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A Prospective Study on Impact of Interval between Onset of Pain and Surgery among Peptic Ulcer Perforation Patients in A Tertiary Care Hospital

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Abstract: *Peptic ulcer is one of the most common causes of abdominal pain which presents in emergency with perforation. Peptic ulcer perforation patients presenting late in to the emergency department has significant effect on the morbidity and mortality. The study is undertaken to evaluate the duration of onset of abdomen pain and surgery on outcome of peptic ulcer perforation. We have conducted this prospective study among 100 patients admitted for perforated peptic ulcer at Department of General surgery, Coimbatore Medical College Hospital, Tamilnadu . The diagnosis of ulcer perforation was established by the admitting surgeon based on presenting complaints, clinical features and supported by radiological investigation and confirmed preoperatively. The data were recorded in MS-excel and were analyzed using Statistical package for Social Science (SPSS-16). The methods like Frequency analysis, Cross tabulation, and Multivariate analysis have been employed. Duration of pain of 3 or more days when presenting to hospital had related to mortality. Duration between pain and surgery that is preoperative delay of more than 48 hours has significant effect on mortality and morbidity. 48 to 72 hours had 31% and more than 72 hrs had 32% mortality.*

Keywords: *Peptic ulcer perforation*

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I. Introduction

Perforation is one of the complications of peptic ulcer disease. The development and use of gastric anti secretory agents like H2 receptor blockers, proton pump inhibitors together with the understanding of Helicobacter pylori infection as a cause of disease and its eradication with the drug therapy has resulted in high chance of curing peptic ulcer disease and also preventing recurrence[1] of peptic ulcer. As a result, there has been a marked decrease in the number of elective surgery for acid reduction in patients with uncomplicated peptic ulcer and there is fall in the incidence of peptic ulcer disease in recent years, globally. Though the number of patients admitted in emergency department for perforated peptic ulcer and emergency surgery for the same has not undergone similar decline, and it remain a significant health problem.

There are multiple factors which are influencing the outcome of surgery for perforated peptic ulcer. Inspite of plenty of evidence in the literature, the knowledge about factors which affect the morbidity and mortality that occurs after perforated peptic ulcer is limited. Hence the rationale of this study is to evaluate the duration of onset of abdomen pain and surgery on outcome of peptic ulcer perforation. We have conducted this prospective study among 100 patients admitted for perforated peptic ulcer at Department of General surgery, Coimbatore Medical College Hospital.

II. Materials And Method

The study place was Department of General surgery, Coimbatore Medical College Hospital.

The diagnosis of ulcer perforation was established by the admitting surgeon based on presenting complaints, clinical features and supported by radiological investigation and confirmed preoperatively. All patients of Duodenum part 1, Antrum, Pylorus and Prepyloric ulcer perforation are included in this study.

Clinical presentation including Pain site and duration were recorded. Physical examination findings of Pulse rate, Respiratory rate, Blood pressure, Urine output monitored. Biochemical values of Urea, Creatinine, Electrolytes Sodium and Potassium, and Glucose level, Haemoglobin, Total count and Differential count were noted. Duration between pain and surgery and admission and surgery were recorded. Graham's procedure (48%) modified Graham's procedure (50%) Flank drain (2%) was done. Post operative ventilator support, Cardiac support and Complications including Renal, Respiratory and Wound complications are followed and recorded. Finally outcome of the surgery whether Death or Discharge and Total duration of hospital stay have been

analyzed. Mortality[2] means death following surgery within 28 days and morbidity[3] means prolonged hospital stay and complications.

Exclusion criteria were Cases of traumatic perforation, gastric body and duodenum part 2 perforations, iatrogenic perforations.

The data were recorded in MS-excel and were analyzed using Statistical package for Social Science (SPSS-16). The methods like Frequency analysis, Cross tabulation, and Multivariate analysis have been employed. The following are the analysis of study.

