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Study of Postoperative Wound Infection Dehiscence in A Tertiary Care Centre

Dr Jiva Bhise[1], Dr Suhas Shinde[2]

[1]Junior Resident
[2]HOU & Prof.

Abstract

Objective: This study aims to evaluate the contributing factors and associated risks of postoperative wound infections and dehiscence following gynecological and obstetric surgeries. It focuses on identifying at-risk women and outlining strategies to prevent these complications.

Methods: A prospective observational analysis was conducted on 50 patients who developed postoperative wound infections or dehiscence. Each patient's surgical, obstetric, and medical history, along with comorbidities, risk indicators, and duration of hospitalization, was closely examined to identify patterns contributing to surgical site infections (SSI).

Results: The 25–30-year age group reported the highest incidence of infection, marking it as a high-risk demographic. Obstetric surgeries, particularly emergency cesarean sections, showed greater susceptibility to infections. Superficial SSIs were the most common postoperative complication observed. Diabetes mellitus was the most frequently associated comorbidity. *Staphylococcus aureus* was the dominant organism isolated. Most infections became evident between the third and fifth postoperative days.

Conclusion: Reproductive age group, obstetric surgeries, emergency surgeries, comorbidities Staphylococcus aureus are most important factors responsible for the development of wound infections /dehiscence.

INTRODUCTION

Postoperative wound dehiscence refers to the reopening of a previously closed surgical incision, either partially or completely. It often manifests within 5 to 8 days following surgery when tissue healing remains incomplete and fragile.[1]

A frequent underlying cause is a mild or undetected infection, often due to insufficient aseptic technique. Absorbable suture materials like Vicryl are designed to degrade in alignment with healing tissues, but bacterial presence can hasten this breakdown. In the absence of systemic illnesses such as diabetes or poor nutrition, subclinical infection should be suspected, and cultures should be taken.

Additional risk factors include inadequate undermining of tissues during surgery, mechanical stress on wound edges, or incision sites located in highly mobile or tension-prone areas.[2] Symptoms of dehiscence may include pain, discharge, erythema, fever, or spontaneous wound separation. In gynaecological procedures like hysterectomy, internal dehiscence, particularly at the vaginal cuff, may also occur.[3]

SSIs are among the most prevalent postoperative complications in gynaecology and obstetrics. High-risk procedures include caesarean sections and hysterectomies.[4] Though complete prevention is difficult, SSIs cause extended hospital stays, increased financial burdens, and patient distress. [5]. In India, caesarean-related wound infections occur at rates between 10% and 33%.[6,8] Common pathogens include

Staphylococcus aureus, *Streptococcus pyogenes*, *E. coli*, *Klebsiella*, and *Pseudomonas* species.[7] Poor hygiene, low socioeconomic status, and limited healthcare access further increase vulnerability.[9] Therefore, SSIs are considered not only a clinical concern but a quality-of-care indicator.[10,11,12]

AIM

To analyze the contributing factors, identify high-risk patient groups, and explore strategies for the prevention and management of postoperative wound infections and wound dehiscence in obstetric and gynecological surgeries at a tertiary care hospital.

Objectives

1. To determine the incidence of wound complications occurring after obstetric and gynecological surgical procedures.
2. To understand the physiological process of wound healing and examine evidence-based practices for optimal surgical wound care.
3. To identify patient characteristics and perioperative risk factors associated with surgical site infections.

METHODOLOGY

Study Design:

A prospective, observational study conducted over six months at PDVVPF's Medical College and Hospital, Ahilyanagar.

Ethical Approval:

Institutional ethics committee clearance was obtained, and written informed consent was taken from all participants.

Study Population:

Postoperative patients presenting with wound infection or dehiscence following gynecological or obstetric surgery.

Sample Size:

50 patients were included based on inclusion criteria.

Inclusion Criteria:

- Postoperative wound infection or dehiscence following obstetric or gynecological surgery
- Consent provided by the patient
- Complete clinical documentation available
- Surgery performed at the study institution

Exclusion Criteria:

- Preexisting infections at the surgical site
- History of prolonged preoperative antibiotics
- Incomplete follow-up (<30 days)
- Immunocompromised patients (e.g., HIV, chemotherapy, transplants)
- Surgery performed outside the study center

Data Collection:

Details of patient demographics, surgical history, comorbidities, type and timing of surgery, antibiotic usage, and wound complications were documented.

Investigations:
Routine labs (CBC, RFT, LFT), CRP, blood sugar, urine analysis, blood/pus cultures, and imaging (USG) were performed as required.

