Original Article

DOI: 10.7860/JCDR/2026/88439.24126

Bacteriological Profile of Lower Segment Caesarean Section Wound Infection: A Cross-sectional Observational Study

Microbiology Section

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ABSTRACT

Introduction: Postoperative Lower Segment Caesarean Section (LSCS) wounds are among the most common Surgical Site Infections (SSIs) in the department of obstetrics and gynaecology, leading to increased treatment costs and prolonged hospital stays. Microbiological examination is essential to identify the causative organisms and determine their antimicrobial susceptibility to commonly used antibiotics.

Aim: To determine the bacteriological profile and antibiotic susceptibility pattern of pathogens isolated from LSCS wound infections.

Materials and Methods: The study was a cross-sectional observational study conducted from March 2025 to February 2026. The study was conducted at the Department of Microbiology, JN Medical College, KLE Academy of Higher Education and Research, Belagavi, Karnataka, India and included 85 LSCS wound infection pus samples. The collected pus swabs were inoculated onto blood agar and MacConkey agar for isolation of aerobic bacteria, while aspirates were inoculated onto blood agar enriched with haemin and vitamin K for anaerobic culture. The isolates were identified based on colony morphology and standard biochemical tests. Antibiotic susceptibility testing was performed for both aerobic and anaerobic bacterial isolates. Demographic details, including age, were recorded and analysed. Frequencies were calculated for categorical variables, and quantitative variables were expressed as mean±Standard Deviation (SD).

Results: A total of 85 patients were included in the study, with ages ranging from 19 to 36 years and a mean age of 26.22±3.54 years. In the present study, *Klebsiella pneumoniae* 7 (25%) was the most commonly isolated pathogen, followed by *Citrobacter freundii* 4 (14.3%). Methicillin-Resistant *Staphylococcus aureus* (MRSA) demonstrated 3 (100%) sensitivity to linezolid. Among the Gram-negative isolates (n=20), 15 (75%) belonged to the Enterobacteriaceae family and showed 15 (100%) resistance to ceftriaxone. *Pseudomonas aeruginosa* showed 1 (33.3%) resistance to cefepime, ceftazidime, and aztreonam, while *Acinetobacter baumannii* showed 2 (100%) resistance to all the antibiotics tested.

Conclusion: LSCS wound infections were predominantly caused by Gram-negative bacteria, including non fermenting organisms. The observed antimicrobial resistance patterns emphasise the need for continuous surveillance and rational antibiotic use. Early identification of pathogens and appropriate antimicrobial therapy are essential for effective management. Implementation of targeted prophylactic strategies may help reduce the incidence of LSCS wound infections.

Keywords: Antibacterial agents, Drug resistance, Enterobacteriaceae, Gram-negative bacteria, Microbial, Surgical wound infection

INTRODUCTION

A LSCS is a surgical procedure in which an incision is made through the abdominal wall and uterus to deliver the baby, while SSI is defined as an infection occurring within 30 days after surgery [1]. Previous studies have highlighted that LSCS, being a clean-contaminated procedure (Class II), carries a higher risk of infection due to exposure to endogenous flora. Depending upon the degree of microbial contamination confirmed by microbiological examination, the surgical wounds are classified into four categories-clean, clean-contaminated, contaminated, and dirty-based on the degree of microbial contamination and the risk of infection [2,3]. Globally, the incidence of SSIs following LSCS has been reported to vary widely, ranging from 3% to 15% depending on healthcare settings, infection control practices, and patient-related risk factors [4].

LSCS wound infection is often caused by endogenous as well as exogenous bacteria. The endogenous sources are from the patient's flora, i.e., from the skin and mucosa of the Gastrointestinal Tract (GIT) or respiratory tract. The exogenous sources are based on contact with the operation room personnel, instruments, and/or environment involving *Staphylococcus*, *Pseudomonas*, and different Gram-negative bacilli [2]. Several studies have reported that both Gram-positive and Gram-negative organisms are implicated in SSIs, with an increasing predominance of Gram-negative bacteria, especially members of the Enterobacteriaceae family and non fermenting organisms such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii* [5-7].