PAIN DURATION

Painduration	Mortality		Morbidity <= 7 days	8-14 days	15-21 days	22-28 days	>= 29 days	Total
<= 1 day	Death	Count	2	2				4
		% of Total	6.2%	6.2%				12.5%
	Discharge	Count	2	26				28
		% of Total	6.2%	81.2%				87.5%
2 days	Death	Count	4	0	0	0	0	4
		% of Total	14.3%	.0%	.0%	.0%	.0%	14.3%
	Discharge	Count	2	17	3	1	1	24
		% of Total	7.1%	60.7%	10.7%	3.6%	3.6%	85.7%
3 days	Death	Count	10	0	0	0		10
		% of Total	35.7%	.0%	.0%	.0%		35.7%
	Discharge	Count	3	11	3	1		18
		% of Total	10.7%	39.3%	10.7%	3.6%		64.3%
>=4 days	Death	Count	6	0	0			6
		% of Total	50.0%	.0%	.0%			50.0%
	Discharge	Count	0	5	1			6
		% of Total	.0%	41.7%	8.3%			50.0%

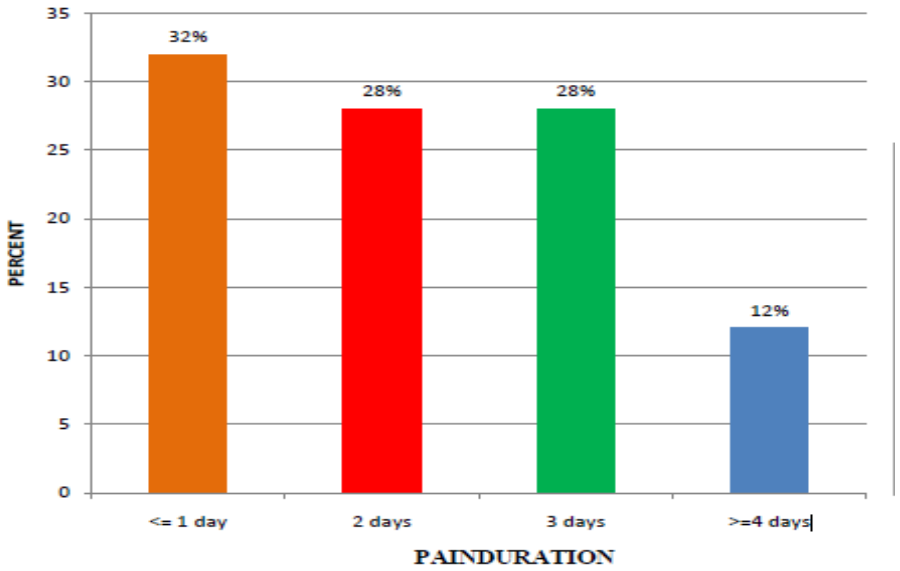
The above table shows the cross tabulation of Pain duration, Morbidity and Mortality. It is observed from the following table that Pain duration in days has significant effect on the Mortality of the patient.

Multivariate analysis

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	*Sig.*	Partial Eta Squared
Pain duration	Mortality	1.883	3	.628	3.683	*.015*	.103
	Morbidity	2.762	3	.921	1.842	*.145*	.054

The size of the effect is 10.3 percent. Whereas the Pain duration in days does not has any effect on the Morbidity of the patient.

