DOI: 10.14260/jemds/2014/2676

ORIGINAL ARTICLE

PROSPECTIVE COMPARATIVE STUDY OF COMPLICATIONS OF LAPAROTOMY WOUND IN ELECTIVE AND EMERGENCY SURGERY

Deepak R. Chavan[1], B. B. Metan[2], Somani Rushabh[3], Bharat Shankar[4]

HOW TO CITE THIS ARTICLE:
Deepak R. Chavan, B. B. Metan, Somani Rushabh, Bharat Shankar. "Prospective Comparative Study of Complications of Laparotomy wound in Elective and Emergency Surgery". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 21, May 26; Page: 5872-5881, DOI: 10.14260/jemds/2014/2676

ABSTRACT: BACKGROUND: Postoperative wound complications are of common occurrence. The incidence of postoperative wound infections ranged from <2% to 38%. Based on NNIS (National Nosocomial Infections Surveillance) system reports, surgical site infections are the third most frequently reported nosocomial infections among hospitalized patient. Aim is to compare the complications of laparotomy wound in elective and emergency surgery and to study the various determinants affecting it. **MATERIALS AND METHODS**: It is a prospective randomized study of 216 patients undergoing emergency and elective laparotomy. Postoperative wound complications and various factors affecting it are compared between emergency and elective surgery. **RESULTS:** The study was conducted on 216 patients, aged between 13-80 years, who underwent major elective and emergency laparotomy surgery in Shri B. M. Patil Medical College, Hospital and Research Centre Bijapur, between October 2008 – May 2014 (5 year 6 month). Among the 216 patients, 15(14%) out of 108 patients were in elective laparotomy group and 27(25%) out of 108 patients were in emergency laparotomy who developed complications. **CONCLUSION**: In conclusion, laparotomy wound complications are multifactorial, this study demonstrated no significant increase in incidence of postoperative tissue and wound complications in emergency (25%) and elective surgery (14%) p=0.08. It mainly depends on higher ASA score, anemia and higher wound class who are more likely to be associated with development of wound complications.

KEYWORDS: Wound Complications, SSI, Risk factors.

INTRODUCTION: Postoperative wound complications are of common occurrence. The incidence of postoperative wound infections ranged from <2% to 38%. Based on NNIS (National Nosocomial Infections Surveillance) system reports, surgical site infections are the third most frequently reported nosocomial infections among hospitalized patient [1]. Surgical complications remain a frustrating and difficult aspect of operative treatment of patient regardless of how technically gifted and capable surgeon will deal with postoperative wound complications. Despite significant improvement in technology, postoperative vigilance, wound infections continue to occur. In addition to increased morbidity, mortality, loss of work productivity, disruption of family life, stress to employer, society and increased financial burden to health care system in general Postoperative wound infections range in severity from the most minimal stitch abscess to the extremely virulent infection leading to postoperative wound infections generalized septicemia, wound dehiscence or death in some cases. So the study of this aspect of laparotomy wound complications and surgical site infections with a view to identify the factors causing wound infections, microorganisms affecting and its antibiotic sensitivity will not only reduce the post operative morbidity in these patients but also will result in an immense cost benefit, hospital stay to the patient and to the institution

DOI: 10.14260/jemds/2014/2676

ORIGINAL ARTICLE

AIM OF THE STUDY: Comparative study of complications of laparotomy wound in elective and emergency surgery.

Objectives of the Study: Comparison of complications of laparotomy wound in elective and emergency surgery and various determinants affecting it. The following determinants will be taken into consideration in formulating the risk index in our patients:

1. Age
2. ASA score
3. Systemic diseases eg: diabetes mellitus, severe anemia etc
4. Duration of postoperative stay in the hospital wards

MATERIALS AND METHODS:

Source of Data:

- Patients admitted in B.L.D.E.A's Shri B.M.Patil Medical College Hospital & Research Centre, Bijapur for elective and emergency laparotomy.

