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A study of the cases of peptic perforation with reference of risk analysis and a prognostic grading scale

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Abstract

Background: Perforation is the most serious, the most fatal and one of the commonest complication of all gastric and duodenal ulcers and occurs in about 10 to 15% of all recognized chronic peptic ulcers. Very low mortality and good results but it has not become popular till now. The objective was to correlate (Assess) the prognosis with "Grading scale" and to evaluate the factors affecting the prognosis and also to know the Incidence, Male/ Female sex ratio, and Social distribution.

Methods: Study of 118 consecutive cases of peptic perforation, particularly dealing with their clinical manifestations and management. All cases were admitted in the Department of surgery of Hamidia Hospital Bhopal. The Permission from Institutional Ethics Committee was obtained. From each and every patient included in the study, initially informed individual consent was taken.

Results: Average duration between onset of perforation and admission was: 38 hours 11 minutes. Average duration between admission and operation was: 7 hours 23 minutes. Average duration between onset of perforation and operation was: 45 hours 34 minutes.

Conclusion: Benign ulcer perforations were most common in the age group of 30 – 39 years and 40 – 49 years. Close follow- up at interval of three months is recommended for every case of perforation treated by simple suture. In case of recurrence of ulcer symptoms failing to respond medical treatment, gastro-jejunostomy and truncal vagotomy is recommended.

Keywords: Benign ulcer perforations, malignant ulcer perforations, risk analysis, prognostic grading scale

Introduction

Importance of correct diagnosis and treatment of gastro-duodenal perforation is gradually increasing due to high incidence of mortality of 10-20% and gradual increase in the incidence of perforation every year [1].

Very recently vagotomy with drainage procedure has been employed by some surgeons for treatment of duodenal ulcer perforation with very low mortality and good results but it has not become popular till now [2].

Fatality rate of gastric ulcer is higher than that of duodenal ulcer. The mortality also depends on the length of previous ulcer symptoms, being higher for chronic ulcer than acute ulcer [3].

Methods

Study of 118 consecutive cases of peptic perforation, particularly dealing with their clinical manifestations and management. All cases were admitted in the Department of surgery of Hamidia Hospital Bhopal from 1997 to 1999 i.e. for a period of 2 years. Only those patients, in whom the diagnosis of perforation was confirmed at operation, have been included in the series. Only gastric and duodenal perforation has been included in the present study. Traumatic perforations have been excluded. The diagnosis of peptic ulcer perforation in this series was based on clinical history, physical examination and operative findings. Cases of this series were examined in the following manner: Registration of patient in which time and date, when the patient presented in the surgical emergency was noted. Their name, age, sex, religion, marital status, presence or absence of pregnancy in case of females, occupation and place of residence were noted. In case the patient was in severe shock or agitated, information about his/ her condition at home was obtained from attendants.

Socio-economic status, Duration of illness, Presenting complaints, History of present illness,

past history, Persona 1 history, Family history, General examination, ASA Grade (American Society of Anesthesiologists), Systemic examination of patient, Local examination of patient and investigations.

Results

Table 1: Average age of male and female patients in different types of ulcer perforations

Sex	Benign ulcer perforation				Malignant gastric ulcer perforation in years
	G.U in Years	Prepyloric	D.U in Years	GU & DU in Years	
Male	42.5	48.2	40.8	46	
Female	45	46	52	48	1 (64 Year F)
Male & Female	43.5	47	49.8	47	

Table 2: Type of operations done for treating perforation

Type of Operation	Total no of cases
A. In Benign Ulcer Perforation	
1. Simple suture with omental graft with mopping out of peritoneal cavity	146
2. Vagotomy and gastro- jejunostomy along with closure of perforation by simple suture and omental graft	6
3. Mopping out of the peritoneal cavity (in sealed perforations)	2
B. In Malignant Ulcer Perforation	
1. Simple suture with omental graft (after draining the pus and mopping out the peritoneal cavity) and putting a drainage tube.	1

Average duration between onset of perforation and admission was: 38 hours 11 minutes

Average duration between admission and operation was: 7 hours 23 minutes

Average duration between onset of perforation and operation was: 45 hours 34 minutes.

Table 3: Type of perforation

	No of Cases
Benign Ulcer Perforations	
1. Gastric Ulcer Perforation:	
A. On the anterior surface of fundus near the cardiac end and greater curvature.	6
b. Anterior surface of stomach near the lesser curvature and in the middle part.	3
c. Anterior surface of stomach near the lesser curvature and within 1 – 1/2" to 2 – 1/2" from the pylorus.	8
2. Prepyloric perforation	121
3. Duodenal ulcer perforation:	
a. On the anterior surface of first part of duodenum near the superior border	16
Carcinoma Ulcer Perforation	
a. Perforation of the carcinomatous ulcer of stomach on the anterior surface of body near the greater curvature with enlarged and hard gastric and mesenteric glands	1

Table 4: Types of anaesthesia used in operation for perforation

Type of Anaesthesia	No of patients of benign ulcer perforations	No of patients of malignant ulcer perforations
General Anaesthesia	154	1
Local Anaesthesia	0	0

Table 4 shows types of anaesthesia used in operation for perforation. In 154 patients with benign ulcer perforation

general anaesthesia was used whereas in only 1 case of malignant ulcer perforation, local anaesthesia used.

