

# An audit of peptic ulcer surgery in Ibadan, Nigeria

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## Summary

**Background:** Several operations are useful for peptic ulcer surgery, these include Vagotomy and pyloroplasty, Vagotomy and antrectomy, Vagotomy and gastrojejunostomy, and Highly Selective Vagotomy to name a few. Utilising any of these procedures may be due to the operator's preference or more importantly the suitability of the operation to the individual patient. This study was carried out to see the surgical presentation of chronic peptic ulcer disease patients and the form of ulcer-surgery utilised in the University College Hospital Ibadan, Nigeria.

**Study design:** A retrospective study of all the patients who were operated on for complications of peptic ulcer disease between January 1990 and December 2003 at the above-mentioned institution by studying the case-files, ward admission records and operation room registers of such patients.

**Result:** There were 122 patients, 90 male and 32 female with a Male : Female ratio of 3:1. Pyloric stenosis accounted for 56.6% of patients followed by perforation (29.5%), bleeding (9.8%) and gastric ulcer (4.1%). Yearly presentations seem to be reducing. Truncal vagotomy and drainage was performed in 78.64% of the patients, simple closure for perforation in 29.5%, partial gastrectomy for 4.1% while the remaining 2.4% had underrunning of a bleeding vessel.

**Conclusion:** Pyloric stenosis (also called gastric outlet obstruction) is the most common surgical presentation of peptic ulcer disease in the University College Hospital Ibadan and Truncal Vagotomy and drainage is the most common surgical procedure performed for peptic ulcer.

**Key-words:** Ulcer surgery, Ibadan, Truncal vagotomy and drainage.

## Résumé

**Introduction:** Plusieurs opérations sont utiles pour la chirurgie d'ulcère gastroduodénal ceci comprend vagotomie, et pyloroplastie, vagotomie et antrectomie, vagotomie et gastrojéjunostomie et vagotomie fortement sélective pour en citer quelques-uns. L'utilisation de n'importe quelle de ces méthodes pourrait être attribuable à la préférence de l'opérateur ou ce qui est plus important la convenance de cette opération par rapport à chaque patiente. Cette étude a été effectuée afin de déterminer les patientes atteintes de la maladie d'ulcère gastroduodénal chronique qui se sont présentées pour l'intervention chirurgicale et la méthode de la chirurgie d'ulcère utilisé au centre hospitalier universitaire d'Ibadan, Nigeria.

**Plan d'étude:** Une étude rétrospective de tous les patients qui ont subi une intervention chirurgicale causé par des complications à la suite de la maladie d'ulcère gastroduodénal entre janvier 1990 et décembre 2003 dans le centre hospitalier

citée ci-dessus à travers l'étude des dossiers médicaux, dossier dans la salle d'admission et les dossiers dans la salle d'opération de telles patientes.

**Résultats:** Dans l'ensemble, il y a 122 patients, 90 du sexe masculin et 32 du sexe féminin avec un rapport sexe masculin – sexe féminin de 3 pour 1. Sténose Pylorique constitue 56,6% de patients suivi de la perforation 29,5%, saignant 9,8% et ulcère gastroduodénal, 4,1%. La présentation annuelle paraît être en baisse. Vagotomie truncal et le drainage ont été opérés en 78,64% des patients, fermeture simple pour la perforation en 29,5%, gastrectomie partielle en 4,1% tandis que le restant 2,4% avaient eu un souscoulement d'un vaisseau saignant.

**Conclusion:** Sténose Pylorique (également appelé (l'obstruction orifice gastrique) est une présentation chirurgicale la plus ordinaire de la maladie d'ulcère gastroduodénal au centre hospitalier universitaire d'Ibadan et vagotomie truncal et drainage est la méthode de l'intervention chirurgicale la plus opérée pour l'ulcère gastroduodénal.

## Introduction

The aspirations of many specialist healthcare institutions is to provide optimum and up-to date medical care by having specialists who are conversant with contemporary techniques and who maintain this status by regular updating of their skills and transfer of these skills to trainees in such institutions. In some situations many techniques may have been described for a single disease process and the most appropriate for the individual is chosen. Peptic ulcer surgery is one disease that several surgical techniques have been described in which individual and possibly environmental variables influence which procedure is chosen. Some of these procedures include truncal vagotomy and pyloroplasty, truncal vagotomy and gastrojejunostomy, highly selective vagotomy, truncal vagotomy and antrectomy and partial/ total gastrectomy.<sup>1,2</sup>

In the University College Hospital Ibadan, Nigeria, elective ulcer surgery leans towards truncal vagotomy with a drainage procedure; the drainage procedure almost invariably a pyloroplasty or a gastrojejunostomy. Highly selective vagotomy (HSV), also known as parietal cell vagotomy or proximal gastric vagotomy is at present the technique of choice for uncomplicated duodenal ulcer and for a group of some complicated ones<sup>1</sup>, yet not one case of HSV has been performed in our institution over the past 13 years, the period of this study. This paper gives an audit of the treatment of peptic ulcer disease in this institution.

