

Surgical Site Infection Rate in 877 Consecutive Cesarean Sections Closed With Absorbable Skin Staples

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BACKGROUND

The effect of skin closure modalities on surgical site infections (SSI) after cesarean section has not been well researched. A large number of cesarean sections are performed and there is a significant incidence of SSI with associated morbidity and costs. Meta analysis of contemporary publications demonstrates an SSI rate of 4.3% in patients receiving perioperative antibiotics. A review of all cesarean section primary skin closure with a novel absorbable subcuticular stapler was conducted to determine SSI rates during a four-year period at two Community Hospitals in the Fairview Health System.

OBJECTIVE

To determine the rate of SSI in cesarean section primary incisions closed with the absorbable subcuticular staples (INSORB® Absorbable Staple, Incisive Surgical, Inc., Plymouth, MN) during a four year period. The results would be compared with similar studies in the literature.

STUDY DESIGN

The IRB (University of Minnesota /Fairview Health System) approved the study design. Data were collected from retrospective chart review including procedure admission, readmissions, and post discharge reports according to National Health Safety Network (NHSN) surveillance methodology and CDC definitions of surgical site infections. SSI's were identified according to NHSN criteria and defined as deep or superficial infection of the primary incision. Data were from 877 consecutive cesarean sections closed with the absorbable stapler by 28 surgeons over a four year time period from 2005 to 2008. Charts were reviewed for NHSN risk index data - Age at procedure, American Society of Anesthesiologists (ASA) score, and duration of surgery as well as antibiotic administration, labor, and body mass index to develop a more comprehensive profile of known or potential infection risk factors. The surgical site infection rate was compared to rates cited in similar studies in the literature for cesarean section incisions closed with conventional closure modalities of absorbable suture and metal staples.

RESULTS

The 877 cesarean sections closed with absorbable staples were classified into 3 groups: 1.Standard Risk Factors* Not in Labor; 2.Standard Risk Factors in Labor; and, 3.Elevated Risk Factors. Patients are in the Elevated Risk group if any of the following factors were presented: (a) No antibiotics, (b) BMI \geq 40, (c) Age under 22 or over 40, (d) ASA score of 3, 4, or 5, (e) Duration of surgery \geq 60 minutes.

*Standard Risk Factors: ASA of 0, 1, or 2; Duration \leq 60 Min.; Age 22-40; Antibiotics given.

Summary of Risk Groups, Study Size, and Infections

Risk Groups	Cases	Surgical Site Infections	
		(n)	%
Standard Risk Factors, NOT in Labor	328	(1)	0.3%
Standard Risk Factors, in LABOR	170	(1)	0.6%
Elevated Risk Factors	379	(5)	1.3%

Overall Cases and Infection Rate	877	(7)	0.8%

CONCLUSION

The SSI rate of 0.8% in the 877 consecutive cesarean sections having primary skin closures with the absorbable subcuticular staples compares favorably to SSI rates in similar studies of cesarean section incisions closed with conventional closure modalities. Further study is recommended to determine cesarean section SSI rates of primary skin closure with absorbable suture and metal staples to specifically compare the SSI rates of each closure modality to the absorbable skin stapler.