13. IDENTIFYING KEY RISK FACTORS FOR INCISIONAL HERNIA POST-EMERGENCY LAPAROTOMY: INSIGHTS FROM A CASE-CONTROL STUDY FROM A TERTIARY REFERRAL CENTER OF EASTERN INDIA

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https://www.youtube.com/live/fSpXH-3Xy5w?t=9653s

BACKGROUND: Incisional hernias (IH) are gaps around postoperative scars, detectable by examination or imaging, with variable incidence. Despite surgical advancements, IH remains a significant complication, causing morbidity, impacting patient quality of life, and increasing healthcare costs. Identifying risk factors is essential for effective prevention and management. **METHODS**: This case-control study, conducted in the Department of General Surgery at a tertiary medical institute, included patients who underwent emergency laparotomy between 2019 and 2021. Those developing IH served as cases, and those not developing it as controls. Data on demographics, risk factors, and variables were collected and analyzed using SPSS V24, with significance set at $p \leq 0.05$. **RESULTS**: Among 367 emergency laparotomies performed, 54 developed IH (incidence: 14.7%). Significant risk factors identified included obesity (p<0.000), smoking (p=0.036), COPD (p<0.001), diabetes mellitus (p=0.003), low hemoglobin (p=0.023), high total leukocyte count (p=0.001), low total protein (p=0.015), low albumin (p=0.002), and high creatinine (p=0.001). Operation-related factors such as increased operation time (p=0.001), increased blood loss (p=0.025), intraoperative blood transfusion (p=0.039), and peritoneal contamination (p=0.030) were significant. Mass closure of the abdomen significantly reduced the risk of IH (p=0.018). Postoperative factors like surgical site infection (p<0.001), wound dehiscence (p=0.001), postoperative straining (p=0.001), and prolonged hospital stay (p=0.000) were also significantly associated. **DISCUSSION**: The study underscores the multifactorial nature of IH development post-emergency laparotomy, identifying significant preoperative, intraoperative, and postoperative risk factors. The findings suggest that managing comorbidities, optimizing nutritional and inflammatory status, and implementing effective surgical and postoperative strategies are crucial in reducing IH incidence.

Table: Key Risk Factors for Incisional Hernia Following Emergency Laparotomy: Results from a Case-Control Study in a Tertiary Referral Center in Eastern India.

Parameters	Case (n=35)	Control (n=35)	p value	OR (95%CI)
Gender				
Male	10	15	0.21	
Female	25	20		
Age (years)	46.91±13.62	43.06±13.53	0.24	
Occupation				
Heavy	18	10	0.05	2.65 (0.98-7.11)
Light	17	25		
BMI (kg/m2)	26.18±2.64	23.87±2.08	0	3.63 (1.20-10.94)
Comorbidities/History				
Smoker	15	6	0.36	
Diabetes mellitus	19	7	0	4.75 (1.64-13.74)
Hypertension	6	5	0.74	
Chronic lung disease	16	3	0	8.98 (2.31-34.91)
Immunosuppression	9	3	0.06	
Preoperative blood parameters				
Hb (g/dl)	10.59±1.67	11.47±1.51	0.02	
TLC (wbc/mm3)	11038.86±3569.77	8055.14±1779.59	0	
T protein (g/dl)	7.35±0.65	7.67±0.37	0.02	
Albumin (g/dl)	3.39±0.40	3.67±0.35	0	
T bilirubin (mg/dl)	0.69±0.55	0.72±0.35	0.82	
Creatinine (mg/dl)	1.54±0.76	1.02±0.45	0	
Interval between laparotomy to hernia (months)	10.6±4.6			
Type of incision				
Midline complete	17	9	0.11	
Upper midline	3	7		
Lower midline	8	5		
Mc Burney's	5	12		
Rutherford Morrison	2	2		
Duration of operation (hrs)	133.86±39.96	95.71±27.76	<0.001	
Estimated blood loss (ml)	101.43±73.25	60±78.40	0.03	
Units of PRBC transfusion	1			
Fecal contamination of wound	20	11	0.03	2.91 (1.09-7.74)
Thorough peritoneal lavage given	26	17	0.03	3.06 (1.12-8.37)
Closure technique				
Layered closure	25	15	0.02	3.33 (1.24-9.00)
Mass closure	10	20		
Suture used for closure				
Loop PDS	19	13	0.17	
PDS No.	9	8		
Vicryl No.	7	14		
Surgical site infection	20	4	<0.001	10.33 (2.99-35.63)
Wound dehiscence	22	2	<0.001	27.92 (5.73-136.03)
Post operative straining	19	5	<0.001	7.13 (2.24-22.66)
Duration of hospital stay (days)	11.94±6.25	6.43±2.58	<0.001	

Key Words: Incisional hernia, Risk factors, Emergency laparotomy, Tertiary referral center.