



SURGICAL SITE INFECTIONS - CASE SERIES

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(ABSTRACT) Surgical site infections are defined as infections occurring within 30 days of surgery or within one year if an implant is placed. They can be either superficial infections, deep-seated infections or infections involving organs & body spaces. We present a few case reports of surgical site infections encountered in the obstetrics & gynaecology department of Sree Balaji Medical College and Hospital. It will help us understand the risk factors, various clinical presentations, microbiology, diagnosis and management of surgical site infections.

KEYWORDS : surgical site infections, case reports, risk factors, clinical presentation, management

INTRODUCTION

Surgical site infections (SSIs) are a persistent threat to patients undergoing any surgical procedures. These infections prolong hospital stay, increases expenditure, causes patient discomfort and delays recovery. Its incidence varies depending on various factors such as the type and complexity of the procedure, the health status of the patient, and adherence to infection prevention protocols. In obstetrics & gynecology practice, the highest incidence of SSIs is encountered after laparotomy (15%).(1)(2).Incidence of SSI after cesarean section ranges from 3% to 5%.(3) Its incidence is even more higher in the presence of risk factors such as advanced age, obesity, diabetes, anaemia, immunosuppression, prolonged operative time among others.(4). SSIs can have variable presentations ranging from redness, pain, swelling, pus discharge from wound site to wound dehiscence, necrotizing fasciitis which can rapidly progress to burst abdomen, pelvic abscess or sepsis if not managed promptly. Pathogens most commonly involved in SSIs are Methicillin resistant Staphylococcus aureus (MRSA) and Streptococcus species, Escherichia coli and other enteric bacteria. (5). Management includes empirical & targeted antibiotic therapy, debridement & wound care, drainage of abscesses or collections, management of pain & other associated complications.

CASE REPORT

CASE 1:

A 72 year old, parous, postmenopausal woman presented to our hospital with complaints of postmenopausal bleeding. Her BMI was 38 kg/m². She was a known case of type II diabetes mellitus, systemic hypertension and obstructive airway disease on treatment. She is a known case of right leg filariasis and is on medical management for the same. She had a past history of ICU admission in view of urosepsis & septic encephalopathy which was conservatively managed. On further workup, ultrasonography showed thickened endometrium (18mm) with right ovarian complex cyst. Endometrial sampling was done and histopathological evaluation showed endometrial hyperplasia with atypia. On MRI abdomen, showed thickened endometrium, enlarged bilateral inguinal lymph nodes and right ovarian endometriotic cyst. Hence staging laparotomy was planned in view of ? endometrial carcinoma. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was done. Frozen section of uterus and the ovarian cyst showed benign endometrial polyp and spindle cell tumor in ovary with no frank malignant changes. Postoperative period was initially uneventful and she was put on IV antibiotics (Inj.Augmentin and Inj.Metronidazole). Thromboprophylaxis was covered. On POD2, patient developed gaseous abdominal distension and she was medically managed for the same. On POD3, patient developed cough with bilateral basal crepitations. Patient was started on medical management for the same. On POD4, wound dressing was removed, wound site appeared mildly indurated. On POD6, patient complained of minimal serous discharge from wound site. Swab sample was collected and sent for culture & sensitivity. IV antibiotics were continued. Wound swab C/S report showed growth of acinetobacter species and as per sensitivity report, patient was started on injection linezolid & injection doxycycline. On POD9, alternate suture removal was done and omentum was noted prolapsing through the incision site. Patient was diagnosed with burst abdomen and was taken up

immediately for emergency wound exploration & suturing. Intraoperatively, bowel loops with omentum seen protruding out of the wound dehiscence. Omental biopsy taken. No signs of intestinal perforation/ischemia noted. Abdominal wash given and anterior abdominal wall repair was done. Omental tissue culture also showed the growth of acinetobacter species and iv antibiotics continued for the next 7 days. Patient was encouraged to use an abdominal binder, proper supportive management was done and patient was discharged with a healing wound.



CASE 2:



A 30 year old woman, P1L1 with BMI 35 had undergone emergency LSCS outside in view of cephalopelvic disproportion in labour. Her intraoperative and postoperative period was uneventful. She was discharged on POD5 with oral antibiotics and was asked to report for suture removal on POD8. She presented at our hospital on POD7 with complaints of pain and discharge from the wound site. On examination, a 10*8 cm induration was noted above the wound site

with a 2*2 cm wound dehiscence. Eschar formation was seen with skin changes & an active serosanguinous discharge was present in the wound. Wound swab was collected & sent for culture & sensitivity and patient was started on iv antibiotics (injection augmentin and injection metronidazole). Wound swab showed growth of methicillin resistant staphylococcus aureus (MRSA) in culture and as per sensitivity report, antibiotic was changed to injection linezolid. Patient was planned and taken up for wound debridement with vacuum assisted closure (VAC) dressing. Intraoperatively, on extending the scar site, a 10*8cm eschar was noted around 2cms above the scar site. Escharectomy done. Wound debrided and tissue sent for histopathology. Excessive slough removed and raw area created. Histopathological evaluation showed the presence of necrotic subcutaneous tissue. Tissue culture showed the growth of Klebsiella pneumonia and Citrobacter roseri. As per sensitivity report, injection piptaz was added along with injection linezolid. The VAC dressing was being released for 30 minutes in every 4 hours. After one week, the wound was again debrided and the the VAC dressing was changed. IV antibiotics were continued for 7 days. The VAC dressing was removed after another week & collagen dressing was done for next 3 days. Patient was then discharged with a healthy wound.



