Selective Vagotomy with Pyloroplasty in Treatment of Peptic Ulcer perforations, total of 30 cases

by Dr. Anandlal B. Kothari,

^oMS, FRCS, FICS, FICA, FACCP, FICA, FCGPI, FRSM, FACS, MCICD.^o

Surgery of Digestive apparatus has two fold objects; Surgery of choice for surgical lesions or 'emergency surgery'.

Before Independance, in 1949, my part of western India records meagre cases of peptic ulcers, common being the cases of Appendicitis and Gall Bladder diseases. Gastrointestinal perforation is one about which perrineal discussions occur world over. These perforations are so serious as to be a matter of life and death & as such require an urgent attention and early recognition. During recent years much has been done to lower the mortality from this catastrophe by early recognition, adequate treatment for shock and sepsis and early surgical intervention.

In our hospital, during last five years from 1970 to '74 there were 225 cases of Gastrointestinal perforations, 137 of them being of peptic ulcer perforation. Addition of 23 cases of peptic ulcer perforations treated by us in 1968 & 1969 brings to the total of 160 cases.

The present essay paper deals with the study & follow up of 30 cases of Peptic perforations treated by us in first three years, ('68, '69 & '70) with immediate selective Vagotomy and pyloroplasty as the treatment of choice.

Simple suture of the peptic ulcer perforation still holds the pride of place as the

^o Hon. Professor of Surgery, S.S.G. Hospital & Medical College, Baroda..

treatment of choice in most centers in India though occasional reports of partial gastrectomy or complete conservatism in the treatment are published. That is why much discussion is evoked in the treatment of peptic ulcer perforation as one has to mainly consider two problems. The problems are (i) an episode that threatens life—acute emergency and (ii) the crippling effect of an already existing ulcer—operation of choice for the same.

To tackle this second problem, available surgical procedures are (i) Sub-total Gastrectomy (ii) Truncal Vagotomy with drainage procedure (iii) Selective Vagotomy with Pyloroplasty (iv) Vagotomy with Antrectomy and (v) Parietal Cell Denervation i.e. supraselective vagotomy. Subtotal Gastrectomy in an emergency of Duodenal ulcer perforation still gives 5% to 10% mortality in 24 hrs even in suitable cases at various hands. Truncal vagotomy gives bad intractable type of Diarrhoea and denervates the vagal fibres going to liver, Gallbladder etc, making them prone for gall stones late in life. Supraselective vagotomy or parietal cell vagotomy has not been practised by us. Thus to keep the low mortality rate and to avoid late second operation for surgical disease peptic ulcer, the operation of Selective Vagotomy with pyloroplasty has been our choice as the treatment of perforated peptic Ulcer. This emergency treatment is treating emergency as also treatment of the Disease itself.

The essential features of Selective Vagotomy & Pyloroplasty:

In this operation, hepatic branches of anterior Vagus and Coeliac Division of posterior vagus nerve are preserved and aims at denervation of stomach.

The denervation leads to gastric stasis and fermentation of food. Drainage by pyloroplasty avoids stasis. Mr. Berge (The originator of selective vagotomy) believes stasis is the cause for the development of Gastric Ulcer. Pyloroplasty maintains normal passage for the digested food to go to duodenum from stomach. In a perforated Duodenal Ulcer or pyloric ulcer, pyloroplasty is an easy procedure and also allows detection of bleeding from the ulcer if any. In our cases pyloroplasty is done by making 3.5 cm incision on pylorus and 2.5 cm incision on Duodenum through perforated area. Incision also divides pyloric ring. Pyloroplasty is done in one layer using interrupted unabsorbable Cotton thread No. 40. For ligature of vagal fibres, cotton No. 8 is used. This one layer closure avoids in-folding of tissues & diminution of lumen. For 72 hrs perforation, excise oedematous margins & do Pyloroplasty P-o fluids are given in 8 to 12 hrs after open Clinical Features & Early diagnosis :

The pathological process of peptic ulcer perforation presents in three progressive steps :

(a) A stage of prostration or primary shock.

- (b) The stage of reaction—masked peritonitis.
and (c) The stage of frank peritonitis with toxic shock.
(i) "Local tenderness is the key to the site of perforation"

(ii) To quote Moynihan, The Agony suffered by the patient is almost beyond belief and is written on every line of face that speaks of torture". The clinical picture is as stated above is of Shock, plain and "Board Belly" and not infrequently accompanied by vomiting. Initial symptoms of shock, pain and depression of vital functions consequent to flooding of peritoneal cavity with gastric contents, are folloed by temporary period of symptomatic improvement, if spillage has not been excessive.

When the patient is examined the abdomen is immobile and the patient is unable to raise himself by means of abdominal muscles. (Granville Chapman). There is altered abdomino-thoracic rhythm. Always examine the patient on flat bed even if he is placed in Flower's position. The temperature, pulse, respiration blood pressure and W.B.C. Count may not be greatly affected until septic peritonitis begins.

During first six to eight hours peritonitis is purely chemical. If there is increased pulse rate, it denotes peritonitis. Pain may be referred to right shoulder due to irritation of Rt. diaphragm. If contents leak along the root of mesentery by gravity, pain is referred to lower abdomen.

Shock of perforation inhibits peristalsis and intestinal secretion, thus removing the barrier of bacterial growth activity.

Point to the place where it hurts you now'— is not a sign of great value in perforated peptic ulcer. "Point to the place where pain started—quite frequently there is a finger pointing to the epigastrium. In Duodenal Ulcer perforation, ascending colon acts as watershed & directs the escaping fluid to the Right Iliac Fossa. Rigidity is thus more extreme & extensive.

