

# Surgical Site Infections: An Ongoing Challenge

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Any infection that manifests up to four weeks after surgery at the site of surgical incision is considered as surgical site infection. This time period is extended to one year where implant is used.<sup>1</sup> In most of the cases, infection is limited to site of incision only, however deeper tissues and organs may be involved. The incidence of SSI varies in studies reported from different countries. It depends upon type of surveillance system used which include different parameters. However, the type of surgical procedures performed remained the focus of attention.

Multiple guidelines have been proposed to reduce the frequency of surgical site infection. World Health Organization in 2016 published first global guidelines for prevention of SSI which were updated in 2018.<sup>2</sup> For ease of understanding the prevention strategies can be broadly divided into hospital related infection control policies, surgical procedures related standard operative protocols and patient related factors. Of these the former is considered as the modifiable approach. This include sterilization of equipment practices, properly constructed and maintained operation theaters, aseptic surgical approach, education and training of OR staff, rational use of prophylactic and therapeutic antibiotics etc. Most of the violations are related to above mentioned practices that may result in occurrence of surgical site infections. In developing countries context, it is a common observation that healthcare providers do not observe principles of hygiene and do not follow laid down policies. In a meta-analysis that included studies from Pakistan, it was reported that incidence of SSI was higher in developing countries than the developed world.<sup>3</sup> A high rate of wound infection in clean and

clean contaminated surgical procedures tantamount to such an outcome.

In a study from India the overall infection rate in clean and clean contaminated surgeries was reported as 8.95%. This was 3.03% in clean surgeries and 22.41% in clean-contaminated procedures.<sup>4</sup> In a study from a university hospital Pakistan the rate of wound infection in clean surgeries was 5.3% and 12.4% in clean-contaminated procedures.<sup>5</sup> Laparoscopy is now a routine surgical procedure which is performed for different indications, however laparoscopic cholecystectomy remained the most common pathology. In a recent study from Pakistan the frequency of port site infection was 0.4% in patients where retrieval bag was used to remove gallbladder. This increased to 5.5% where bag was not used.<sup>6</sup> In an article published in this issue of Journal of Surgery Pakistan, the port site infection is reported as 5.3% even when endobag was used for retrieval of gallbladder.<sup>7</sup> This is alarming rate with this minimally invasive approach.

In context of surgical site infection another important issue is the irrational use of antibiotics. This is done as a preemptive measure to control potential threat of postoperative wound infection. This is done without any evidence based data. In clean surgeries antibiotics hardly have any role except in some specific situations related to patients and type of surgical procedure performed. Many hospitals in Pakistan do not have infection control policies. The use of antibiotics in surgical cases left to the choice of the operating surgeons. Even in a single surgical unit, surgeons prescribe antibiotics on their own, rather than taking advise from infectious diseases consultants and pharmacists. Emergence of bacterial resistance to commonly used antibiotics is therefore expected.

Antibiotics use in surgical practices should follow a defined protocol. Unique hospital setting and pattern of surgical procedures as well as continuous surveillance for infections, help in devising strategies for rational use of antibiotics. It is important to determine the pattern of bacterial resistance in a particular setting. Availability of antibiotics also count. Even in a resource setting constraints, effective

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antibiotic prophylaxis protocols can be developed.<sup>8</sup> Thus a multi-prong approach is advised to identify factors that have a potential to lead to surgical site infections as well as strategies to deal with them, keeping local context upfront. Solutions have to come from within.

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#### How to cite this article:

Akhtar J. Surgical site infections: An ongoing challenge. *J Surg Pakistan* 2022;27(2):34-5. Doi:10.21699/jsp.27.2.1.

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