

Unintended Practice of Delivering Contaminants to Patients through Implants Aakash Agarwal PhD; Adam MacMillan; Anand K. Agarwal; Neel Anand MD; Chris Karas; Jeffrey Wang MD

Introduction

Spinal infections continue to be a huge problem both clinically for patients and in terms of increasing health care costs. In recent years, there has been considerable interest in refining the handling and reprocessing techniques encompassing implantable devices, in order to potentially reduce surgical site infections.

Methods

A systematic review of literature was performed to gather evidences signifying the importance of implant prophylaxis. In conjunction, a preliminary examination of reprocessed implants for visible contaminants was conducted.



Results

1. Eleven recent studies were identified, whose major focus remained the asepsis of implants to reduce SSI incidences during surgery [2-12]. The suggested changes to surgical practice based on these studies included: handling implants with only fresh gloves, keeping implants covered until the immediate time of use, reducing OR traffic, avoiding reprocessing of implants (i.e. providing terminally sterilized implants) and to avoiding touching the implants altogether.

2. Three types of contaminants were identified: corrosion, saccharide of unknown origin (Fig. 1), and soap residue (Fig 2). The corrosion stains were present on the outer surfaces of the implants, whereas an active corrosion with implant material erosion was seen at an interface. The saccharides and soap were present in the interfaces with low permeability. These results are in accordance with a previous study showing

Conclusions

Using a terminally sterilized device would mitigate preoperative contamination, however only implant prophylaxis avoids intraoperative contamination. Other surgical professions recognize this problem too; both plastic surgery and general surgery have unanimously adopted a practice of using an additional layer of barrier against contamination of the implants or the irrigation fluid, with positive results [14, 15]. Similar practice of intraoperative shielding the implants is needed in spine surgery.



Learning Objectives

1. Any kind of contact, physical or nonphysical, has been shown to contaminate the implant during surgery

2. Contemporary surgical professions have already begun to adapt the concept of not touching the implant during surgery

3. Cleaning and sterilization at hospitals adds variability and uncertainty to the concept of asepsis

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