

Rise and fall of surgery for peptic ulcer disease

VINOD KUMAR NIGAM * and SIDDARTH NIGAM

Department of General & Minimal Invasive Surgery, Max Hospital Gurugram, Haryana, India.

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Abstract

Earlier the treatment for peptic ulcer was surgery such as truncal vagotomy and drainage procedure. Recurrence after surgery and complications were common. It was because of our lack of knowledge about *helicobacter pylori* bacteria we used to blame factors such as lifestyle, other than infections causing peptic ulcer. It was due to two genius Australian doctors who identified the bacteria and the scenario was changed. Surgery for peptic ulcer gradually diminished dramatically after the development of H2 receptor antagonists and proton pump inhibitors. The surgery for complications of peptic ulcer such as perforations remain same but elective surgery for peptic ulcer drastically reduced. There was a time when after failed medical treatment for peptic ulcer patients were advised surgery or remain on cold milk and bread. These researches in medicine have alleviated human suffering from peptic ulcer disease. Patients of deep penetrating peptic ulcer used to weep with pain and treating clinicians also used to get frustrated for not getting ways to make patients painfree.

Keywords: Complications; *H pylori*; Internal bleeding; Pain; Peptic ulcer; Peptic ulcer disease; Proton pump Inhibitors; surgery for peptic ulcer; Ulcerations

1. Introduction

Peptic ulcer disease (PUD) is defined as the mucosal break of the upper gastro – intestinal tract due to acid peptic digestion resulting in ulcer formation which extends beyond the muscosalaris mucosa into the sub mucosa¹. Peptic ulcer causes retrosternal burning, indigestion, pain in epigastrium and reflux. Mainly peptic ulcers are of two types according to location, gastric ulcer and duodenal ulcer.

After indentifying *H. pylori* as a cause of peptic ulcer disease surgical interventions for uncomplicated peptic ulcer has drastically reduced, almost nil. Surgery remains now only for complications of peptic ulcer. Earlier truncal vagotomy, selective vagotomy and highly selective vagotomy were used searching for “nerve of Latarjet” or the posterior nerve of the lesser curvature, branch of the posterior vagal trunk which supplies the pylorus. “The criminal nerve of Grossi”, the first branch of the posterior trunc innervates the gastric fundus. Failure to divide this nerve during an acid reducing surgery can lead to recurrent ulcer. Today all these disappeared in surgical practice even the standard books of surgery have stopped publishing about these procedure, they have become history. Thanks to the development of *H. Pylori* eradication treatment. Over last several decades, the development of potent antisecretory agents (H2 blockers and proton pump inhibitors) and the recognition that treatment for *Helicobacter pylori* infection can eliminate most ulcer recurrences have reduced peptic ulcer disease surgeries. The rate of hospitalization and mortality^{2, 3} have essentially eliminated the need for elective surgery for peptic ulcer disease.^{4, 5}

*Corresponding author: VINOD KUMAR NIGAM

2. Historical background

Peptic ulcers are not a modern disease. Ulcers have plagued mankind since the age of Hippocrates (born 460 BCE), who had been known to use honey and mastic oil for symptomatic relief.⁶ Polish surgeon, Dr Ludwik Rydygier in 1881, performed the first successful antral resection for a gastric ulcer penetrating to the pancreas.⁷