Superficial infections such as folliculitis at the incision site are relatively common and present as small red, pus-filled lesions. Although these are generally mild and manageable with proper wound care and antibiotics, deeper infections involving tissues and organ spaces pose serious risks. Organ-space infections such as endometritis may lead to severe complications including sepsis, peritonitis, and abscess formation, thereby increasing morbidity and prolonging hospital stay [1,8-11].

Antimicrobials are the mainstay of treatment that results in a better prognosis for the patient. However, currently antimicrobial resistance like MRSA and Extended Spectrum β-Lactamase (ESBL) producing bacteria is found to exhibit a rising trend that hampers treatment. The most common bacteria isolated from SSIs are *Staphylococcus*

aureus including methicillin and vancomycin-resistant strains, Enterobacteriaceae, Coagulase-Negative Staphylococci (CONS), Enterococci, and *Pseudomonas aeruginosa* [6]. Recent literature also emphasises the emergence of Multidrug-Resistant (MDR) organisms, which further complicates empirical therapy and necessitates continuous monitoring of antimicrobial susceptibility patterns [7].

Additionally, many studies have primarily focused on aerobic bacteria, with limited emphasis on the role of anaerobic organisms in LSCS wound infections, thereby creating a gap in comprehensive microbiological evaluation [9,12]. Furthermore, region-specific data on antibiogram patterns are essential for guiding effective empirical therapy but remain limited in this setting [5].

The burden of SSIs following LSCS not only affects maternal health but also imposes a significant strain on healthcare systems by increasing hospital stay, need for additional interventions and overall treatment costs [8]. Therefore, the present study was conducted to identify the common causative organisms and their antimicrobial susceptibility patterns to facilitate prompt and appropriate patient management. Early initiation of effective antibiotics while awaiting wound swab microscopy, culture, and sensitivity reports (48-72 hours) is essential for improved clinical outcomes and rational antimicrobial use [6,8]. The novelty of this study lies in the inclusion of both aerobic and anaerobic bacterial isolates along with analysis of their antimicrobial susceptibility patterns, thereby providing a more comprehensive understanding of LSCS wound infections in this region.

The present study aimed to determine the bacteriological profile and antibiotic susceptibility pattern of pathogens isolated from LSCS wound infections.

MATERIALS AND METHODS

This was a cross-sectional observational study conducted at the Department of Microbiology, JNMC, Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi, Karnataka, India from March 2025 to February 2026. Ethical clearance was obtained from the JNMC Institutional Ethics Committee on Human Subjects Research (Ref No. MDC/JNMCIEC/543, dated 09/01/2025), and informed consent was obtained from all participants.

Inclusion criteria: LSCS wound infection pus samples received in the Department of Microbiology from patients who underwent elective and emergency LSCS during the study period were included in the study.

Exclusion criteria: LSCS wound infection pus samples from patients already on antibiotic treatment were excluded from the study.

Sample size calculation: Sample size at 95% confidence interval, 12% allowable error and 12% attrition:

Where,

The proportion of culture-positive was 76%.

p = 0.76 (Based on the hospital prevalence)

q = 1 – p = 0.24

Zα= 1.96 = Z value at 95% confidence interval

$$n=\frac{Z\alpha^2\times p\times q}{(12\%\text{ of }p)^2}$$

$$n=\frac{1.96^2\times 0.76\times 0.24}{(0.12\times 0.76)^2}$$

n=85

A total of 85 patients were included in the study, of which 25 showed culture-positive SSIs. A total of 85 LSCS wound swabs were collected using two sterile swabs, inserted deep into the wound to minimise contamination by skin commensals. One swab was used for Gram staining, while the other was used for culture.

SSIs were defined according to the Centers for Disease Control and Prevention (CDC) criteria. Deep SSIs were identified based on involvement of deep soft-tissues (fascia and muscle), presence of purulent discharge from the deep incision, spontaneous dehiscence or deliberate opening of the incision by a surgeon in the presence of clinical signs such as fever or localised pain, or evidence of abscess involving the deep incision [10]. Among 85 cases, 20 were classified as deep wound infections, the remaining 65 were superficial, and wound gap infections. Pus from these deep wound infection cases was aspirated using a sterile needle and syringe and immediately transferred into an anaerobic transport vial containing thioglycollate broth.