PAIN DURATION IN DAYS



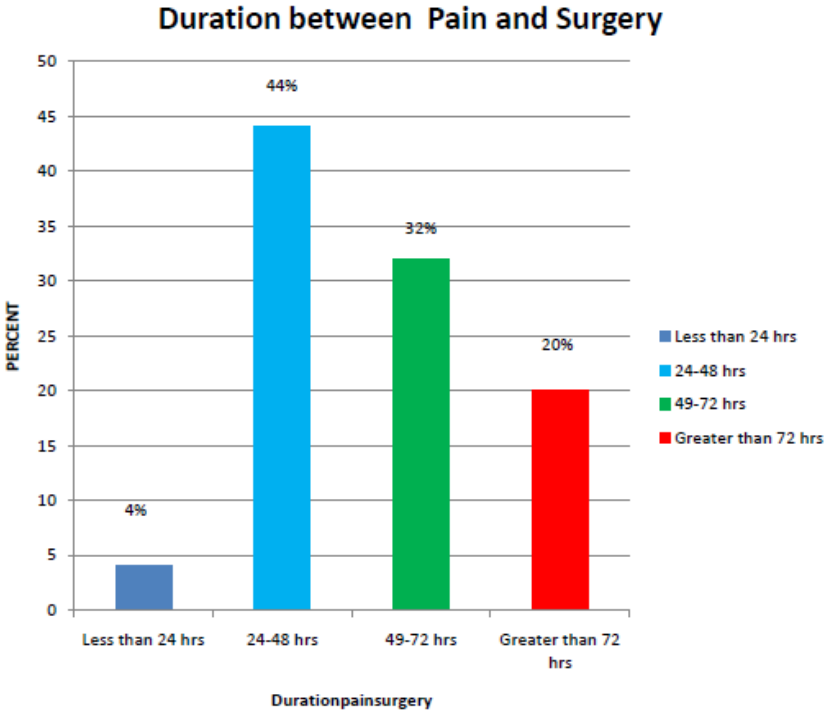
DURATION BETWEEN PAIN AND SURGERY

Duration- pain surgery	Mortality		Morbidity <= 7 days	8-14 days	15-21 days	22-28 days	>= 29 days	Total
Less than 24 hrs	Discharge	Count		4				4
		% of Total		100.0%				100.0%
24-48 hrs	Death	Count	6	2	0			8
		% of Total	13.6%	4.5%	.0%			18.2%
	Discharge	Count	4	31	1			36
		% of Total	9.1%	70.5%	2.3%			81.8%
49-72 hrs	Death	Count	10	0	0	0	0	10
		% of Total	31.2%	.0%	.0%	.0%	.0%	31.2%
	Discharge	Count	3	14	3	1	1	22
		% of Total	9.4%	43.8%	9.4%	3.1%	3.1%	68.8%
Greater than 72 hrs	Death	Count	6	0	0	0		6
		% of Total	30.0%	.0%	.0%	.0%		30.0%
	Discharge	Count	0	10	3	1		14
		% of Total	.0%	50.0%	15.0%	5.0%		70.0%

The above table shows the cross tabulation between the Duration between pain and surgery, Morbidity and Mortality. Duration of more than 48 hrs between pain and surgery has significant mortality. It is inferred from the following table that the duration between pain and surgery has significant effect on the Mortality and Morbidity of the patient, as their significance values is greater than 5 %.

Multivariate analysis

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	*Sig.*	Partial Eta Squared
Duration pain surgery	Mortality	.620	3	.207	1.125	*.043*	.034
	Morbidity	.422	3	.141	.268	*.048*	.008