There was a time when I used to operate upon uncomplicated peptic ulcer cases, 2-3 per week and recurrence was a problem. I used to do truncal vagotomy, selective and highly selective vagotomy and drainage procedures. Now in last 15 years I have operated no case of uncomplicated peptic ulcer. This is the scene after development of *H. pylori* eradication treatment. Now we operate only peptic ulcer cases with complications such as perforation, internal bleeding, obstruction, penetration in surrounding organs specially pancreas. Two Australian pathologists, Dr Barry Marshall and Dr Robin Warren discovered the spiral bacteria *Helicobacter pylori* in 1982. *Helicobacter pylori* was known as campylobacter pylori. It is a gram negative, microaerophilic, spiral (helical) bacterium. Within a few years multiple research groups had verified the association of *H. pylori* with gastritis and to a lesser extent, ulcers⁸ to demonstrate *H. pylori* caused – gastritis and was not merely a bystander, Marshall drank a beaker of *H. pylori* culture. He became ill with nausea and vomiting several days later. An endoscopy 10 days after inoculation revealed signs of gastritis and the presence of *H. pylori*. These results suggested *H. pylori* was the causative agent. Marshall and Warren went on to demonstrate antibiotics are effective in the treatment of many cases of gastritis. In 1994, the National Institute of Health stated most recurrent duodenal and gastric ulcers were caused by *H. pylori*, and recommended antibiotics be included in the treatment regimen.⁹ While initially met with some skepticism, the link between *H. pylori* and peptic ulcer disease served a pioneering discovery that changed the treatment of PUD and earned Marshall and Warren the Nobel Prize in Medicine in 2005.¹⁰

Medical therapy has proven to be largely successful in combating *H. pylori*, with eradication rates of 70-95% across several trials^{11, 12}. The treatment of peptic ulcer now changed from surgical to medical.

3. Surgical era to medical era

Once one of the most common indications for gastric surgery, the rate of elective surgery for peptic ulcer disease has been declining for peptic ulcer disease steadily over the last 3 decades. Data from American surgical training program and Scandinavian national audits shown a decrease in the rate of elective ulcer surgery between 80 and 97% during the 1980's and 1990's^{13, 14}, during the same time period the rate of emergency ulcer surgery rose by 44%¹⁵. Our understanding of peptic ulcer pathogenesis was revolutionized by the discovery of the presence of the bacterium *Helicobacter pylori* in association with most gastric and duodenal ulcers in early 1980's¹⁶. Over the next ten years multiple trials demonstrated that effective eradication of *H. pylori* with a short course of antibiotics and PPI's resulted in relapse free cure of the vast majority of ulcers. This led to an NIH consensus conference in 1994 that recommended treatment of *H. pylori* as the primary target of ulcer treatment.¹⁷

It is now becoming difficult for young surgeons to perform specialized peptic ulcer surgery if required to do. Because of the decrease in the hospitalization rate for peptic ulcer disease, surgeons in training now have less exposure to the overall management of peptic ulcer disease, including complications, as well as some of the more technically demanding procedures for treating peptic ulcer disease, such as highly selective vagotomy (parietal cell vagotomy)^{18, 19}.

Schwartz in 1910 coined the phrase "no acid no ulcer", but produced no experimental data to back up his dictum²⁰. It was Dr James Adams, a native of Glarryfold, Co Antrim, a GP practicing on the Raventill Road in Belfast, who was the first to document evidence of the association between hyperacidity and duodenal ulcerations.²¹

Modern techniques allow bleeding to be controlled in most instances of endoscopic injection therapy, pyloric stenosis by balloon dilatation and perforation by laparoscopic repair. However, some patients will come to open surgery and younger surgeons now have relatively little experience of the operations required. Dr George W Johnston wrote that, "In the past 10 years, prior to retirement, I performed, on average, only one ulcer operation per month and in my last year I operated on only 3 patients with duodenal ulceration and all were for complications". How true was Dr Johnston, about real fall of peptic ulcer surgery. I also performed only one operation in last 15 years for duodenal ulcer. I called my assistant, Dr. Siddharth, a young surgeon, to show him how a truncal vagotomy is performed. How you deal with anterior and posterior trunks of vagus nerve, as he will not get much chance to see and assist such operation which is vanishing from practice and prints (books).

4. Conclusion

This study of rise and fall of surgery for peptic ulcer disease is the summarization of treatment of peptic ulcer disease in past and present. This study will benefit junior doctors as well as patients by sticking to *H pylori* eradication with the help of antibiotics. How the treatment for peptic ulcer disease has evolved overtime has indicated the improved the cure rate.

Compliance with ethical standards

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Disclosure of conflict of interest

There are no conflicts of interest.

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