The samples were inoculated onto blood agar and MacConkey agar and incubated at 37°C for 24-48 hours for aerobic culture. For anaerobic culture, samples were inoculated onto blood agar supplemented with haemin and vitamin K and incubated in a McIntosh and Fildes anaerobic jar at 37°C for 72 hours.

Identification of isolates was carried out based on colony morphology, Gram staining characteristics, and a set of standard biochemical tests, including catalase, oxidase, coagulase, indole, citrate utilisation, urease, Triple Sugar Iron (TSI) agar reactions, and motility tests, as per standard microbiological protocols [11]. Antimicrobial susceptibility testing was performed using the Kirby-Bauer disk diffusion method on Mueller-Hinton agar. The inoculated culture plates were incubated aerobically at 37°C for 24-48 hours. The antibiotics tested included ampicillin (10 µg), azithromycin (15 µg), penicillin (10 µg), erythromycin (15 µg), clindamycin (2 µg), cotrimoxazole (25 µg), cefoxitin (30 µg), linezolid (30 µg), gentamicin (10 µg), high-level gentamicin (120 µg), piperacillin-tazobactam (100/10 µg), cefotaxime (30 µg), ceftriaxone (10 µg), amoxicillin-clavulanate (20/10 µg), levofloxacin (5 µg), ciprofloxacin (5 µg), amikacin (30 µg), meropenem (10 µg), imipenem (10 µg), cefuroxime (30 µg), cefepime (30 µg), tobramycin (10 µg), and aztreonam (30 µg).

Results were interpreted according to Clinical and Laboratory Standards Institute (CLSI) guidelines (CLSI, 35th edition, 2025) [13].

STATISTICAL ANALYSIS

Data were entered into Microsoft Excel version 2024 and analysed using descriptive statistics. Qualitative variables were expressed as frequencies and percentages, while quantitative variables were summarised as mean±SD.

RESULTS

A total of 85 patients were included in the study. The age of the patients ranged from 19 to 36 years, with a mean age of 26.22±3.54 years. Most patients belonged to the 21-30 years age group (71/85, 83.6%), [Table/Fig-1].

Age group (years)	Frequency (%)
18-20	3 (3.5)
21-30	71 (83.6)
31-40	11 (12.9)
Age (Mean±SD)	(26.22±3.54)

[Table/Fig-1]: Distribution of age.

A total of 85 pus samples from LSCS wounds were analysed, of which 25 (29.4%) showed bacterial growth, while 60 (70.6%) were culture-negative on aerobic culture. Gram staining of culture-negative samples suggested the possible presence of non viable bacterial cells.

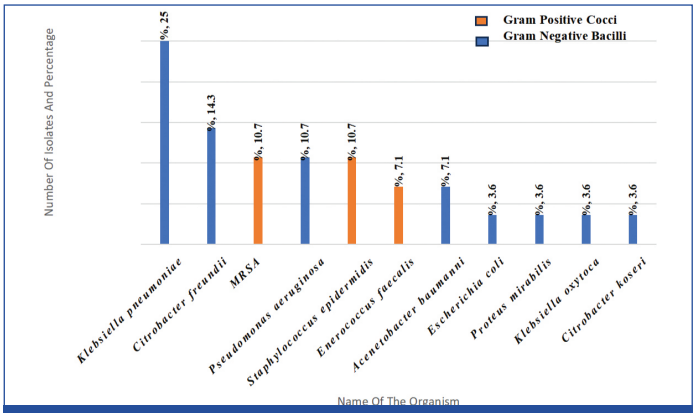
Among the 85 LSCS wound infections, 20 were deep infections. Culture specimens from these cases were obtained by deep needle aspiration of material from the infected site, and all were culture-negative for anaerobes.

Among 85 LSCS wound infections, 25 (29.4%) had bacterial growth within 24 hours of incubation. The 22 (88%) had pure bacterial growth (Mono microbe) while the rest 03 (12%) were mixed growth (Poly microbe) [Table/Fig-2].