## Materials and methods

This is a retrospective study utilising the case-files, ward admission records and the operation room registers of patients who were operated on for complications of peptic ulcer

disease between January 1990 and December 2003 at the University College Hospital Ibadan, Nigeria.

The surgery department of this hospital has three general surgery divisions namely; gastrointestinal, hepatobiliary and oncology and these units see all general surgery cases notwithstanding their respective nomenclature. Thus these patients had been operated on by different consultants and senior registrars in these divisions.

Recorded were the age, sex, religion, occupation, indication for surgery, operation performed and complications if any.

**Results**

Total number of patients : 122; made up of 90 males and 32 females.

**Table 1 Age incidence**

Age range (Years)	Number	Percentage
0 - 20	12	9.8%
21 - 40	36	29.5%
41 - 60	63	51.6%
61 - 80	11	9.0%

**Table 2 Yearly presentation**

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number	22	14	14	11	4	10	5	0	3	8	4	10	10	7
%	18	11.5	11.5	9.0	3.3	8.2	4.1	0	2.5	6.5	3.3	8.2	8.2	5.7

**Table 3 Monthly persentation**

Months	Pyloric stenosis	Perforation	Bleeding	Gastric ulcer	Number	%
January	8	2	0	1	11	9%
February	5	3	1	0	9	7.4%
March	8	1	0	0	9	7.4%
April	3	1	0	0	4	3.3%
May	7	5	1	1	14	11.5%
June	2	3	2	0	7	5.7%
July	7	3	4	0	14	11.5%
August	5	4	1	2	12	9.8%
September	7	4	0	0	11	9%
October	5	4	0	0	9	7.4%
November	7	3	2	0	12	9.8%
December	5	3	1	1	10	8.2%
Total	69(56.6%)	36(29.5%)	12(9.8%)	5(4.1%)	122	100%

Male: Female ratio roughly 3:1.

Age range 16 to 74 years. Mean age was 45 years.

**Indications for surgery**

Gastric outlet obstruction (pyloric stenosis) : 69 patients (56.6%). 50 male, 19 female.

Bleeding ulcer :12 patients ( 9.8%). 8 male, 4 female.

Perforation : 36 patients ( 29.5%). 30 male, 6 female.

Gastric ulcer :5 patients ( 4.1%). 3 male, 2 female.

**Operations performed**

1. Truncal Vagotomy and pyloroplasty : 61 patients. 50% ( out of this number were 9 patients with bleeding who were managed conservatively successfully, the others had pyloric stenosis).
2. Truncal Vagotomy and gastrojejunostomy (for pyloric stenosis) : 17 patients. 14% . Thus total number of truncal vagotomy and drainage was 78; 64% of all the ulcer operations.
3. Partial gastrectomy : 5 patients ( for gastric ulcer). 4.10%
4. Simple closure for perforation : 36 patients. 29.50%
5. Underunning of bleeding vessel : 3 patients. 2.4%

**Complications**

- Diarrhoea. 28 recorded cases, (23%), all resolved within 4 weeks. Range 2 to 31 days.
- Recurrent gastric outlet obstruction in one patient who had truncal vagotomy and retro colic gastrojejunostomy. This was revised to ante colic anastomosis with resolution of the problem.(0.8%).
- Adhesive bowel obstruction in 2 patients. Resolved with conservative management within 5 days.(1.6%).

- Early dumping was queried in 3 patients who had truncal vagotomy and gastrojejunostomy, none lasted more than 2 weeks.(2.4%)

- Iatrogenic oesophageal perforation leading to a stricture after immediate repair was recorded for one patient.(0.8%)

- Wound dehiscence in 2 patients.(1.6%)

- Wound infection also in 2 patients.(1.6%)

- Painful hypertrophic scar in one patient.(0.8%)

Dilutional hypofibrinogenemia in a patient who had massive blood transfusion.(0.8%)

No deaths were recorded.

## Discussion

The role of the vagus nerve in the surgery of peptic ulcer surgery was elucidated by the workers who recognised that removing the cephalic phase of acid-gastric secretion was a significant step in treatment; this ushered the era of truncal vagotomy.<sup>1</sup>

Eventually it was discovered that denervation of the stomach was not without its problems; notably gastric stasis<sup>1,2</sup>. This was later ameliorated by performing various drainage operations in addition. Such operations include the various pyloroplasties ( Heinecke-Mickulicz, Jaboulay and Finney to name a few), gastrojejun-ostomies (ante colic or retro colic) and antrectomy.<sup>1,2</sup>

In spite of this, significant side effects still prevailed like post-vagotomy diarrhoea and some forms of dumping syndrome. This led researchers to work on obtaining an as-close-to-as-possible ideal operation which culminated in the development of the Highly Selective Vagotomy (HSV)<sup>3,4</sup>. This was devoid of the significant side effects of a truncal vagotomy and better still, the innervation to the pyloric antrum was intact thus obviating the need for a drainage operation<sup>3,4</sup>. However it took a longer time to perform, its use was limited in emergency situations and the recurrence rates were significantly higher than all the other acid-reducing operations<sup>1,2,3,4,5</sup>.

