Acid Reducing Surgery: Still Relevant or a Relic

T. Mark Earl MD, FACS
Professor of Surgery
University of Mississippi Medical Center

University Transplant
University of Mississippi Medical Center

1

Disclosures

- None financial
- The number of these operations I've done in my career I can count on my fingers
- I think Dr. Kutcher asked me to do this because I'm the only person who had done one in recent memory

University Transplant
University of Mississippi Medical Center

2

Objectives

- Discuss the history of surgery for peptic ulcer disease
- Describe the operations acid reduction and rationale for each
- Summarize the developments that led to the demise of PUD surgery
- Understand the current indications for acid reducing surgery
- Select the best operation for acid reduction in the modern era

University Transplant
University of Mississippi Medical Center

3

History

- 1922: Andre Latarjet
  - Used vagotomy for PUD
  - High rate of delayed gastric emptying
- 1947: Lester Dragstedt
  - 200 thoracic vagotomies
  - Reduce acid secretion and improve clinical course

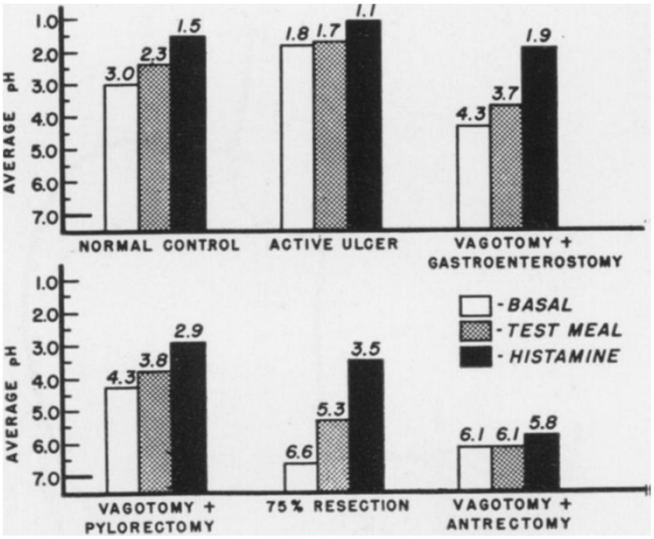
Latarjet, A: Bull Acad Med Paris; 1922
Dragstedt, Owens: Ann Surg; 1947

University Transplant
University of Mississippi Medical Center

4

History

- 1953: Edwards and Herrington
  - 120 patients over 6 years
  - Vagotomy alone -> Vagotomy and antrectomy
    - Better ulcer healing
    - Fewer GI complaints
    - Higher morbidity



University Transplant
University of Mississippi Medical Center

5

Death of ulcer surgery

- 1978: Cimetidine heals 2/3 of ulcers w/in 6 weeks
- 1980s: Omeprazole
  - Increases ulcer healing
  - Reduces symptoms

Blackwood et al: Lancet; 1978
Walan et al: NEJM; 1989

University Transplant
University of Mississippi Medical Center

6

Concurrently…

- Marshall and Warren
- *H. pylori*
  - Found in 75-85% with PUD
  - Increases gastrin
  - Decreases mucosal bicarbonate
- Nobel Prize in 2005

University Transplant
University of Mississippi Medical Center

7

Current Operations for Chronic PUD

Selective

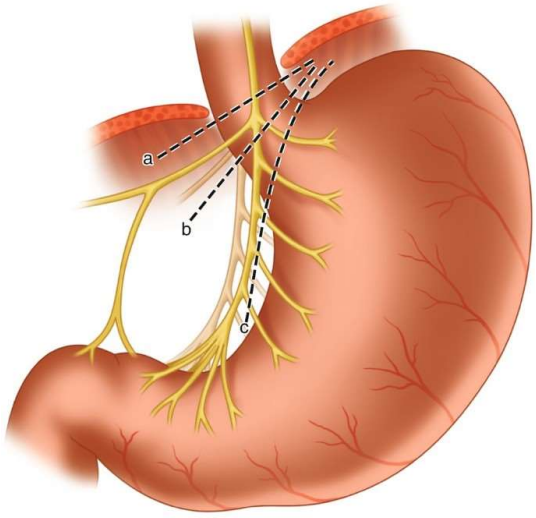
- Selective vagotomy
- Highly selective vagotomy

Non-Selective

- Vagotomy and antrectomy
- Vagotomy and pyloroplasty

University Transplant
University of Mississippi Medical Center

8



A - Truncal vagotomy
B - Selective vagotomy
C - Highly selective vagotomy

University Transplant
University of Mississippi Medical Center

9

Selective Vagotomy

- Devloped in 1940s
  - In response to emptying issues with truncal vagotomy
- Divide Vagi distal to celiac and hepatic divisions

