# Surgery for Perforated Peptic Ulcers at Prachomklao Hospital

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**Abstract**

The results of surgical treatment of perforated peptic ulcers in 330 patients, during the 12 year period from October 1989 to September 2001, were analysed. One hundred and ninety two patients were treated by simple closure and 138 patients by definitive surgery. There were no differences in age incidence, occupation, state of shock upon admission and duration of symptoms between the two groups. Complication rates were 30.21 and 19.57 per cent in simple closure and the definitive surgery group respectively. Mortality rate was 1.56 per cent in simple closure and no death in the definitive surgery group. Thirty-four patients in the simple closure group required definitive surgery subsequently for repeated perforation. It may be concluded that, except for perforation of acute duodenal ulcer, definitive surgery should be the treatment of choice in patients with a perforated peptic ulcer. Parameters used to decide whether to perform definitive surgery include the patient's condition and experience of the surgeon and surgical team.

**Key word** : Perforated Peptic Ulcers, Surgery

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Analgesics and many kinds of CNS stimulants are often used to overcome aching pain, fatigue and stress conditions resulting from overwork. The combination of stress and usage of these drugs helps increase the incidence of peptic ulcer. Most peptic ulcer diseases, well over 80 per cent, respond to medical treatment and the remainder may need surgical intervention. Surgery is usually performed for intractability and complications of peptic ulcer such as perforation, severe bleeding, obstruction or ulcer of prolonged duration unresponsive to medical therapy or suspicious of malignancy. Initially, closure of the

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perforation was usually performed for perforated peptic ulcer and the patient had to take medicine for ulcer disease. Lack of adequate follow-up and repeated usage of analgesics were responsible for poor surgical outcome after simple closure of the perforation, immediate definitive surgery was then advocated and has been performed with reportedly good results[1].

## MATERIAL AND METHOD

This retrospective study was carried out, during the 12 year period from October 1989 to September 2001, in 330 patients operated on for perforated peptic ulcers, in the Department of Surgery, Prachomklao Hospital. History and physical examination, X-rays findings and result of the operation were analysed. Simple closure of the perforation was performed in 192 patients and definitive surgery in 138 patients.

## RESULTS

Of 330 patients operated on for perforated peptic ulcer, there were 284 males (86.06%) and 46 females (13.94%), with a male to female ratio of 6.17 to 1.

There were 192 patients in the simple closure group; 161 males (83.85%) and 31 females (16.15%), with a male to female ratio of 5.19 to 1.

In the definitive surgery group there were 138 patients; 123 males (89.13%) and 15 females (10.87%) with a male to female ratio of 8.20 to 1. (Table 1)

Occupations among these 330 cases included farmers (196 cases or 59.39%), planter (56 cases or 16.97%), labourers (45 cases or 13.64%), self-employed (24 cases or 7.27%) and monks (9 cases or 2.73%) (Table 2).

Age incidence, 20.60 per cent of cases were between 60-69 years, 17.58 per cent between 40-49 years and 16.67 per cent between 50-59 years. The youngest case was 19 years old and the oldest was 91 years old. (Table 3)

Simple closure of the perforation was performed in 192 cases (58.18%), truncal vagotomy and pyloroplasty in 113 cases (34.24%), truncal vagotomy and gastrojejunostomy in 9 cases (2.73%), subtotal gastrectomy and Billroth I anastomosis in 12 cases (3.64%) and subtotal gastrectomy and Billroth II anastomosis in 4 cases (1.21%) (Table 4.). For the duration of the operation, simple closure averaged 45 minutes and definitive surgery averaged 60-90 minutes (Table 5.). The simple closure group had post-operative fever for an average of 5 days and the definitive surgery group for 4 days. The hospitalization averaged 8-9 days in both groups except for those with post-operative complications.