Growth	No. of positive samples (%)	No. of organisms
Monomicrobial (Mono)	22 (88)	22
Polymicrobial (Poly)*	3 (12)	6
Total	25 (100)	28*

[Table/Fig-2]: Distribution of monomicrobial and polymicrobial growth in positive sample.
Poly*: Polymicrobial samples contain more than one organism

Gram-negative organisms were the most common isolates among SSI pathogens, accounting for 20 of the 28 culture-positive cases, while eight isolates were Gram-positive. The bacteria isolated from SSIs of LSCS included *Klebsiella pneumoniae*, *Citrobacter freundii*, *Pseudomonas aeruginosa*, MRSA, *Staphylococcus epidermidis*, *Enterococcus faecalis*, *Acinetobacter baumannii*, *Escherichia coli*, *Proteus mirabilis*, *Klebsiella oxytoca*, and *Citrobacter koseri* [Table/Fig-3].



[Table/Fig-3]: Aerobic bacteria isolated from LSCS wound infections.

Antibiotic resistance was demonstrated by both Gram-positive and Gram-negative pathogens. Among the Gram-positive isolates (n=8), six were *Staphylococcus* species, all of which showed 6 (100%) resistance to ampicillin, erythromycin, penicillin, clindamycin, and cefoxitin. The remaining two isolates were *Enterococcus faecalis*, which showed 2 (100%) resistance to penicillin and linezolid and 1 (50%) resistance to ampicillin and high-level gentamicin; given the unusual finding of linezolid resistance, repeat testing and confirmation at a reference laboratory are recommended [Table/Fig-4].

Among the Gram-negative isolates (n=20), 15 belonged to the Enterobacteriaceae family like *Klebsiella pneumoniae*, *Citrobacter freundii*, *Escherichia coli*, *Proteus mirabilis*, *Klebsiella oxytoca*, and *Citrobacter koseri*, demonstrated 15 (100%) resistance to ceftriaxone. These isolates showed moderate resistance to piperacillin-tazobactam, cotrimoxazole, ciprofloxacin, levofloxacin, amikacin, meropenem, imipenem, cefepime, tobramycin, and aztreonam. The remaining five Gram-negative isolates were non fermenters such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. The *Pseudomonas aeruginosa* exhibited 1 (33.3%) resistance to cefepime, ceftazidime, and aztreonam, while showing 3 (100%) sensitivity to piperacillin-tazobactam, tobramycin, ciprofloxacin, meropenem, and imipenem. *Acinetobacter baumannii* showed 2 (100%) resistance to, ceftriaxone, piperacillin-tazobactam, cotrimoxazole, ciprofloxacin, levofloxacin, meropenem, imipenem, cefepime, and aztreonam was not tested as per CLSI guidelines and therefore was not included in the analysis [Table/Fig-5].

DISCUSSION

In India, postoperative wound infections continue to be a major source of morbidity among patients undergoing LSCS, despite advances in operative techniques and improved understanding of wound infection pathogenesis [14]. In this study, monomicrobial isolates accounted for 88% of cases, while polymicrobial isolates accounted for 12%. In contrast, Pooja K and Nagmoti MB reported monomicrobial and polymicrobial isolates in 53.34% and 46.66% of cases, respectively [12]. This variation may be attributed to differences in sampling techniques, infection severity, and inclusion of anaerobic cultures.

Among the 85 cases, 20 were deep infections, and all were culture-negative for anaerobes. This contrasts with findings by Akhi MT et al., who reported 14.43% anaerobic isolates in SSIs [9]. The absence of anaerobic growth in the present study may be due to limitations in anaerobic culture techniques or delayed sample processing.

In the present study, the age distribution of patients ranged from 19 to 36 years with a mean age of 26.22 years. Vijaya K et al., reported a comparable mean age of 25 years in elective LSCS and 24 years in emergency LSCS cases, indicating that reproductive age group women are predominantly affected [15].

Out of 85 samples, 25 (29.4%) showed bacterial growth. Among the Gram-negative isolates, *Klebsiella pneumoniae* 7 (25%) was the most commonly isolated organism, followed by *Citrobacter freundii* 4 (14.3%). Similar findings were reported by Dahiya P et al., where *Escherichia coli* (25.93%) predominated [16]. However, other studies have reported *Staphylococcus* aureus as the predominant pathogen [17,18]. In the present study, *S. epidermidis* also showed a notable presence 3 (10.7%) although MRSA was detected in only three cases.