Table 5: Mortality in relation to hemorrhage and perforation

Previous history	Total no of cases	Death	% Mortality
Hemorrhage	2	0	0
Reperforation	8	3	37.5

Relationship between prognosis of peptic perforation & various factors

Table 6: Relation between sex and prognosis of patients

Sex	Total Cases	Discharge without complications		Gapping of wound not requiring secondary suture		Gapping of wound requiring secondary suture		Re- exploration		Death	
		No	%	No	%	No	%	No	%	No	%
Men	134	86	64.17	7	5.22	21	15.67	4	2.98	16	11.94
Women	21	13	61.9	3	14.28	3	14.28	0		2	9.52
Total	155	99		10		24		4		18	

Table 7: Relationship between prognosis and A.S.A Grading

A.S.A Grade	Total Cases	Discharge without Complications		Gapping of wound not requiring secondary suture		Gapping of wound requiring secondary suture		Re- exploration		Death	
		No	%	No	%	No	%	No	%	No	%
1	85	81	95.29	0		4	4.7	0		0	
2	68	17	25	10	14.7	20	29.41	3	4.41	18	26.47
3	1							1	100		
4	1	1	100								

Discussion

Observations made on benign and malignant ulcer perforation are discussed separately.

Ian Aird (1935) said "Two third cases of perforated carcinoma of stomach are fulminating in their course closely resemble perforated peptic ulcer in their symptoms and signs and should be diagnosed as perforations of stomach. The only puzzling feature, present in 1/5th of the cases is relative or absolute absence of rigidity. An exact diagnosis of perforated carcinoma is only possible if the gastric tumour had been previously diagnosed [4].

Henolt, Smith and Dodds (1963) described a new method for cases in which gas under diaphragm could not be demonstrated radiologically. Gastric contents are aspirated by nasogastric tube and 300 – 500 cc of air is instilled in the tube. The tube is clamped and x-ray is taken in the sitting posture. At conclusion of this test, the air is evacuated. No false positive test is expected and no harm is produced [5].

The prognosis in perforated gastro- duodenal ulceration depends upon a number of factors like general condition of patient as well as pre and post-operative management, sex and age, location of the lesion, time elapsing between the perforation and the institution of therapy, complications, type of anaesthetic employed and type of operative procedure. DeBaKey found the mortality to be 25.2% and the operative mortality in a collected series was 23.4%. Although the mortality rate associated with perforate ulcer had declined steadily over the past 50 years [6].

The highest percentage of gastric ulcer perforation was found near the pylorus, slightly less than this in the middle and the minimum near the oesophagus both by Enech & Harries [7].

The procedure of subtotal gastric resection was advocated originally by Von Haberer (1919), but was performed previously by Keetley in 1902. Subsequently many others have advocated it (Bisgard, 1945; Lowdon, 1952; A.Som, 1978) [8].

Mortality after surgery for perforated peptic ulcer is between 6 and 10%. There are four main factors which can increase this mortality rate even up to 100%. These are more than 60 years, delayed treatment, shock at admission and concomitant diseases [9].

Dietary factors that were related to seasons in former days but not today, probably do not cause duodenal ulcer perforation [10].

Conclusion

The present series consisted of 154 cases of acute benign gastro-duodenal ulcer perforations and one case of acute malignant ulcer perforation admitted in the Hamidia Hospital associated with Gandhi Medical College, Bhopal during the year 1999.

Prepyloric ulcer perforations were about 7.56 times more common than gastric ulcer and duodenal ulcer perforations. The prepyloric and gastric ulcer perforations in comparison to duodenal ulcer perforations were higher in male than female.

Perforations were more common in winter than summer especially in the month of October and November. It occurred usually in evening when the people were fatigued or early morning when neutralization of gastric juice had not taken place. All patients were treated by operative method carrying 11.61% mortality. The usual procedure was simple suture with omental graft.

The mortality rate increased with delay in start of operation, with age of the patient, and size of operation. The mortality was higher in female than male.

About 12% of patients had recurrence of ulcer symptoms within 2 to 15 months of simple suture operation for perforations. The

recurrence depended directly on the duration of ulcer symptoms before perforation. 100% recurrence of ulcer symptoms was found in patients who had previous ulcer symptoms for 5 years or more. The recurrence was slightly lower in patients above age of 45.

Close follow- up at interval of three months is recommended for every case of perforation treated by simple suture. In case of recurrence of ulcer symptoms failing to respond medical treatment, gastro- jejunostomy and truncal vagotomy is recommended.

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