

EXPERIENCES IN THE SURGICAL TREATMENT OF PEPTIC ULCER* ON THE INDO-NEPAL BORDER

A REVIEW OF GASTRIC SURGERY IN
THE DUNCAN HOSPITAL, RAXAUL (BIHAR) 1960-1968

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Introduction

In the last twenty years there have been three phases marked by different surgical approaches in the treatment of peptic ulcer. In the first phase, when we had very limited staff and facilities, we operated on many cases of pyloric stenosis and performed simple gastro-jejunostomies. In the second phase, we operated in addition, upon a large number of patients with non-stenosing duodenal ulcers, and performed partial gastrectomies. In the third phase, we have been doing vagotomies and gastro-jejunostomies on all types of duodenal ulcer. This paper will be concerned with an evaluation of some of the features of this surgical programme during the last five years of the partial gastrectomy era (1960 to 1964) and the first four years of the vagotomy and gastro-jejunostomy era (1965 to 1968).

Observations and investigations have been mainly clinical and not biochemical. Statistics in the follow-up period are almost non-available and so deductions must be tentative.

In spite of these serious limitations we feel that the review of this large number of patients shows some significant features.

Incidence

Peptic ulcer is undoubtedly an extremely common disease in this area of the Nepal Tarai and adjacent north Bihar. A rough estimate of the patients treated in our out-patient department suggests that about 10% of them are suffering from peptic ulcer. The surgery of peptic ulcer also occupies a large place in our overall surgical programme. Out of 10,586 major operations performed in the past nine years (1960 to 1968), 953, or approximately 9% were for peptic ulcer.

The incidence of gastric ulcer is very low indeed in this area. At operation, we found, out of a total of 933 peptic ulcers, only seven gastric ulcers, the remainder being duodenal (920), and stomal or gastro-jejunal, 6. This relative incidence of gastric and duodenal ulcer (1 to 120) is in marked contrast to that found in many other parts of the world where the ratio is about 1 to 4. There is however one finding similar to other countries, and that is the fact that men are found to suffer from peptic ulcer very much more commonly than women.

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It is interesting to note that the number of peptic ulcer patients coming for treatment in the months October to March is twice the number coming in April to September. We feel that this is not fully accounted for by the fact that patients seeking surgical treatment will tend to come in the cooler months. There appears to be a seasonal flare-up in the ulcer symptoms of many patients at this time of the year.

Mode of Presentation

The majority of patients present themselves for surgical treatment because of frequent relapses and failure to respond to medical treatment. A considerable number come because of intractable vomiting due to having developed a serious degree of pyloric stenosis. Patients with already perforated ulcers are commonly seen and they are admitted as emergencies. Bleeding ulcers presenting either as haematemesis or melaena, are much less frequently seen. It would appear that in this area we can say quite definitely that duodenal ulcers tend to stenose rather than bleed. This is a very fortunate trend as the treatment of large numbers of bleeding ulcers would pose a most difficult problem in an area where adequate blood transfusion remains a serious difficulty. In this series, we have treated only one case of bleeding ulcer in the bleeding phase, because of the non availability of large supplies of blood. We have, however, been able to operate on several patients following recovery from serious haemorrhages.

Investigations

In addition to every effort being made to obtain a full clinical history, a barium meal X-Ray examination is done in almost all cases. A careful fluoroscopic examination is done to determine especially the appearance of the duodenal cap. Five minute and three hour plates are taken in addition. During the last three years, 2376 barium meal X-Ray examinations have been done, and more than half of this number, 1125, indicated the existence of duodenal ulcer. Some 35 gave evidence of either gastric or extra gastric tumours. 1052 were negative for peptic ulcer. In 167 cases there were doubtful findings and it was impossible to be dogmatic about the radiological diagnosis. One of the most important radiological findings may be the serious degree of delay in stomach emptying in those patients with a stenosed duodenal ulcer. The demonstration of such delay in emptying will have an important bearing on the pre-operative treatment, necessitating the patient being admitted for a few days prior to operation for stomach wash-outs.

Management of Cases of Perforation

Perforation cases are dealt with in three main ways. First, the common type of late case with established peritonitis and distension and a serious degree of collapse. These patients are given sedation, antibiotics and prolonged intravenous infusion is carried out. A Ryle's tube is passed and frequent repeated aspirations of the stomach are made for several days. When the stomach is found to contain a large amount of solid food, a full size stomach tube is passed to empty the stomach rapidly, and then the Ryle's tube is passed and left in place for continued aspirations. A surprisingly large number of patients in this group

Experiences

respond to this conservative approach. After a few days it often becomes necessary to drain a collection of fluid and pus. Sometimes several drainage operations are required before recovery is complete.

The second group of perforation cases is constituted by those patients that come for treatment within 8 or 10 hours and an immediate operation is possible. After suture and closure of the perforation, toilet of the peritoneal cavity is carried out. In frankly purulent cases a drainage tube will be placed in the pelvis. If the general condition of the patient is satisfactory, we perform a vagotomy and gastro-jejunostomy in an effort to effect radical cure. We have never attempted a partial gastrectomy in this hospital in conjunction with the treatment of perforation. We feel that with vagotomy and gastro-jejunostomy, which can be speedily carried out with virtually no blood loss, we have a much safer procedure to follow, and a proportion of the early cases of perforation can be subjected to this operation.

The third group is made up of those patients which we have come to call leaks. They have had a spill of gastro-duodenal contents into the general peritoneal cavity, the perforation has quickly sealed over, and they are left with a localised peritonitis along the right side of the abdomen or may be, just in the right upper abdomen. These patients are treated conservatively in a manner similar to the acutely ill patients in the first group. They generally respond fairly rapidly to this regime of treatment and drainage is rarely required.