With respect to antimicrobial susceptibility, Gram-negative isolates demonstrated a high level of resistance, particularly among Enterobacteriaceae, which showed 100% resistance to ceftriaxone. This finding suggests the possible presence of ESBL-producing organisms, which are increasingly reported in hospital settings [19]. ESBL production confers resistance to third-generation cephalosporins and is often associated with multidrug resistance, thereby limiting therapeutic options. Non fermenting organisms such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii* are known for intrinsic and acquired resistance mechanisms, including efflux pumps, enzyme production, and biofilm formation, contributing to their persistence in hospital environments [13].

Organism	Antibiotics	AMP	AZ	P	E	CD	COT	CX	LZ	GEN	LE	CIP	HLG
MRSA (n=3)	R	3 (100%)	3 (100%)	3 (100%)	3 (100%)	3 (100%)	3 (100%)	3 (100%)	0	1 (33.3%)	3 (100%)	1 (33.3%)	NT
	S	0	0	0	0	0	0	0	3 (100%)	2 (66.7%)	0	2 (66.7%)	NT
E. faecalis (n=2)	R	1 (50%)	NT	2 (100%)	NT	NT	NT	NT	2 (100%)	NT	NT	NT	1 (50%)
	S	1 (50%)	NT	0	NT	NT	NT	NT	0	NT	NT	NT	1 (50%)
Staphylococcus epidermidis (n=3)	R	3 (100%)	3 (100%)	2 (66.7%)	3 (100%)	3 (100%)	2 (66.7%)	2 (66.7%)	1 (33.3%)	1 (33.3%)	2 (66.7%)	2 (66.7%)	NT
	S	0	0	1 (33.3%)	0	0	1 (33.3%)	1 (33.3%)	2 (66.7%)	2 (66.7%)	1 (33.3%)	1 (33.3%)	NT

[Table/Fig-4]: Antibiotic susceptibility pattern in Gram-positive bacteria.
MRSA: Methicillin-resistant *Staphylococcus aureus*; NT: Not tested; AMP: Ampicillin (10 µg); AZ: Azithromycin(15 µg); P: Penicillin (10µg); E: Erythromycin (15µg); CD: Clindamycin (2µg); COT: Cotrimoxazole (25µg); CX: Cefoxitin (30µg); LZ: Linezolid (30 µg); GEN: Gentamycin (10µg); LE: Levofloxacin (5µg); CIP: Ciprofloxacin (5µg); HLG: High-level gentamycin (120µg);
*Bacterial isolates with counts less than 30. As per Clinical and Laboratory Standards Institute (CLSI) guidelines, results based on fewer than 30 isolates are considered statistically insignificant. However, these data have been presented for epidemiological purposes and may be useful for inclusion in future meta-analyses.

	Antibiotics	AMP	GEN	PTZ	CTX	COT	CIP	CTR	AMC	LE	AK	MRP	IMP	CXM	CPM	TOB	CAZ	AT
Klebsiella pneumoniae (n-7)	R	NT	6 (85.7%)	6 (85.7%)	6 (85.7%)	5 (71.4%)	7 (100%)	7 (100%)	6 (85.7%)	6 (85.7%)	5 (71.4%)	6 (85.7%)	6 (85.7%)	6 (85.7%)	6 (85.7%)	5 (71.4%)	6 (85.7%)	6 (85.7%)
	S	NT	1 (14.3%)	1 (14.3%)	1 (14.3%)	2 (28.6%)	0	0	1 (14.3%)	1 (14.3%)	2 (28.6%)	1 (14.3%)	1 (14.3%)	1 (14.3%)	1 (14.3%)	2 (28.6%)	1 (14.3%)	1 (14.3%)
Citrobacter freundii (n=4)	R	NT	3 (75%)	3 (75%)	4 (100%)	3 (75%)	4 (100%)	4 (100%)	4 (100%)	3 (75%)	3 (75%)	3 (75%)	4 (100%)	NT	3 (75%)	3 (75%)	3 (75%)	4 (100%)
	S	NT	1 (25%)	1 (25%)	0	1 (25%)	0	0	0	1 (25%)	1 (25%)	1 (25%)	0	NT	1 (25%)	1 (25%)	1 (25%)	0
Pseudomonas aeruginosa (n=3)	R	NT	NT	0	NT	NT	0	NT	NT	NT	NT	0	0	NT	1 (33.3%)	0	1 (33.3%)	1 (33.3%)
	S	NT	NT	3 (100%)	NT	NT	3 (100%)	NT	NT	NT	NT	3 (100%)	3 (100%)	NT	2 (66.7%)	3 (100%)	2 (66.7%)	2 (66.7%)
Escherichia coli (n=1)	R	1 (100%)	0	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0	1 (100%)	1 (100%)
	S	0	1 (100%)	0	0	0	0	0	0	0	1 (100%)	0	0	0	0	1 (100%)	0	0
Proteus mirabilis (n=1)	R	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%))
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acinetobacter baumannii (n=2)	R	NT	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)	2 (100%)
	S	NT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NT
Klebsiella oxytoca (n=1)	R	NT	0	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	NT
	S	NT	1 (100%)	0	0	0	0	0	0	0	0	1 (100%)	0	0	0	0	0	0
Citrobacter koseri (n=1)	R	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0	0	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0
	S	0	0	0	0	0	1 (100%)	0	0	0	0	0	0	0	0	0	0	1 (100%)