Method of Collection Data:

- Post laparotomy patients in surgical wards, BLDEA's Shri B.M Patil Medical College Hospital & Research Centre, Bijapur. From October 2008 to May 2014.
- All potential candidates for surgery will be investigated and evaluated as per the required norms which will include; hemoglobin %, blood sugar, blood urea, serum creatinine, urine albumin, urine sugar and microscopy.
- Investigations of other organ system involvement and nutritional status, any other biochemical investigations necessary apart from those investigations necessary to diagnose these cases which necessitate the surgical intervention are also included.
- Post-operative observed complications like, seroma, hematoma and wound infection, time of ambulation and duration of hospital stay. Surgical site infections will be classified according to the Center for disease control and prevention (CDC) classification: superficial incisional, deep incisional and organ/space infection. Patient will be followed up for a minimum period of one month following surgery. Final analysis regarding incidence and risk factors will be arrived at from the collected data.

Inclusion Criteria:

1. All emergency and elective laparotomy patients
2. Age more than 12yrs

Exclusion Criteria:

1. Patients with parietal wall hernia.
2. Patients age less than 12 years.
3. Patients with organ space infection
4. Immunocompromised patients
5. Pulmonary and generalized diseases
6. Gynecological conditions
7. Patients on drugs like corticosteroids,

DOI: 10.14260/jemds/2014/2676

Research Hypothesis:

Postoperative wound complications are more in emergency laparotomy as compared to elective laparotomy.

Sample Size:

Study period from: October 2008 to May 2010.

Incidence rate of 38%[1] in surgical site infection and 95% level of significance with 30% allowable error the calculated sample size is 70.

Statistical formula: n= 4pq/L2.

Statistical Analysis:

Following statistical tests will be used to compare the results.

i) Diagrammatic presentation.

ii) Mean ± S D

iii) Z test or chi square test

iv) Regression analysis (if necessary)

RESULTS: The study was conducted on 216 patients, aged between 13-80 years, who underwent major elective or emergency laparotomy surgery, 15 out of 108 elective and 27 out of 108 emergency laparotomies patients developed complications. there was no significant increase in incidence of postoperative tissue and wound complications in emergency and elective surgery, (p=0.08).

Factor affecting SSI, according to CDC are extremes of age, poor nutritional status, presence of diabetes, obesity, nicotine or steroid use, a coincident infection or colonization and a dysfunctional immune system. In this study, patients with age > 50 years had more complications, but overall it is not significantly associated with wound complications in emergency and elective surgery. (p>0.05)

In our study were ASA score was high, the chances of associated complications of laparotomy wound was more. In emergency surgery significant association for seroma (p=0.004) superficial (p=0.025) and deep incisional SSI (0.004) were found compared to elective Surgery where only deep incisional SSI had significant association of development of complications(p=0.028) Poor control of blood glucose during surgery and in perioperative period increases the risk of infections and worsens the outcome from sepsis. Tight control of blood glucose by the anesthesiologist during surgery decreases the risk. Moderate Hyperglycemia (>200mg/dl) at any time on the first postoperative day increased the risk of SSI fourfold after noncardiac surgery. Metaanalysis of the approximately[1] existing trials indicate that the risk of postoperative infection decreases significantly by tight glucose control, regardless of whether or not the patient had diabetes mellitus.[2] In this study there was no significant association between DM and wound complications (p=>0.05).