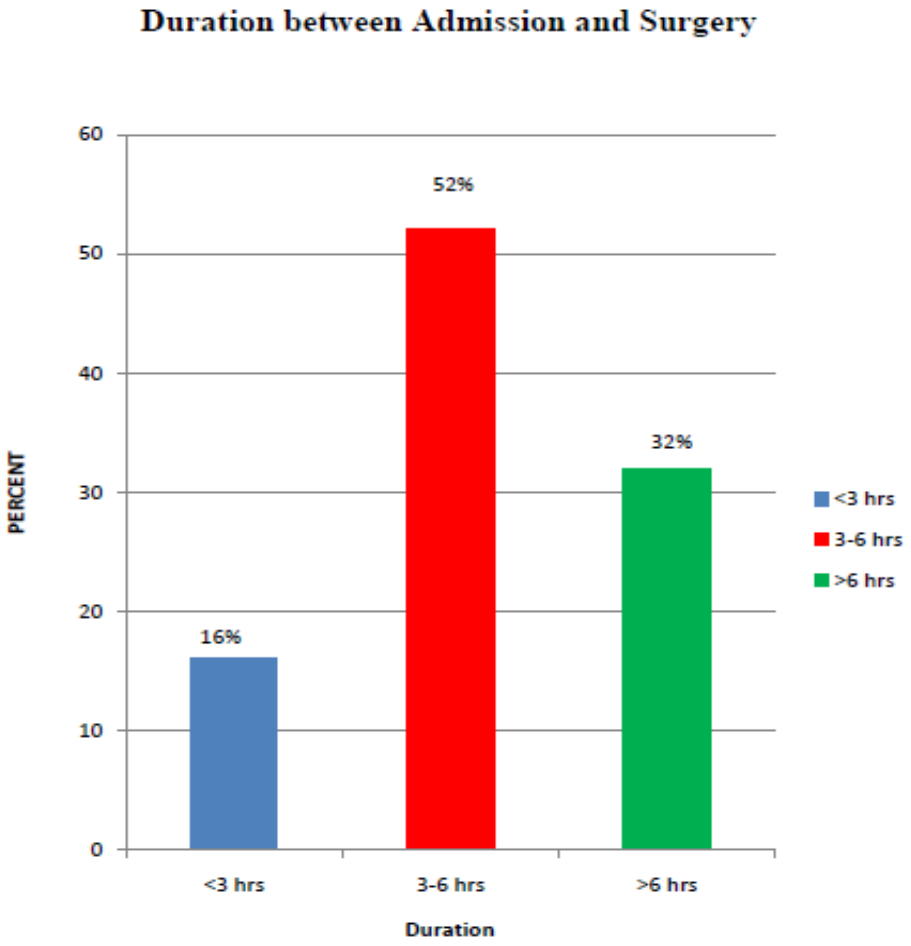
DURATION BETWEEN ADMISSION AND SURGERY

DurationAdmnSurgery Mortality			Morbidity <= 7 days	8-14 days	15-21 days	22-28 days	>= 29 days	Total
<3 hrs	Death	Count	8	0				8
		% of Total	50.0%	.0%				50.0%
	Discharge	Count	1	7				8
		% of Total	6.2%	43.8%				50.0%
3-6 hrs	Death	Count	10	0	0	0	0	10
		% of Total	19.2%	.0%	.0%	.0%	.0%	19.2%
	Discharge	Count	4	30	5	2	1	42
		% of Total	7.7%	57.7%	9.6%	3.8%	1.9%	80.8%
>6 hrs	Death	Count	4	2	0			6
		% of Total	12.5%	6.2%	.0%			18.8%
	Discharge	Count	2	22	2			26
		% of Total	6.2%	68.8%	6.2%			81.2%

Cross tabulation between the admission surgery duration, Mortality and Morbidity of the patient has been exhibited in the above table. To test the significance of Admission surgery duration on the mortality and morbidity of the patient, Multivariate analysis has been analyzed. The result has been exhibited in the following table. It is inferred that the duration between admission & surgery has a significant effect on the Mortality and Morbidity. The duration between admission and surgery has 17.1 % and 6.7% effect on the Mortality and Morbidity respectively.

Multivariate analysis

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	*Sig.*	Partial Eta Squared
DurationAdmn Surgery	Mortality	1.288	2	.644	3.685	*.029*	.171
	Morbidity	3.389	2	1.695	3.471	*.035*	.067



III. Discussion

Most of the patients initially presented with epigastric pain (86%). Duration of pain of 3 or more days when presenting to hospital had related to mortality. Duration of 3 days had 35.7% and 4 or more 50% mortality. Duration of pain has significant effect on mortality (P = 0.15). 82% of the patients had past history of peptic ulcer and on and off treatment. 16% of patients had history of NSAID usage before perforation[6] .On physical examination 96% had respiratory distress, 80% had anaemia, 38% had tachycardia, 26% both hypotension and tachycardia, and 36%had normal pulse and blood pressure.

Duration between pain and surgery that is preoperative delay of more than 48 hours has significant effect on mortality (P = 0.042) and morbidity (P = 0.043). 48 to 72 hours had 31% and more than 72 hrs had32% mortality.

IV. Conclusion

Duration between admission and surgery related to final outcome is influenced by duration between initial pain and surgery. Study shows that duration between initial pain and surgery of more than 48 hours has significant influence on morbidity and mortality. It is concluded that avoiding preoperative delay has good outcome of peptic ulcer perforation.

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