[Table/Fig-5]: Antibiotic susceptibility pattern in Gram-negative bacteria.
NT: Not tested; AMP: Ampicillin (10 µg); GEN: Gentamicin (10 µg); PTZ: Piperacillin–tazobactam (100/10 µg); CTX: Cefotaxime (30µg); COT: Cotrimoxazole (25 µg); CIP: Ciprofloxacin (5 µg); CTR: Ceftriaxone (10 µg); AMC: Amoxicillin clavulanate (20/10 µg); LE: Levofloxacin (5 µg);AK: Amikacin (30 µg); MRP: Meropenem (10 µg) IMP: Imipenem (10 µg); CXM: Cefuroxime (30µg); CPM: Cefepime (30 µg); TOB: Tobramycin (10 µg); CAZ: Ceftazidime (30 µg); AT: Aztreonam(30µg); *Bacterial isolates with counts less than 30. As per Clinical and Laboratory Standards Institute (CLSI) guidelines, results based on fewer than 30 isolates are considered statistically insignificant. However, these data have been presented for epidemiological purposes and may be useful for inclusion in future meta-analyses

Among Gram-positive isolates, MRSA demonstrated 3 (100%) sensitivity to linezolid, which was consistent with other studies [2]. However, the emergence of resistance to commonly used antibiotics highlights the need for continuous monitoring. The predominance of Gram-negative organisms and resistant strains in this study reflects the impact of healthcare-associated flora and emphasises the importance of infection control practices.

From a clinical perspective, these findings underscore the importance of timely microbiological diagnosis and the use of appropriate empirical antibiotic therapy guided by local antibiograms. Implementation of effective prophylactic measures, including proper surgical asepsis, rational antibiotic prophylaxis, and adherence to infection control protocols, is essential to reduce SSI rates. Future studies with larger sample sizes, inclusion of molecular diagnostic methods, and multicentric data are recommended to better understand the evolving microbiological trends and resistance patterns in LSCS wound infections.

Limitation(s)

The study also had certain limitations. Being a single-centre study, the findings may not be generalisable to other settings. Molecular characterisation of resistance mechanisms such as ESBL production was not performed, which could have provided more detailed insights.

CONCLUSION(S)

Although the rate of LSCS procedures is increasing, the burden of SSIs remains a significant clinical concern. The present study demonstrated a predominance of Gram-negative organisms, particularly *Klebsiella pneumoniae* and *Citrobacter freundii*, in LSCS wound infections. The high level of antimicrobial resistance observed, especially among Enterobacteriaceae, indicates the possible presence of ESBL-producing strains and highlights the challenge in selecting effective empirical therapy. These findings emphasise the need for regular surveillance of bacterial profiles and antibiotic susceptibility patterns. Early identification of pathogens and implementation of evidence-based antibiotic policies are crucial for effective management. Strengthening infection control practices and optimising prophylactic antibiotic use can significantly reduce the incidence and complications associated with LSCS wound infections.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Mar 20, 2026
- Manual Googling: Jun 16, 2026
- iThenticate Software: Jun 18, 2026 (8%)

ETYMOLOGY: Author Origin

EMENDATIONS: 9

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Feb 21, 2026**
Date of Peer Review: **Mar 27, 2026**
Date of Acceptance: **Jun 20, 2026**
Date of Publishing: **Aug 01, 2026**