

# An Insight into Surgical Site Marking Introducing Infection

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Dear Editor,

Preoperative marking of the surgical site is necessary to prevent surgical site errors. In numerous plastic and reconstructive surgeries, tissue marking is performed preoperatively and intraoperatively using surgical markers. It enables the surgeon to create a map before surgery, which is essential for a successful outcome. Intraoperative marking is likewise essential. Despite its positive effects, it is not entirely devoid of flaws. When sterility is compromised, it is known to cause surgical site infections.

With contaminated markers, Surgical Site Infection can propagate from one patient to another. To prevent cross-infection, sterilization of surgical markers is essential. The gentian violet ink used in commercially available markers is authorized for use on skin. *Mycobacterium chelonae*, subspecies *abscessus*, was isolated from the gentian violet stock used by the surgeon, and the same organism was found in the gentian violet stock supplied by the pharmacy to the surgeon. No additional cases occurred after a sterile skin-marking agent replaced the contaminated one, according to a study by Safranek *et al.* [1]. Four cases of *M. chelonae* infections were reported to the Centers for Disease Control and Prevention between 2002 and 2003, with the source of infection being contaminated with Methylene blue dye used before face-lift procedures [2]. A 2023 study by Huff *et al.* determined that marking markers transmit bacteria even after povidone-iodine site preparation [3].

Chen *et al.* concluded, “Marking solutions should be manufactured in a pharmacy under sterile conditions. Alternatively, nonsterile solutions that are commercially available can be autoclaved to ensure sterility” [4]. The ink used in markers can be manufactured with a bactericidal solution that kills bacteria; for example, a study by Tadiparthi *et al.* [5] suggests that ethanol-based ink has a bactericidal effect on Methicillin-Resistant *Staphylococcus aureus*.

Moreover, a 2022 study by Magone *et al.* recommends that sterile surgical marking markers should not be placed on the sterile field after use on the skin surface

[6]. Here, the single use of commercial marking pens will become prohibitively expensive; therefore, other alternatives can be considered, such as Kneilling *et al.*, suggestion of using autologous patient blood and eosin as a cost-effective intraoperative marking method [7].

Therefore, it is necessary to ensure that the markers or ink used for surgical site marking are sterile. Before their use, potential interventions should be conducted in healthcare settings if sterility concerns exist. If single-use marker pens are inconvenient, alternative methods for preventing cross-contamination should be pursued. Autoclaving surgical site markers and dyes are the best options to ensure sterility.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## ACKNOWLEDGEMENTS

Declared none.

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 Received: January 27, 2024; Revised: May 24, 2024; Accepted: May 24, 2024  
 DOI: <https://doi.org/10.37184/jlnh.2959-1805.2.5>

DOI: <https://doi.org/10.1177/23259671211062225> PMID: 35187182

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