Following elective operations, perioperative blood loss was a predictor of postoperative tissue and wound complications in a dose-dependent manner, when adjusting for other risk factors and confounders. This findings confirms previous reports and suggests that hypovolemia and reduction of tissue oxygenation by loss of red blood cells is detrimental to healing and increases the risk of infection and tissue dehiscence.[3] In emergency surgery anemia was significantly associated with seroma, superficial and deep incisional SSI (p=<0.05) compared to elective surgery which was significantly associated with only deep incisional SSI. Postoperative stay was significantly associated

DOI: 10.14260/jemds/2014/2676

with wound complications p<0.05 (seroma p=0.007, Superficial SSI=0.002, Deep SSI=0.001) Most SSI are caused by gram positive cocci including Staphylococcus aureus, staphylococcus epidermidis and enterococcus species which are mostly skin derived as well as Escherichia coli which is from intestinal tract.[4] In this study E coli and Staphylococcus aureus being most common in emergency surgery and Coagulase- negative Staphylococcus in elective surgery. Incidence of postoperative tissue and wound complications in elective surgery was 14% and in emergency surgery was 25%. These values are higher compare to other studies

DISCUSSION: According to Lars Tue Sorensen MD et al. and Milorad Paunovic in their study demonstrated a significant increase in incidence of postoperative tissue and wound complications in emergency than elective surgery (p<.05).[4, 5] Cavit COL, Atilla SORAN demonstrate no much difference in postoperative tissue and wound complications in emergency and elective surgery(p>0.05),[6] Similarly, in this study there was no significant increase in incidence of postoperative tissue and wound complications in emergency and elective surgery, (p=0.08). Common for all tissues subject to surgery is a disruption of the local vascular supply, thrombosis of the vessels, and tissue hypoxia. Once the blood supply is restored, several factors may complicate healing. The most important seems to be the proliferation of bacteria in the wound and tissue, which affects each process involved in healing and increases the risk of wound infection, delayed healing, and dehiscence.[7, 8] Pathogenic organisms cause a decrease in TS(tissue strength) and fibroblast concentration, so that tissue destruction occurs.[9] Whereas factor affecting SSI, according to CDC are extremes of age, poor nutritional status, presence of diabetes, obesity, nicotine or steroid use, a coincident infection or colonization and a dysfunctional immune system.[10] In this study patients with age >50 years had more complications, but overall it is not significantly associated with wound complications in emergency and elective surgery. (p>0.05) According to Lars Tue Sorensen MD et al. following emergency surgery males were associated with Increased risk. Similar finding was found by Milorad Paunovic in his study.[11] According to Suchitra Joyce B et al females are significantly associated with SSI[12]. In this study there was no significant association between male or female. Traditional wound classifications are a reasonably effective method to predict the inherent risk of developing an SSI from a specific procedure. For example, although the risk of developing an infection from a clean, Class I surgical procedure is low, the risk progressively increases from a Class I surgery to a Class IV surgery.[13] The risk for developing an SSI was heightened for patients undergoing Class III or Class IV surgical procedures, as well as for patients with >3 diagnoses at the time of surgery. Abdominal procedures and surgical procedures that last >2 hrs were additional risk factors for microbial contamination and resultant surgical site.[14]

Generally, the wound classification method does not take into account the varying intrinsic patient risk factors within any wound class. Patients undergoing surgical procedures may exhibit a number of risk factors that make them more susceptible to infection by an exogenous pathogen than the wound classification might indicate, [15] In emergency surgery most of the patients were in class III or class IV category, compared to elective surgery in which all patient were class II category. Thus this is one of the risk factor which is associated with development of more complications in emergency surgery. As incorporated in national nosocomial infections surveillance system (NNIS), the most recognized factors are the wound classification, American Society of Anesthesiology, class III or higher and prolonged operative time, where time is longer than the 75th percentile for each such

