



Research Article

Study of the Incidence of Post Operative Mortality after Emergency Laparotomy in a Tertiary Care Centre in Vindhya Region of Madhya Pradesh

Authors

Dr Brijesh Singh¹, Dr Mohit Gangwal²

¹Assistant Professor, Department of Surgery, Shyam Shah Medical College, Rewa, MP, India

²Senior Resident, Department of Surgery, Shyam Shah Medical College, Rewa, MP, India

*Corresponding Author

Dr Mohit Gangwal

D-163, Scheme no 51, Sangam Nagar, Indore, MP, India

Phone (or Mobile) No.: +91- 8103676828, Email: doctormohitgangwal@gmail.com

Abstract

Background: *Emergency laparotomy is a common intra-abdominal procedure. Outcomes are generally recognized to be poor. Emergency laparotomy is associated with significant morbidity and mortality. Multiple factors are associated with post operative morbidity and mortality following emergency laparotomy. Early identification and aggressive treatment goes a long way to tide over the progress to a life threatening state*

Materials and Methods: *271 patients who got admitted through SOPD, casualty or transferred from other departments and underwent emergency laparotomy during the period of study were included in the study irrespective of the age and sex. Post operatively patients were regularly monitored and treated accordingly. Post operative morbidity and mortality was recorded and incidence was calculated.*

Results: *The mean age of the patients in our study was 36.1 and standard deviation of 15. Out of 271 patients, 219 were males 52 were females. Most common etiology of peritonitis was Peptic perforation (35.4%) followed by ileal perforation (23.6%).*

Incidence of mortality was 13.20% in post operative period.

Conclusions: *Post operative morbidity and mortality continues to be significant following emergency laparotomies. This study confirms that emergency laparotomy in India carries a high mortality. The variation in clinical management and outcomes indicates the need for a national quality improvement programme.*

Keywords: *Emergency laparotomy, Incidence, morbidity, mortality.*

Introduction

The term 'emergency laparotomy' describes an exploratory procedure for which the clinical presentation, underlying pathology, anatomical

site of surgery, and perioperative management vary considerably. The total number of surgical procedures that can be coded within this emergency laparotomy population exceeds 400,

reflecting the diverse nature of this surgical cohort.¹ The variation in surgical pathology, coupled with the limited time period in which to optimize co-morbidities, is likely to contribute significantly to postoperative morbidity and mortality.

Although patients requiring emergency laparotomy are frequently elderly, with significant co-morbidity and additional high-risk insults such as sepsis², evidence suggests that intervention can improve outcomes. Khuri and colleagues found that most of the strongest predictors of mortality following major surgery were postoperative complications³, and that the occurrence of any complication was a more important predictor than any pre- or intra-operative factor. Effectiveness of rescue in the event of complications is also known to be an important factor in survival⁴.

Despite such evidence, the literature quantifying complications following emergency laparotomy is sparse and heterogeneous. To make advances in care, there is a need first for a robust understanding of the nature, type and incidence of postoperative complications in this high-risk patient group.

Methods

The present study was carried out in 271 patients in the Department of Surgery, Shyam Shah Medical College and associated G.M. and S.G.M. Hospitals, Rewa (M.P.) during the period of 1st August 2015 to 31st July 2016.

Patients were admitted in surgical wards through OPD, casualty or admitted in other wards and then transferred to surgery.

Patients were interrogated in detail regarding their particulars, presenting complaints, past history, treatment received, any previous surgery done etc. Patients were resuscitated by IV fluid, antibiotic and supportive treatments.

Diagnostic investigations like X- ray abdomen, USG abdomen were done; other essential investigations like hemoglobin, TLC, DLC, blood sugar, LFT, blood urea, sr. creatinine etc were done.

Patients were given antibiotic and supportive treatment. Patients who were fit for surgery, exploratory laparotomy was done.

Patients were regularly monitored and Post complications were recorded based on investigative and clinical findings. Patients were treated accordingly. Mortality was recorded and incidence was calculated.

Results

The mean age of the patients in our study was 36.1 and standard deviation of 15. Out of 271 patients, 219 were males 52 were females. Most common etiology of peritonitis was Peptic perforation (35.4%) followed by ileal perforation (23.6%). Overall incidence of post operative complications was 41.6% and mortality was 13.20% in postoperative period. (Table no.1)

Pulmonary complications were the commonest (30.2%), followed by local complications (27.6%), and followed by general complications (26.5%).

Cardiovascular (5.9%) were the least common post operative complications. (Table no. 2)

41.6% Post operative patients developed complications; while 13.2% died, i.e. 31.9% of people who developed complication, died postoperatively. (Table no. 3)

It is evident from the above table that, 27 out of 219 males succumbed (12.32%). While, 9 out of 52 females died post operatively (17.3%). (Table no. 4).

Total mortality was 13.20% & there was no uniform relation between age and post operative mortality. Highest incidence (27.2%) was in 8th decade, followed by 7th decade (20%); and lowest incidence in 6th decade (6.89%). (Table no. 5) (Figure no. 1)

Maximum deaths occurred amongst the patients of intestinal Obstruction (19.5%), followed by Ileal perforation peritonitis (18.75%).