Results
In this study, 50 women presented with post-operative wound infection/dehiscence were taken.
Majority of the women were between 25-30 years. [Table 1]

Table 1 Distribution According to Age Group

Age Group (years)	Number of Patients	Percentage (%)
18–24	12	24.0%
25–30	20	40.0%
31–35	10	20.0%
36–40	6	12.0%
41+	2	4.0%

Majority of the women developed wound infection after lower segment C section. .[Table 2]

Table 2. Distribution according to the types of Surgeries Performed

Surgery Type	Number	Percentage (%)
Lower Segment C-Section	32	64.0%
Abdominal Hysterectomy	10	20.0%
Laparotomy	4	8.0%
Myomectomy / Others	4	8.0%

Superficial SSI being the most common complication seen postoperatively**.** .[Table 3]

Table 3. Distribution according to the type of wound Complications

Infection Type	No. of Patients	Percentage
Superficial SSI	42	84.0%
Deep SSI	5	10.0%
Wound Dehiscence	3	6.0%

Amongst all the risk factors, diabetes was the most common reason for wound infection/dehiscence. Emergency surgeries are the second most common risk factor.[Table 4]

Table 4. Distribution according to the Risk Factors Among Affected Patients

Risk Factor	No. of Infections of Infected Patients	No. of Infections % of Infected Patients
Diabetes Mellitus	7	14 %
Anaemia	4	8 %
Obesity	3	6 %
Emergency Surgery	6	12 %
Prolonged Surgery	3	6 %

Hypertension	2	4 %

Out of all the microbes, Staphyllococcus aureus is the most common organism,responsible for causing wound infection/dehiscence, followed by E.coli and Klebsiella. [Table 5]

Table 5. . Distribution according to the microbiological Culture

Organism Isolated	Number	Percentage (%)
Staphylococcus aureus	20	40%
Escherichia coli	10	20 %
Klebsiella pneumoniae	5	10 %
No growth	15	30%

Out of those, 30 patients needed iv antibiotics , 40 needed daily wound dressing while only 2 of them needed resuturing.[Table 6]

Table 6. Distribution according to the treatment & Outcome

Treatment/Outcome	Details
IV Antibiotics	30 patients (Cefotaxime + Metronidazole)
Oral Antibiotics	50 patients
Local Wound Dressing	40 patients (twice daily)
Surgical Resuturing	2 patients
Mean Hospital Stay	7.2 days (vs. 4.3 days in clean cases)
Recovery Rate	100% (no mortality)

Infection was commonly seen on Post op day-4**.**

Table 7. Distribution according to appearance of Post-operative Infection According to Post-op Day

Post-op Day	Number of Cases	Percentage of Total Infections (%)
Day 1–2	7	14%
Day 3–5	24	48%
Day 6–7	12	24 %
After Day 7	7	14 %

DISCUSSION

Surgical site infection is defined by the Centres for Disease Control and Prevention as a wound infection that occurs within 30 days of an operative procedure or within a year if an implant is left in place and the infection is thought to be secondary to surgery.[13] The consequences of SSIs greatly impact patients and the healthcare systems. Prevention of SSI requires a multifaceted approach targeting pre-, intra-, and postoperative factors.[14]

In this observational study, 50 patients presenting with wound infection/dehiscence were taken.

From Table 1, 20 women out of 50 , were from the age group of 25-30 years. Similar results were seen in a study conducted by Dr. Amol Prakash Pawar, Dr. Kaizad Rusi Damania, Dr. Kalpana Marotirao Koli. [15]

From Table 2, it was observed that 32 out of 50 surgeries were obstetric surgeries . Similar results were found in the study conducted by Amrita R. Bhadauria*, Chella Hariharan [16]
From Table 3, it is concluded that superficial SSI was the most common outcome seen in all the post operative patients. Similar results were found in the study conducted by Basany K, Chaudhuri S, Shailaja LP, Agiwal V, Angaali [17]
From Table 4, it can be seen that out of 50 , 7 of them that is 14% with DM developed wound infection , thereby Diabetes mellitus constituting most important risk factor for post-operative wound infection. Similar results were found in the study conducted by Sayali P Kulkarni , Oas Kothari [18]
From Table 5, it was concluded that out of 50 culture isolates, 20 isolates depicted Staphyllococus aureus as the most common organism responsible for wound infection. Similar results were found from the study conducted by Dr. Harish Babu B G, Dr. Narmadha NS, Dr. Lakshmi Soujanya, Dr.Rathika R, Dr. Haja Abdul Nazeer M J [19]
From Table 7 ,it can be concluded that Post-operative wound infection is seen most commonly on post-op day 3-5. Similar evidence was seen in the study conducted by Naik SS & Nagarsenkar A.[20]

CONCLUSION

Reproductive age group, obstetrical surgeries are the common factors to be associated with SSI.
Emergency surgeries have a higher chance to develop post operative wound infection. Comorbidities like Diabetes , anaemia etc increase the probability of wound infection, hence these must be controlled effectively prior to surgery.
Wound infection is commonly seen on post operative Day3-5, hence wound dressing and post operative care must be done effectively.

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