail: elizabeth.rajiah@doctors.org.uk

REFERENCES

1. Haynes AB, Weiser TG, Berry WR, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med.* 2009;360:491–499.
2. Hempel S, Maggard-Gibbons M, Nguyen DK, et al. Wrong-site surgery, retained surgical items, and surgical fires: a systematic review of surgical never events. *JAMA Surg.* 2015;150:796–805.
3. Omar I, Singhal R, Wilson M, et al. Common general surgical never events: analysis of NHS England never event data. *Int J Qual Health Care.* 2021;33:mzab045.
4. Highsmith JT, Welnsteln DA, Highsmith MJ, et al. BIOPSY 1-2-3 in Dermatologic Surgery: Improving smartphone use to avoid wrong-site surgery. *Technol Innov.* 2016;18:203–206.