Post-operative complications in 58 cases (30.21%) of the simple closure group included wound infection in 6 cases (3.13%), wound disruption in 10 cases (5.21%) recurrent perforation in 34 cases (17.71%) and bowel obstruction in 8 cases (4.17%). In the definitive surgery group, post-operative complications were found in 27 cases (19.57%) which

**Table 1. Sex and type of operation.**

| Type | Male | | Female | | Total | Ratio |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | Male : Female |
| Simple Suture | 161 | 83.85 | 31 | 16.15 | 192 | 5.19 : 1 |
| Definitive Surgery | 123 | 89.13 | 15 | 10.87 | 138 | 8.20 : 1 |
| Total | 284 | 86.06 | 46 | 13.94 | 330 | 6.17 : 1 |

**Table 2. Patients' occupations.**

| Type | Farmer | | Planter | | Labourer | | Self-Employed | | Monk | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| Simple Suture | 113 | 58.85 | 31 | 16.15 | 26 | 13.54 | 15 | 7.81 | 7 | 3.65 | 192 |
| Definitive Surgery | 83 | 60.14 | 25 | 18.12 | 19 | 13.77 | 9 | 6.52 | 2 | 1.45 | 138 |
| Total | 196 | 59.39 | 56 | 16.97 | 45 | 13.64 | 24 | 7.27 | 9 | 2.73 | 330 |

**Table 3. Age incidence.**

| Type | Age (years) 0-19 No. | % | 20-29 No. | % | 30-39 No. | % | 40-49 No. | % | 50-59 No. | % | 60-69 No. | % | 70-79 No. | % | 80-89 No. | % | >90 No. | % | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Simple Suture | 5 | 2.60 | 23 | 11.98 | 24 | 12.5 | 33 | 17.19 | 34 | 17.71 | 40 | 20.83 | 17 | 8.85 | 12 | 6.25 | 4 | 2.08 | 192 |
| Definitive Surgery | 2 | 1.45 | 10 | 7.25 | 24 | 17.39 | 25 | 18.12 | 21 | 15.22 | 28 | 20.29 | 20 | 14.49 | 8 | 5.80 | - | - | 138 |
| Total | 7 | 2.12 | 33 | 10.0 | 48 | 14.55 | 58 | 17.58 | 55 | 16.67 | 68 | 20.60 | 37 | 11.21 | 20 | 6.06 | 4 | 1.21 | 330 |

included wound infection in 3 cases (2.17%), wound disruption in 12 cases (8.70%), recurrent perforation in 2 cases (1.45%) and bowel obstruction in 10 cases (7.25%).

Three cases (1.56%) who were 90 or over 90 years old and extremely weak died after simple closure of the perforation, no death occurred in the definitive surgery group (Table 6).

## DISCUSSION

Theodore Billroth, Father of Gastric Surgery, performed the first successful gastrectomy (pylorectomy) for cancer of the distal stomach in January 1881 (2). Since then gastrectomy and gastric surgery have been widely performed throughout the world, especially for peptic ulcer disease and its complications which subsequently become the most common indications for surgery. Intractability is the leading indication for surgery in peptic ulcer disease, in about 50 per cent of surgical patients; surgery for perforated peptic ulcer comprises about 8-10 per cent(3).

Presently, surgical treatment for perforated peptic ulcer, rather than conservative treatment, is well accpted(4-7). In the early days, only simple closure of the perforation or the use of omental graft (8) was usually performed and no other operative procedure was added to treat the peptic ulcer disease, resulting in continued progression of the disease with subsequent recurrence of perforation or development of other complications in certain patients. For these reasons, definitive surgery has been advocated for the treatment of perforated peptic ulcer with good results, complication and death rates are comparable to the simple closure procedures.

With proper selection of patients, definitive surgery for perforated peptic ulcer results in a similar death rate compared with elective cases(9). Definitive surgery also gives a good result if the onset of symptoms is less than 48 hours, there is no other associated illness, and the patient is not in shock prior to surgery; the result of surgery does not correlate with age of the patient or degree of contamination in the abdominal cavity(10-12). However, attempts should be made to avoid resection, only vagotomy and drainage procedures are often adequate in the majority of cases(11-16).

