

SURGICAL SITE INFECTION IN PLASTIC AND RECONSTRUCTIVE SURGERY

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ABSTRACT

The surgical site infection is one of the important causes of morbidity in admitted patients. It adversely affects the healthcare system. All surgical subspecialties are affected by it. The plastic and reconstructive surgery is a branch that deals with almost all parts of the body. The data of surgical site infection in plastic surgery is less commonly mentioned in the literature. The aim of this study was to assess the incidence of SSI in a tertiary care centre of India.

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Keywords: Surgical site infection, Plastic surgery

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INTRODUCTION

Surgical site infection (SSI) is a common problem in the health care system all over the world. It is among the most

preventable healthcare-associated infection (HAI). SSI is the most frequent type of HAI in low- and middle-income countries. SSI the second or third most frequent type of HAI in the United States and Europe.^{1,2} It puts a vast burden on the health care system worldwide.³

SSI affects all subspecialty of the surgical branch. Plastic surgery is the branch that deals with not only reconstructive procedures but also cosmetic ones also. SSI in such cases may have devastating complications. This branch deals with all regions of the body and a variety of procedures. There is a paucity of literature related to SSI in the field of plastic surgery.⁴ In this article, we describe the incidence of SSI in plastic and reconstructive surgery in a tertiary care centre of India.

MATERIAL AND METHODS

This is a retrospective study conducted in the department of plastic and reconstructive surgery in a tertiary care centre of the southern part of India. The data was collected from the records of all the patients who underwent surgical procedures during the year 2019. In this study, we have not taken minor surgical procedures that were done on an out-patient basis. The surgical procedures were categorized based on the indication of surgery, the region involved, and the procedure name. The SSI was defined according to CDC guideline-2016.¹ The incidence of surgical site infection was noted and analyzed. No statistical analysis was done as the data in the different categories was too heterogeneous.

RESULT

During the year 2019, a total of 577 major surgical procedure was done. Out of these 29 cases (5.02%) developed SSI. The etiopathological factors, for which surgeries were performed, were classified in seven categories and incidence for SSI for each was calculated (Table-1). SSI was highest for cases in which infection was the underlying cause (14.29%) whereas, for congenital diseases, it was lowest (0.86%).

Surgical procedures were also divided based on the region involved. Some cases had 2 or more regions and were counted in all involved regions. Most of the procedures were performed on the upper limb and head & neck region. The head & neck region has the least incidence (2.78%) of SSI (Table-2)

Among the various surgical procedures, tendon/nerve repair and skin grafting have the highest incidence of SSI (Table-3).

DISCUSSION

SSI can be defined as infections of the tissues, organs/space exposed by a surgeon during an invasive procedure. It usually includes an infection that occurs within 30 days of surgery. It can be further categorized as superficial incisional SSI, deep incisional

Table-1: SSI according to the indications

Region	Number of cases	Number of SSI	Incidence of SSI (in %)
Congenital	116	1	0.86
Tumor	96	4	4.17
Trauma	123	7	7.32
Burn related	80	9	5.69
Cosmetic	79	1	1.26
Infection	21	3	14.29
Other	62	4	6.45
Total	577	29	5.02

Table-2: SSI according to the regions

Region	Number of cases	Number of SSI	Incidence of SSI (in %)
Head & Neck	180	5	2.78
Breast	37	3	8.11
Abdomen	14	1	7.14
Genitourinary	7	1	14.28
Upper limb	309	14	4.53
Lower limb	52	5	9.61

Table-3: SSI according to the procedures

Region	Number of cases	Number of SSI	Incidence of SSI (in %)
Skin grafting	119	10	8.40
Pedicled flap	95	4	4.21
Free flap	14	0	0.00

Liposuction	18	0	0.00
Cleft-Lip/Plalate repair	62	0	0.00
Implant	53	1	1.89
Tendon/nerve repair	50	5	10.00
Scar revision	13	0	0.00
Bone surgery	36	3	8.33
Other	151	6	3.97

SSI, and organ/space-related SSI.^{1,2} The incidence of SSI depends on the wound class also. The class-III wound has the highest incidence of SSI whereas the class-I wound has the least one. Despite our ever-increasing understanding of SSI and increasing use of antibiotics and other measures, the incidence of SSI for various wound classes has been not altered to a great extent.

Various factors have been identified that may cause SSI. The patient-related factors include systemic and local factors. Advancing age, diabetes mellitus, obesity, immune-compromised status, steroid use, etc are the systemic factors that make the wound prone for SSI. The local factors like -hematoma, presence of the foreign body, and necrotic tissue, also make the wound prone for SSI. The type and duration of the surgical procedure, skin preparation, perioperative antibiotic, and operation room environment also affect the development of SSI.

Various preoperative measures have been identified that decrease the risk of SSI. Some have good evidence whereas others are followed based on weak evidence only. Skin preparation, avoiding hair shaving, perioperative antibiotic use, hand hygiene are a few measures that are mostly followed.⁵ Recently, antibiotic coated sutures, antibiotic coated implants, and closed incision negative pressure wound therapy (ci-NPWT) have been investigated as measures for reducing SSI.^{6,7}

Plastic surgery is the branch that deals with almost all parts of the body and ranges from mere cosmetic to major reconstructive procedures. The fact that most of the plastic surgery procedures are elective; the incidence of SSI is less commonly reported. In this article, we have compiled data on plastic surgery-related procedures performed at our institute over a year duration and calculated the occurrence of SSI. The overall incidence of SSI is similar to some other studies.⁸ The

drawback of our study is that this is a single centre study including only one year and data was collected retrospectively. The risk factors and various measures taken to prevent the SSI were not studied.

CONCLUSION

The incidence of SSI in the field of plastic surgery is not commonly reported in the literature. We have made an attempt to find the incidence of SSI in this subspeciality. A large multicentric and longer duration of studies are required to establish the incidence of SSI in the field of plastic surgery.

Conflict of interest statement:

There is no conflict of interest.

Authors' contributions

All authors made contributions to the article

Availability of data and materials

Not applicable

Financial support and sponsorship

None

Consent for publication

Not applicable.

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