Least deaths occurred with Pyoperitnoeum (nil), followed by abdominal tuberculosis (8.3%). (Table no .6)(Figure no. 2)

Table no 1 Distribution of cases according to post operative complications and mortality

Total No. of cases	No. of cases with complications	Percentage	Mortality	Percentage
271	113	41.6	36	13.2

Table no 2 Distribution of complication

S.No	Complications	Cases	%(n=271)
1	General	72	26.5
2	Local complications	75	27.6
3	CVS complications	16	5.9
4	Renal complications	70	25.83
5	GI complications	21	7.74
6	Pulmonary complications	82	30.2

Table no. 3 Distribution of cases showing relation of complication with mortality

S. No.	Factor	No. of cases	Percentage
1	Total complication	113	41.6
2	Death	36	13.2

Table no 4 Distribution of postoperative mortality according to sex

S. No.	Sex	Total no. of cases	Mortality	Percentage
1	Male	219	27	12.32
2	Female	52	9	17.3
Total		271	36	

Table no 5 Distribution of postoperative mortality according to age

S. No.	Age Group in Yrs	Total no. of cases	Mortality (Death)	Percentage
1	0-10	19	3	15.79
2	11-20	36	3	8.33
3	21-30	65	7	10.7
4	31-40	52	10	19.2
5	41-50	44	5	11.36
6	51-60	29	2	6.89
7	61-70	15	3	20.00
8	>70	11	3	27.2
Total		271	36	

Table no 6 Distribution of Mortality according to diagnosis

S. No.	Diagnosis	Total no. of cases	Total no of Deaths	Percentage
1	Peptic perforation peritonitis	96	10	10.41
2	Ileal perforation peritonitis	64	12	18.75
3	Trauma	22	2	9.0
4	Pyoperitoneum	5	-	-
5	Abdominal Tuberculosis	12	1	8.3
6	Appendicular perforation	10	1	10
7	SAIO	36	7	19.5
8	Post operative Adhesions	10	1	10.0
9	Miscellaneous	16	2	12.5
TOTAL		271	36	