A look at the 13-year review of indications for peptic ulcer surgery in our institution shows that pyloric stenosis still tops the list. A historical background of peptic ulcer surgery in Nigeria in one of the earliest papers revealed majority presenting with pyloric stenosis with a common feature of excessive formation of scar tissue leading to duodenal stenosis.<sup>6</sup>

Other workers in from Ibadan who studied this disease were all unanimous in the pronouncement that gastric outlet obstruction was the most common presentation to the surgeons. Solanke and Itayemi between 1965 -1967 operated on 134 patients in whom 91 had uncomplicated disease whilst the remaining 43 had pyloric stenosis<sup>7</sup>. Lewis and Bohrer studied gastric outlet obstruction in adults in Ibadan and noted that 90% of cases were caused by chronic duodenal ulcer<sup>8</sup>. They recorded 253 cases over 8 years and 230 were by chronic duodenal ulcer. Ajaio studied perforations in the same hospital from 1974 to 1977 and still noted that gastric outlet obstruction was the most common complication<sup>9</sup>. It was Adekunle who after studying 200 patients with this disease in Ibadan from 1973 to 1978 opined that HSV may not find any application in the institution because over 50% of the patients had gastric outlet obstruction<sup>10</sup>. A cumulative assessment from centres in Nigeria suggests that 50-80% of chronic duodenal ulcer patients present with pyloric stenosis<sup>11</sup>. In the present series of 122 patients over 13 years, 56.6% presented with pyloric stenosis which shows that not much has changed in the presentation of this disease in Ibadan over 40 years, what may have changed however is the incidence rate as 122 patients over 13 years is a little less than

10 patients per year which is a lot less than the figures quoted by the previously mentioned Ibadan workers who averaged between 30 to 40 cases per year. This is no doubt due to the newer and more effective drugs and drug combination regimens for the treatment of peptic ulcer disease<sup>12,13</sup>. From the time that triple therapy was started in 1994 (H2-receptor antagonists, amoxycillin or metronidazole, and bismuth subcitrate) for *H. pylori* eradication, the rates of complicated ulcers decreased in the hospital. A further decrease occurred with Omeprazole usage as a first-line treatment instead of H2-receptor antagonist<sup>14</sup>. The male predominance in recipients of ulcer surgery was still maintained in all facets whether the indication was for bleeding, perforation or pyloric stenosis, with perforation being most distinctively a male affair with a 6:1 male to female ratio. Our findings also show that about two-thirds of all the operations performed were truncal vagotomy and drainage with no mortality recorded and paucity of severe long-term side effects. HSV has severe limitations when the pylorus is obstructed<sup>1,9,15</sup>, even though some authors have tried to ameliorate this by adding a duodenoplasty or endoscopic balloon dilatation of the pylorus<sup>16</sup>. Many authors would however feel safer performing a vagotomy and a drainage procedure for pyloric stenosis<sup>1,2,10,15</sup>. Also, many surgeons may not want to inflict an increase in operation time on a patient presenting with bleeding or perforation by doing an operation which is time-consuming like HSV<sup>17</sup>.

One area we tried to analyse was the monthly presentation to see whether some months produced more cases than others especially the 'fasting' months which would be December/January for the Muslim Ramadan fast and March/April for the Christian Lenten season. Our findings showed more cases of pyloric stenosis in January and March, more bleeding cases in July and more perforations in August, September and October. The increase in pyloric stenosis cases may correlate to the fasting periods earlier alluded to whilst the bleeding and perforation could be the "work, worry or weather" aggravations<sup>2</sup>. However some workers believe the role of environmental stress needs to be explicitly elucidated as it is yet an unquantifiable factor.<sup>1</sup>

Truncal vagotomy with pyloroplasty or gastrojejunostomy is quicker and easier to perform than HSV<sup>2,5,17</sup> and in Ibadan patients we do not see those complications earlier alluded to in any significant degree. In fact as early as 1948 Ellis had observed that "late complications were conspicuous by their absence"<sup>6</sup>.

In conclusion, this audit shows that pyloric stenosis is the most common surgical complication of chronic duodenal ulcer in Ibadan (56.6%) followed by perforation (29.5%) and the ulcer operation most commonly performed is truncal vagotomy and drainage (78.64%) with no long-term complications recorded.

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