When perforation is sealed by omentum, the patient, moves about and rigidity is very high just beneath the costal margin.

Gravity of peptic perforation varies directly with pulse rate and so if you wait for pulse rate to rise to 120 to 140, majority will die. Percussion in midaxillary line helps in diagnosis. X-Ray in standing position or screening is a clue to diagnosis.

STUDY OF OUR CASES:

Sex : all cases of duodenal ulcers are in males mostly. Only three cases were pyloric ulcers

Age Groups :

Majority of cases were between 21 to 60 years (between 20 to 50).

Duration : (when cases arrived after perforation to Hospital).

Majority came with 4 hrs to 12 hrs. Rate cases were brought to hospital after 30 hrs to 60 hrs of perforation.

Precipating cause :-

Indian observed indiscretion of food was related to perforation. In our series it was not so,, Starvation & worry played part to precipitate perforation in 70% of the cases.

Post-operative Complications & follow up of 30 cases for one to five years, as only the cases treated in 1968, 69 and 70 are taken in the study:-

One case expired on sixth day after operation due to sudden Coronary attack. Two died due to intercurrent disease. One expired due to peritoneal toxæmia. Two cases of perforation had also Cirrhosis of Liver. Two cases developed paralytic ileus but recovered. Other postoperative complications noted were Gas in cases, four had mild dumping, one had prepyloric dilatation. None had Diarrhoea of any significance.

Mortality: There is no operative Death due to operation.

Differential Diagnosis:

Features distinguishing Certain Disorders from Perforated Ulcer

Disorder	Their distinguishing features.
Biliary or renal Colic	history/jaundice/haematuria/liver dullness present/no pelvic peritoneal tenderness/pain radiating to subscapular region (in biliary colic) limited to one side & radiating to testis.
Pleuro-pneumonia.	presence of lung signs/greater respiratory rate/alae nasi/fever, raised pulse rate/no pelvic peritoneal tenderness/ liver dullness present.
Ac. Pancreatitis.	Pain even more agonising/commonly referred to back: shoulder top pain rare/abdominal rigidity localised, and less constant,/cyanosis, jaundice slight, vomiting mild distention of abdomen/patient often overweight.
Appendicitis.	Less intense initial collapse, less severe symptoms, not extensive rigid abdomen/normal liver dullness/no shoulder pain, pain over acromion or clavicular region.
Int. Obstun.	Abdominal wall flaccid/vomiting, early, changes to faeculent type in later stages.

Ectopic	Blanching of lips, nails, tongue, sclera/absence of true abdominal rigidity/ dull liver in axillary line-mid axillary.
Dissecting Aneurysm	Thoracic origin of pain/no free gas in peritoneal cavity/Reduction or absence of pulse in lower limbs.

Discussion:

Economic considerations motivated to follow procedure that avoids second operation and also to reduce mortality figures. Simple suture or conservative treatment does not cure the patient of ulcer & so second operation necessitated. In no case peritoneal drainage was done. Except in one case developing Sub-diaphragmatic abscess, there was no case of residual abscess. The operation is safe, technically easy, economically suitable and is based on sound physiological principles to cure ulcer.

SUMMARY:-

- (1) 30 cases of perforated peptic ulcer analysed.
- (2) Preoperative diagnosis and screening or X-Ray are required.
- (3) Early ambulation and normal fluid intake within 12 hours after operation are stressed.
- (4) Second operation at a later stage for ulcer is avoidable.
- (5) Selective Vagotomy with pyloroplasty is based on sound physiological principles and is economical even when done in perforation.

I thank superintendent S.S.G. Hospital to allow me to use hospital records. My thanks are due to my registrar and house staff who got the statistics compiled. I also thank Anaesthesia and X-Ray departments for valuable help.

I thank Organising Secretary & President, Nepal Medical Association to call me to speak on such common emergency amongst perforations.

(Read on 3/April, 1975 in Kathmandu (Nepal))

Selective Vagotomy with Pyloroplasty:**Slide:**

1. Medical College
2. Distribution of Parietal Cell Mass in Stomach
3. Anatomy of Vagus Nerve (Subdiaphragmatic Course) Course supplying Stomach.
4. Stomach with Vagus Nerve (ant)
- 4.(a) Vagus fibres plexiform to stomach (ant)

5. Pointer showing site of 1st hole on Rt. side of Descending branch of left gastric artery
- 5.(a) Four holes site for putting the tubes in Burge's Operation
- 5.(b) Schematic representation of putting three tubes through four Holes.
6. Tubes put as seen in operation.
7. Completion of Selective Vagotomy sparing ascending branch of left Gastric artery.
8. Burge's Manometer in use
9. Oesophageal Cuff Tube passed.
10. Manometer Used (Bunge's Test)
11. Opening of Pylorus & Duodenum for Pyloroplasty by Heineke-Mikulicz Method.
12. Pyloroplasty completed in one layer.
13. Duodenal Ulcer Perforation, site being tenderness on Rt above
14. Differential Diagnosis for Acute abdomen and sites of pain.
15. Gastrointestinal perforations in five years at S.S.G. Hospital
16. Male & Female ratio of perforations (Sex Incidences)
17. Age Distribution of Perforations of Peptic Ulcers.
18. Perforations in each age & sex group.
19. Differential Diagnosis of Perforations.
20. Comparison of Acidity after Vagotomy & Selective Vagotomy.
21. Complications in our cases as noted with five years follow up.