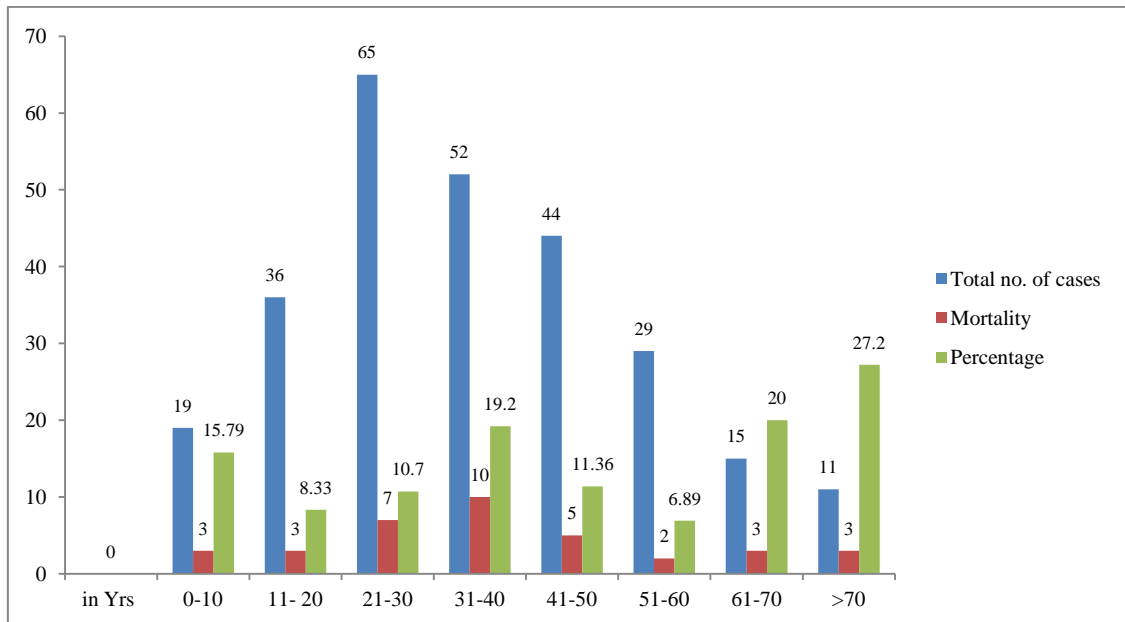


Figure 1 Distribution of postoperative mortality according to age

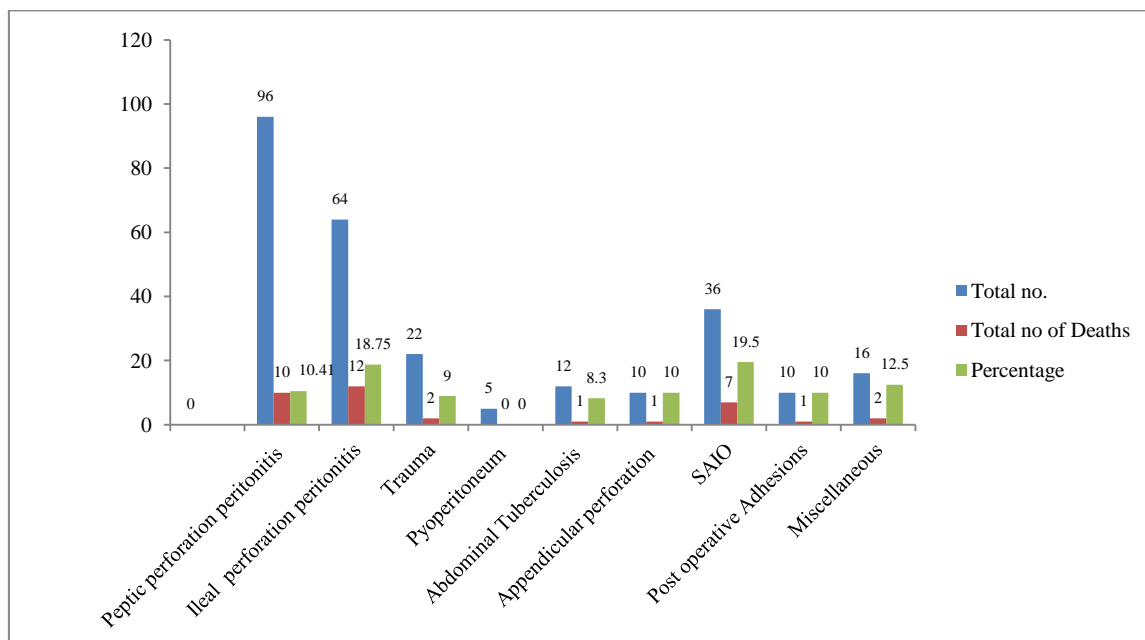


Figure 2 Distribution of Mortality according to diagnosis

Discussion

Overall mortality observed in our study was 13.2% which is comparable to 14.9% observed by the UK Emergency Laparotomy Network (ELN). For the elderly (≥ 70 years), 30-day mortality was 33.3% (24.4% in the ELN), confirming the findings of previous studies that these patients 'peri-operative mortality risk is amongst the highest of any surgical group [5, 6, 7]

Clarke A et al⁸ (2011) reported that Mortality after emergency laparotomy was high, and very high in patients more than 80 years of age.

D. I. Saunders, D. Murray, A. C. Pichel, S. Varley and C. J. Peden (2012)⁹ reported that there appeared to be a direct relationship between increasing age of the patient and 30 day mortality; from a mortality of just under 10% for a patient in their 50s, mortality increased by ~4% for each additional 10 yr of age. For patients aged 80 and over, the mortality was 24.4%.

Vivekanand K.H, Mohankumar K¹⁰ (2015) reported as the patients age increases mortality increases.

In our study highest incidence (27.2%) was in 8th decade, followed by 7th decade (20%); and lowest incidence in 6th decade (6.89%).

Vivekanand K.H, Mohankumar K¹⁰(2015) reported that females has higher rate of mortality (35%) as compared to males (15%).

In our study, 27 out of 219 males succumbed (12.32%). While, 9 out 52 females died post operatively (17.3%).

Study by various authors on post operative mortality^(11,12,13)

Study	Mortality	
	Females	Males
Present study	17.3%	12.32%
Yoshiko K, <i>et al</i>	15.2%	5.3%
Wacha H, <i>et al</i>	49.2%	0
Chandrashekar N, <i>et al</i>	21.40%	0

In our study maximum deaths occurred amongst the patients of intestinal Obstruction (19.5%). It was observed that in obstruction cases due to volvulus or adhesion, after the derotation of the gut or releasing of the band, there is sudden absorption of toxins and these patients usually die in the early post operative period due to toxemia and pulmonary complications.

In the present series second group in which in the mortality was recorded is ileal perforation (18.75%), which is close to the various workers who recorded death ranging from 13.3% to 76.0% at various intervals.^(14,15)

S. No.	Authors	Year	Mortality %
1	Huckstep	1962	30.0
2	Archampong	1969	29.8
3	Chatterjee	2001-03	20.9
4	Kenneth	2014	30.0
5	Present series	2015-16	18.75

Incidence of mortality in case of peptic perforation (10.41%) is comparable to other authors as tabulated below.^(16,17)

S. No.	Authors	Year	Mortality %
1	Sharma	1991	4.2%
2	Dorai Rajan	1995	3.7%
3	Vivekanad K.H	2015	10.5%
4	Present series	2105-16	10.41%

Conclusion

The successful outcome of a laparotomy depends of patients factors, pre operative biochemical

parameters, delay between onset of symptom and surgery, diagnosis, duration of surgery, technique etc.

Some factors are potentially modifiable; prompt intervention and correction of those factors can significantly reduce complications following laparotomy.

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