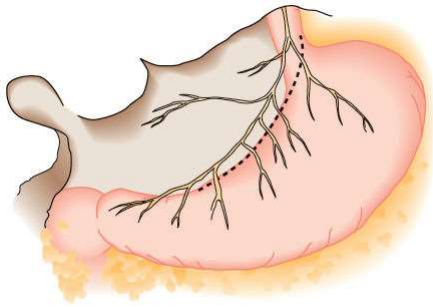
- Reduces dumping syndrome
- High ulcer recurrence rate
  - Antrum remains innervated
- No role in current management

University Transplant
University of Mississippi Medical Center

10

Highly selective vagotomy

- Introduced in 1957
- Divide all gastric division from above GE Jxn -> “crow’s foot”
- Post vagotomy symptoms in 5%
- Ulcer symptom relief in 90%
- ~20% recurrence rate



University Transplant
University of Mississippi Medical Center

11

Highly selective vagotomy

- Outcomes related to surgeon experience
  - Time consuming vs truncal vagotomy
- Indications
  - Very few – PPI allergy?
  - Probably not suitable for medically refractory PUD
    - High acid output
    - High likelihood of recurrence
- Probably not part of the management algorithm

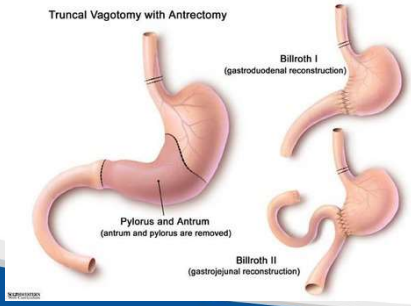
University Transplant
University of Mississippi Medical Center

12

Truncal vagotomy: Antrectomy vs Pyloroplasty

Pyloroplasty

- Lower mortality
- Lower dumping
- Higher ulcer recurrence



Antrectomy

- Highest mortality (other than total gastrectomy)
- Higher dumping, delayed gastric emptying, diarrhea and limb syndromes
- Lowest recurrence
- Can often resect ulcer

University Transplant
University of Mississippi Medical Center

13

Antrectomy vs. Pyloroplasty

Comparative Analysis of Vagotomy and Drainage Versus Vagotomy and Resection Procedures for Bleeding Peptic Ulcer Disease: Results of 907 Patients from the Department of Veterans Affairs National Surgical Quality Improvement Program Database

Sebastian G de la Fuente, MD, Shukri F Khuri, MD, FACS, Tracy Schifftner, MS, William G Henderson, PhD, Christopher R Mantyh, MD, FACS, Theodore N Pappas, MD, FACS

JACS 2006

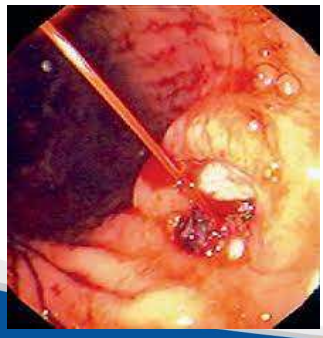
- No difference in:
  - Re bleeding
  - Mortality
  - Resection increased LOS

University Transplant
University of Mississippi Medical Center

14

Indications for vagotomy

- Very limited role
- Failure of medical therapy
  - Allergic to PPI



Role of Vagotomy to Treat Peptic Ulcer Disease

PERFORATION	OBSTRUCTION	BLEEDING	INTRACTABLE PAIN
Vagotomy: -Rarely used 1.) Duodenal – Laparoscopic or Open Graham Patch 2.) Gastric – Resection of perforation	Vagotomy: -Indicated (coupled with antrectomy) for high recurrence risk patient.	Vagotomy: -Indicated if bleeding occurs on active PPI treatment. 1.) Duodenal – Laparoscopic or Open oversew of bleeding 2.) Gastric – Resection of bleeding ucler	Truncal Vagotomy (*with antrectomy or hemi-gastrectomy*): -Indicated only after failed medical treatment

Lagoo et al; *Am J Surg; 2014*

15

Summary

- Acid reducing surgery still has a role, albeit limited, in the modern era.
- Less than truncal vagotomy has extremely limited to no application currently.
- Truncal vagotomy with antrectomy or pyloroplasty is the go to procedure.
- Indications are limited to those patients with obstruction or PUD refractory to PPI.

University Transplant
University of Mississippi Medical Center

16