DOI: 10.14260/jemds/2014/2676

procedure. In this study as ASA score was high, more chances of associated complications of laparotomy wound was noted. In emergency surgery significant association for seroma (p=0.004) superficial (p=0.025) and deep incisional SSI (0.004) were found compared to elective Surgery where only deep incisional SSI had significant association of development of complications (p=0.028) Poor control of blood glucose during surgery and in perioperative period increases the risk of infections, and worsens the outcome from sepsis. Tight control of blood glucose by the anesthesiologist during surgery decreases the risk. Moderate Hyperglycemia (>200mg/dl) at any time on the first postoperative day increased the risk of SSI fourfold after noncardiac surgery. Metaanalysis of the approximately[16] existing trials indicate that the risk of postoperative infection decreases significantly by tight glucose control, regardless of whether or not the patient had diabetes mellitus.[17] In this study there was no significant association between DM and wound complications (p=>0.05) Following elective operations, perioperative blood loss was a predictor of postoperative tissue and wound complications in a dose-dependent manner, when adjusting for other risk factors and confounders. This findings confirms previous reports and suggests that hypovolemia and reduction of tissue oxygenation by loss of red blood cells is detrimental to healing and increases the risk of infection and tissue dehiscence.[18] In emergency surgery anemia was significantly associated with seroma, superficial and deep incisional SSI (p=<0.05) compared to elective surgery which was significantly associated with only deep incisional SSI. Infection and disruption of wounds and tissues were associated with a higher risk of reoperation, and a prolonged postoperative admission.[19, 20] Similarly, in this study postoperative stay was significantly associated with wound complications p<0.05 (seroma p=0.007, Superficial SSI=0.002, Deep SSI=0.001).

Most SSI are caused by gram positive cocci including Staphylococcus aureus, staphylococcus epidermidis and enterococcus species which are mostly skin derived as well as Escherichia coli which is from intestinal tract.[21] In this study E coli and Staphylococcus aureus being most common in emergency surgery and Coagulase- negative Staphylococcus in elective surgery. Lars Tue Sorensen MD et al. and Milorad Paunovic in their study found that overall incidence of tissue and wound complications was 6% following elective operation and 16% following emergency operation, [22, and 23] In this study incidence of postoperative tissue and wound complications in elective surgery was 14% and in emergency surgery was 25%. These values are higher compared to other studies, In elective surgery most of patients having malignancy, which itself is a risk factor might be associated with higher value of complications. The limitation of this study is small sample size, as well as wound complications which are multifactorial and depends on other factors also like obesity, nutritional status mainly hypoprotinemia, immunocompromised state like tuberculosis HIV etc. Still this study found that ASA score, anemia are significantly associated with wound complications and as wound class is higher there are more chances of development of complications according to NNIS there are the most recognized factors.

CONCLUSION: Laparotomy wound complications are multifactorial, It depends on many factors. This study demonstrated no significant increase in incidence of postoperative tissue and wound complications in emergency (25%) and elective (14%) surgery (p=0.08). It mainly depends on higher ASA score; anemia and higher wound class are more likely to associated with development of wound complications.

Patients with a larger number of predictors are under highest risk. This study provided data for preoperative identification of patients with a high risk of postoperative tissue and wound complications. Further, development of clinical pathways would prove valuable if the absolute risk of each patient could be estimated when planning surgery to specifically optimize the patient's preoperative condition to reduce the risk of complications.

REFERENCES:

1. Alicia J Mangram, Teresa C Horan et al. Guidelines for prevention of surgical site infection 1999; 20 (4): 247 – 270.
2. Merril T Dafton. In Surgical complications Sabiston text book of Surgery.18th edn. Saunders; Elsevier; 2008; 1(15): 311 – 335.
3. Dunn L David. History repeats itself Connections and Casualty in the study of surgical Infections. Arch Surg 1994; 129: 21 – 22.
4. Ananthanarayanan R, C K Jayaram Panikar. Text book of Microbiology. Madras, Orient Longmen – Hyderabad. 2005; 1-6.
5. Peter J.E Cruse In: History of Surgical Infection Fry surgical Infections 1995; 3 – 9.
6. David J. Leaper, In: Surgical infection Bailey and Loves short practice of surgery 25th edn 4: 32-47.
7. Maria B Wittle, Adrian Barbul. General Principles of wound Healing. Surgical Clinics of North America June 1997; 77: 509 – 526.
8. Richard T, Ethridge, Mimi Leong et al. Wound healing, Sabiston text book of surgery.18th edn. Saunders; Elsevier; 2008; 1:191 – 216.
9. Thomas K, Hunt MD. Wound Healing. Current surgical diagnosis and treatment. 12th edn, 2009; 6: 75 – 88.
10. Robbins and Cotran "Pathologic Basis of Disease" 7th edn. Saunders; Elsevier 2004; 3: 107 – 116.
11. Bailry Robert W, Elvyn G Scott. Diagnostic Microbiology, Saint Louis: The C.V. Mosby Company 1974; 90 – 97.
12. Thomas K, Hunt, Harriet Williams. Wound Healing and Wound Infection. Surgical Clinics of North America, June 1997; 77: 587 – 606.
13. Peter J, Cruse E, Rosemany Fourd MB. The Epidemiology of wound Infection. Surgical Clinics of North America 1980; 60 (1): 27 – 40.
14. Philip S Barie, Soumitra R Eachempati. Surgical site Infections. Surg Clin N Am 2005; (85):1115 – 1135.
15. Lee M Ellis, Edward M Copeland III et al. Perioperative Nutritional Support. Surgical clinics of North America 1991 June; 71(3): 493 – 507.
16. William D, Hardin, Jr. Ronald L. Nichols. Aseptic Technique in the operating Room Surgical Infections. 'Fry' 1991; 109 – 117.
17. PK Agarwal, M Agarwal et al. Incidence of Post-operative wound Infection at Aligarh. Indian Journal of Surgery 1984 June – July; 326 – 333.
18. J. Wesley Alexander, Josef E Fischer et al. The Influence of Hair – Removal Methods on wound Infections. Arch Surg 1983 March; (118): 347 – 352.
19. M.A. Khan, M.N Ansari et al. Post – operative wound Infection. IJS 1983: 383 – 386.

DOI: 10.14260/jemds/2014/2676

20. Gerard M. Doherty. Post-operative complications. Current Surgical Diagnosis and Treatment. 12th edn (4): 21 -23.
21. Maria D Allo, Maureen Tedesco. Operating Room Management: Operative suite considerations, Infection Control. Surg Clin N Am 2005; 85: 1291 – 1297.
22. Ronald Lee Nichols. Surgical Antibiotic Prophylaxis. Medical clinics of North America 1995 May, 79 (3): 509 – 521.
23. James T. Lee Surgical wound Infections: Surveillance for Quality Improvement Donald E Fry. Surgical Infections 1995; (14): 145 – 159.

	Emergency									Elective								
	Seroma			Superficial SSI			Deep SSI			Seroma			Superficial SSI			Deep SSI		
Age groups	F	%	P value	F	%	P value	F	%	P value	F	%	P value	F	%	P value	F	%	P value
10'-20'	0	0		3	14		0	0		0	0		0	0		0	0	
21-30	6	40		6	30		6	40		0	0		0	0		0	0	
31-40	3	20		3	14		3	20		0	0		0	0		0	0	
41-50	3	20	>0.05	3	14	>0.05	6	40	>0.05	0	0	>0.05	0	0	>0.05	0	0	>0.05
51-60	0	0		3	14		0	0		3	100		3	33		3	50	
>60	3	20		3	14		0	0		0	0		2	67		3	50	
Total	**1555**	**100**		**211**	**100**		**1**	**100**		**3**	**100**		**9**	**100**		**6**	**100**	

Table No. 1: Distribution of complications in Age

p > 0.05 in emergency and elective surgery

	Emergency						Elective					
	Seroma		Superficial SSI		Deep SSI		Seroma		Superficial SSI		Deep SSI	
	F	%	F	%	F	%	F	%	F	%	F	%
Male	9	60	15	71	9	60	3	100	9	100	6	100
Female	6	40	6	29	4	40	0	0	0	0	0	0
Total	**15**	**100**	**21**	**100**	**18**	**100**	**9**	**100**	**9**	**100**	**6**	**100**

Table No. 2: Distribution of Complications in Sex

There are no significant differences in development of complication in male and female, in emergency and elective surgery.