CASE 3:

A 24 year old woman, P1L1 with BMI 28, delivered by outlet forceps with a right mediolateral episiotomy. On PND5, patient developed episiotomy wound gaping of 2*2cm with minimal wound sloughing and serous discharge. Wound swab was collected and sent for culture & sensitivity and Patient was started on empirical IV antibiotics (Inj. Taxim and inj. Metronidazole). On PND7, patient was taken up for wound debridement. Intraoperatively, edges of the wound debrided, excessive slough removed and raw area created. Wound swab culture showed the growth of E.coli and Klebsiella pneumoniae and as per sensitivity report, antibiotics was changed to inj.ceftriaxone and inj.gentamycin. She was discharged on POD5 of the same and was asked to review back for resuturing after 6 weeks.

DISCUSSION

The above mentioned case reports provide us various aspects for discussion on SSIs. The following are the lessons learnt from the above mentioned case reports.

Surgical site infections are an important health care associated infection (HAI) and are the second most common HAI complication after urinary tract infections in obstetrics & gynecologic surgeries. The incidence of surgical site infections are much lower in obstetric surgeries (1.2%) when compared to gynecologic surgeries (10.3%). (6) Elderly age groups, diabetes mellitus, obesity, anemia, emergency surgical procedures, longer duration of surgery, surgery under general anaesthesia are all significant risk factors for surgical site infections.

Surgical site infections can be caused by either exogenous (from the environment of the operating theatre or the surgical ward) or endogenous microorganisms (from the patients' own skin or opened viscus). The most common organisms involved in surgical site infections is Staphylococcus aureus (24%) followed by Gram-negative organisms, which included Escherichia coli as the predominant organism (21%), followed by Pseudomonas aeruginosa (19%), Klebsiella pneumoniae (15%) and Acinetobacter (12%). (7)

Burst abdomen is defined as an open postoperative wound in the abdomen. It leads to internal organ release in 20% to 45% of cases.(8). Its incidence ranges from 0.4% to 3.5% within all laparotomy surgeries. Mortality rate in burst abdomen ranges from 15% to 45%. It most commonly occurs during 8 to 14 days after surgery with a mean onset at 10th day. (8). The presence of a midline vertical incision along with associated anemia, obesity, obstructive airway disease, postoperative cough is considered as a significant risk factor and we

must anticipate and watch out for burst abdomen in such cases. (9) Presence of wound infection & clear serous discharge from wound in high risk patients are early predictors of burst abdomen & must prompt us for early suspicion.(10). Interrupted closure of rectus fascia is to be preferred over continuous closure in laparotomy of high risk cases to prevent burst abdomen. (11)

Negative pressure wound therapy also known as vacuum assisted closure (VAC) is an upcoming novel technique that help in wounds healing. It involves using a wound vacuum device that decreases the air pressure on the wound. This helps in quick wound healing in various ways. It can gently pull fluid from the wound over time. It can reduce swelling and may help to clean the wound. It also helps pull the edges of the wound together. And it may stimulate the growth of new tissue that helps the wound close. Using prophylactic Negative-pressure wound dressing can reduce the incidence of surgical site infection in open abdominal surgeries especially in obese women.(12)(13)(14). Thorough debridement of infected or necrotic tissue should be carried out before the application of vac dressing because presence of any necrotic or infected tissue will compromise blood supply and intum would affect wound healing.

Perineal wound dehiscence is a very common complication in postpartum period. It causes serious distress to the patient by causing persistent pain, discomfort, infection, vaginal discharge, urinary retention, defaecation problems and dyspareunia. Major risk factors for early perineal wound dehiscence includes primiparity, a longer second phase of labour and instrumental delivery.(15) Diagnosis of a UTI during pregnancy is another important risk factor for SSI. The risk of developing SSI among women diagnosed with UTI during pregnancy is increased by three fold. (16) Therefore, we must be vigilant during antenatal visits to diagnose UTI and treat them. Most of the cases are managed by secondary suturing or left to heal by secondary intention. Many patients develop recurrent wound dehiscence and have long term complications due to scarring. Early debridement and flap cover is beneficial in such cases and helps in early rehabilitation of the patient. (17)

CONCLUSION

Surgical site infections poses a significant challenge to clinicians inspite of the various advancements made in the field of surgery. With the help of this article, we have tried to obtain a deeper understanding of the different risk factors involved, various clinical presentations encountered, different causative microbes involved and various modalities of management available for Surgical site infections. It is well emphasized that SSIs are an evolving field with a lot of scope for upcoming innovative preventive and management methods.

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