In this series of 330 patients, no one was in the state of shock; dehydration and electrolyte imbalance had been corrected prior to surgery. The

**Table 4. Type of surgery.**

| Type | No. | % |
|---|---|---|
| Simple Suture | 192 | 58.18 |
| Definitive Surgery | 138 | 41.82 |
| Truncal vagotomy & Pyloroplasty | 113 | 34.24 |
| Truncal vagotomy & Gastrojejunostomy | 9 | 2.73 |
| Subtotal Gastrectomy with ĉ Billroth I Anastomosis | 12 | 3.64 |
| Subtotal Gastrectomy with ĉ Billroth II Anastomosis | 4 | 1.21 |

**Table 5. Operative time.**

| Type | Time | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30 mins | | 45 mins | | 1 h | | $1^{1}/_{2}$ h | | Over 2 h | | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| Simple Suture | 21 | 10.94 | 70 | 36.46 | 65 | 33.85 | 27 | 14.06 | 9 | 4.69 | 192 |
| Definitive Surgery | - | - | 7 | 5.07 | 57 | 41.30 | 50 | 36.23 | 24 | 17.39 | 138 |

**Table 6. Complications and mortality.**

| | Wound Infection | | Wound Disruption | | Recurrent Perforation | | Bowel Obstruction | | Total | | Dead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Simple Suture | 6 | 3.13 | 10 | 5.21 | 34 | 17.71 | 8 | 4.17 | 58 | 30.21 | 3 | 1.56 |
| Definitive Surgery | 3 | 2.17 | 12 | 8.70 | 2 | 1.45 | 10 | 7.25 | 27 | 19.57 | - | - |

experience of the surgeons and surgical team plays a major role in markedly reducing the operative time and complications. Old age. prolonged duration of symptoms and severe degree of contamination are not absolute contraindications for definitive surgery. However, in perforation of acute duodenal ulcer, simple closure is usually adequate in the majority of cases without need for definitive surgery.

After simple closure for chronic duodenal ulcer one-third of patients will be free of symptoms of peptic ulcer, two-thirds will continue to have symptoms or develop complications requiring definitive surgery[15]. Highly selective vagotomy may not be appropriate for perforated peptic ulcer which often requires urgent surgery with the least operative time. Highly selective vagotomy, in inexperienced hands, may result in incomplete vagotomy[17] and ulcer recurrence.

In the present study, it appears that there was no difference in age incidence, occupation and duration of symptoms prior to admission between the 2 groups of patients. The operative time averaged 45 minutes and 60 minutes for simple closure and definitive surgery respectively. Complications and death rate were less in the definitive surgery group. In conclusion, patients with a perforated peptic ulcer, with proper patient selection, especially those with low socioeconomic status who have a tendency to get lost to follow-up and do not take medication properly and those with a tendency to take various kinds of analgesics, definitive surgery should be highly considered.

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# การผ่าตัดรักษาโรคแผลกระเพาะอาหารทะลุ

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การศึกษาย้อนหลัง ตั้งแต่เดือน ตุลาคม พ.ศ. 2532 ถึง เดือน กันยายน พ.ศ. 2544 รวม 12 ปี รวบรวมผู้ป่วยที่เป็นโรคแผลกระเพาะอาหารทะลุและได้รับการผ่าตัดรักษา จำนวน 330 ราย การผ่าตัดแบ่งเป็นการผ่าตัดเพื่อเย็บปิดรูทะลุอย่างเดียว (Simple Suture) 192 ราย และการผ่าตัดแบบเบ็ดเสร็จ (Definitive Surgery) 138 ราย ทั้งสองกลุ่มไม่มีข้อแตกต่างทางด้าน อายุ อาชีพ อาการแรกรับ และระยะเวลาที่มีอาการก่อนมาโรงพยาบาล แต่พบภาวะแทรกซ้อนอัตราการตายและการทะลุซ้ำอีก ในกลุ่มแรกมากกว่ากลุ่มหลัง ดังนั้นในผู้ป่วยโรคกระเพาะอาหารทะลุที่ไม่ใช่ acute perforation ควรได้รับการผ่าตัดแบบเบ็ดเสร็จทุกราย หากไม่มีข้อบ่งห้าม

**คำสำคัญ** : การผ่าตัดรักษาโรคแผลกระเพาะอาหารทะลุ

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