	Emergency									Elective								
CLASS	seroma			Superficial			Deep SSI			seroma			Superficial SSI			Deep SSI		
	F	%	p value	F	%	p value	F	%	p value	F	%	p value	F	%	p value	F	%	p value
1	0	0		0	0		0	0		0	0		0	0		0	0	
2	0	0		0	0		3	20		3	100		9	100		6	100	
3	9	60		12	57	>0.05	6	40		0	0		0	0		0	0	
4	6	40	>0.05	09	43		6	40	>0.05	0	0	>0.05	0	0	>0.05	0	0	>0.05

DOI: 10.14260/jemds/2014/2676

TOTAL	**15**	**100**		**21**	**100**		**15**	**100**		**3**	**100**		**9**	**100**		**6**	**100**		

Table No. 3: Association of complication with Wound Class

Most of patients were in class III and IV in emergency and All patients were in class II in elective

	Emergency												**Elective**											
ASA	**Seroma**				**Superficial SSI**				**Deep SSI**				**Seroma**				**Superficial SSI**				**Deep SSI**			
	F	**%**	**p**	**Chi sq.**	**F**	**%**	**p**	**Chi sq.**	**F**	**%**	**p**	**Chi sq.**	**F**	**%**	**p**	**Chi sq.**	**F**	**%**	**p**	**Chi sq.**		**%**	**p**	**Chi sq.**
ASA-1	0	0			0	0			0	0			0	0			0	0			0	0		
ASA-2	6	40	0.004	13.3	6	28	0.025	9.32	6	40	0.004	13.3	3	100	>.05		6	67	>.05				0.028	4.813
ASA-3	3	20			9	44			3	20			0	0			3	33			4	100		
ASA-4	6	40			4	28			6	40			0	0			0	0			0	0		
Total	**15**	**100**			**21**	**100**			**15**	**100**			**3**	**100**			**9**	**100**			**4**	**100**		

Table No. 4: Association of Complications with ASA

Higher ASA score are significantly associated with development of complication in emergency and elective surgery.

	Emergency									**Elective**								
DM	**Seroma**			**Superficial SSI**			**Deep SSI**			**Seroma**			**Superficial SSI**			**Deep SSI**		
	F	**%**	**P value**	**F**	**%**	**p value**	**F**	**%**	**p value**	**F**	**%**	**P value**	**F.**	**%**	**p value**	**F.**	**%**	**p value**
Absent	12	80		18	86		12	80		3	100		9	100		6	100	
Present	3	20	>0.05	3	14	>0.05	3	20	>0.05	0	0	>0.05	0	0	>0.05	0	0	>0.05
Total	**15**	**100**		**21**	**100**		**15**	**100**		**3**	**100**		**9**	**100**		**6**	**100**	

Table No. 5: Association of Complications with DM

	Emergency										**Elective**									
	Seroma				**Superficial SSI**				**Deep SSI**				**Seroma**				**Superficial SSI**				**Deep SSI**			
	F	**%**	**P value**	**Chi sq.**	**F**	**%**	**p value**	**Chi sq.**	**F**	**%**	**p value**	**Chi sq.**	**F**	**%**	**p value**	**Chi sq.**	**F**	**%**	**p value**	**Chi sq.**	**F**	**%**	**p value**	**Chi sq.**
1'-15	3	0			0	0			0	0			0	0			0	0			0	0		
16-30	6	60			15	72			6	40			3	100			9	100			4	100		
31-45	3	20	0.007	12.183	3	14	0.002	14.33	6	40	0.001	16.74	0	0	>0.05	-	0	0	0.006	7.438	0	0	0.028	4.813
>45	3	20			3	14			3	20			0	0			0	0			0	0		
Total	**15**	**100**			**21**	**100**			**15**	**100**			**3**	**100**			**9**	**100**			**4**	**100**		

Table No. 6: Association of Complications with Anemia

In Emergency Surgery p value < 0.05 In Elective Deep SSI p value <0.05

DOI: 10.14260/jemds/2014/2676

	Emergency												Elective											
	Seroma				Superficial SSI				Deep SSI				Seroma				Superficial SSI				Deep SSI			
	F	%	p value	Chi sq.	F	%	p value	Chi sq.	F	%	p value	Chi sq.	F	%	p value	Chi sq.	F	%	p value	Chi sq.	F	%	p value	Chi sq.
1'-15	0	0			0	0			0	0			0	0			0	0			0	0		
16-30	9	60			15	72			6	40			3	100			9	100			6	100		
31-45	3	20	0.007	12.1	3	14	0.002	14.332	6	40	0.001	16.74	0	0	>0.05		0	0	0.006	7.438	0	0	0.028	4.813
>45	3	20			3	14			3	20			0	0		-	0	0			0	0		
Total	**15**	**100**			**21**	**100**			**15**	**100**			**3**	**100**			**9**	**100**			**6**	**100**		

Table No. 7: Association of Complications with POS

Patients with duration of stay more than 15 days in emergency and as well as elective surgery had more chances of development of complication.

	Emergency		Elective			
	F	%	F	%	p value	t
No Complication	81	75	91	86	0.083	1.76
One Complication	12	11	12	11		
Two Complication	06	06	03	03		
Three Complication	09	08	00	00		
Total	**108**	**100**	**108**	**100**		

Table No. 8: Comparison of Complications of laparotomy wound in emergency and elective

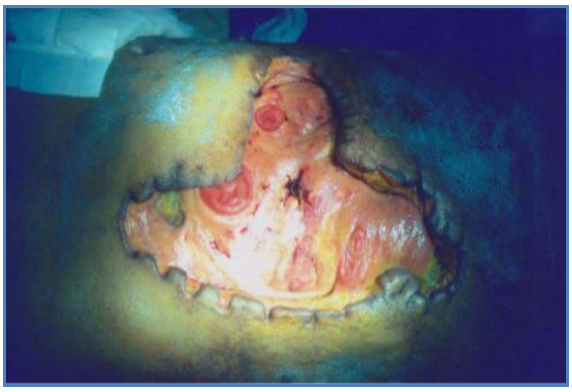
Emergency surgery – 25% complication Elective surgery – 14% complication

NORMAL WOUND HEALING

DOI: 10.14260/jemds/2014/2676

ORIGINAL ARTICLE

SUPERFICIAL INCISIONAL SURGICAL SITE INFECTION



DEEP INCISIONAL SURGICAL SITE INFECTION

AUTHORS:

1. Deepak R. Chavan
2. B. B. Metan
3. Somani Rushabh
4. Bharat Shankar

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Surgery, BLDE University Shri B. M. Patil Medical College, Bijapur, Karnataka, India.
2. Professor, Department of Surgery, BLDE University Shri B. M. Patil Medical College, Bijapur, Karnataka, India.
3. Post Graduate, Department of Surgery, BLDE University Shri B. M. Patil Medical College, Bijapur, Karnataka, India.
4. Post Graduate, Department of Surgery, BLDE University Shri B. M. Patil Medical College, Bijapur, Karnataka, India.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Deepak R. Chavan,
Pragatinagar, Ashram Road,
Near Water Tank,
Bijapur-586103, Karnataka.
Email: dipdeepak@yahoo.co.in

Date of Submission: 08/05/2014.
Date of Peer Review: 09/05/2014.
Date of Acceptance: 17/05/2014.
Date of Publishing: 26/05/2014.