Partial Gastrectomy Series

Until March 1965 we were doing partial gastrectomies on all patients with peptic ulcer who, we felt were fit enough to stand the operation. We did a simple gastro-jejunostomy on those patients who had very advanced pyloric stenosis and whose general condition did not allow of our doing a partial gastrectomy. In the period under review, there were between 1960 and March 1965, 330 partial gastrectomies and 101 gastro-jejunostomies. Our routine for these gastrectomy patients was kept as simple as possible and we made very few variations in our treatment either pre-operatively or post-operatively. A Ryle's tube was passed nasally the evening before operation and kept in situ for three or four days after operation. This means that the stomach is nearly always well emptied at the time of operation. The evening before operation, 120 mgm. phenobarbitone was given by mouth. A pre-operative injection, of 50 mgm. chlorpromazine was given intramuscularly. Routine injections of procaine penicillin, 800,000 units daily for five days, were commenced on the morning of operation. Spinal anaesthesia was employed routine. Heavy Nupercaine was used in the early part of the series and Xylocaine (5% Lignocaine hydrochloride) in the remainder. On opening the abdomen, 60 to 80 ml. 1% procaine hydrochloride was infiltrated into the abdomen, when the effect of the spinal might have been wearing off towards the end of the operation. Another 50 or 60 ml. was infiltrated around the stomach omentum along the left gastric artery towards the coeliac plexus and also into the upper part of the jejunal mesentery. If the spinal anaesthesia was inadequate for the completion of the operation and closure of the abdomen, a general anaesthetic was used. In all cases, an I.V. drip for saline and

glucose infusion was commenced immediately after the administration of the spinal anaesthetic. This drip was continued for a period which varied from 12 to 48 hours post-operatively.

We aimed in most cases to remove between $\frac{1}{2}$ and $\frac{2}{3}$ of the stomach and did a P type reconstruction. We did not try and make any 'valve effect' on the afferent loop, has been done by Hofmeister and Finsterer. Aspiration of stomach contents was continued postoperatively four or five days, and the Ryle's tube was removed when the new stomach was considered to be functioning well. We have been unable to invaginate the duodenal stump in most cases due to the very extensive scarring and induration of the duodenal wall. It is not surprising therefore that there has been a significant morbidity due to duodenal leaks, or "blowing of the stump" as it is called. We have had to operate on 8 cases out of these 330 gastrectomies, for this reason in the post-operative period, that is on 2.4% of the total number. Apart from chest complications this has provided the only really serious morbidity and reason for anxiety in the post-operative treatment of these patients.

Vagotomy and Gastro-jejunostomy Series

Since March 1965 up to the end of 1968 we have performed 403 vagotomy and gastro-jejunostomies for duodenal ulcers. We have done 6 vagotomies for patients who presented with stomal or gastro-jejunal ulcers. The pre-operative preparation of these patients includes daily stomach wash-outs for all patients with severe delay in stomach emptying. This procedure is carried out for three or four days as the case may require. The majority of patients are admitted on the day before operation. A Ryle's tube is passed into the stomach in the evening before operation and is used for pre-operative and post-operative aspiration of gastric contents. 120 mgm. phenobarbitone is given orally in the evening before operation. An injection of 25 mgm Promazine hydrochloride is given intramuscularly one hour before operation. Daily injections of procaine penicillin, 800,000 units are commenced on the morning of operation, and continued for five days. An intravenous drip saline is commenced immediately after administration of the spinal anaesthetic. (2 ml Xylocaine Spinal; 5% Lignocaine hydrochloride). 15 mgm. Mephentermine sulphate are administered I.V. through the drip as soon as it is set up. Another dose may be required later if the patient shows signs of hypotension or bradycardia.

Following a general inspection of the whole abdomen, the vagotomy is first performed. We do a total, not selective, vagotomy. With good retraction of the stomach downwards and of the left lobe of the liver upwards, we find that we do not need to divide the left triangular ligament of the liver. After opening the peritoneum in front of the lower end of the oesophagus we divide the anterior nerve first and then place a narrow rubber tube around the oesophagus. This assists greatly in retraction and visualisation of the posterior branch of the vagus which is divided, or divided, and partly excised. A couple of cotton sutures are inserted to repair the transverse incision in the peritoneal layer in front of the oesophagus. We have not found any cases of hiatus hernia during these operations, and we have not come across this complication following operation.

To provide adequate gastric drainage after vagotomy, we regularly employ a large stomal gastro-jejunostomy. We have found the short loop posterior retro-colic anastomosis

Experiences

very satisfactory procedure. We have no inclination to try pyloroplasty as an alternative. We feel that it is a more tedious operation and would be more dangerous for the patients in our hands. We are happy to keep away from the scarred, thickened and sometimes oedematous duodenums which we see in so many of these cases. The post-operative care of these patients includes strict attention to deep breathing exercises, early mobility of the patients and gastric aspiration. Oral fluids are gradually increased and given in measured amounts and the saline and glucose infusion is discontinued after the patient has received 2 to 5 litres depending on the degree of hydration reached.

In this series of 403 vagotomies and gastro-jejunostomies, we have had no post-operative leaks, and indeed the only serious morbidity arises from post-operative chest complications which have to be recognised and treated most energetically.

Peptic Ulcer and Concomitant Pathology

It is not uncommon to find dual pathology and the most usual and significant finding is some form of gall bladder disease. In this series of 403 vagotomy — gastro-jejunostomies, we have found and operated on 19 diseased gall bladders. The operation done has generally been a cholecystectomy. Because gall bladder disease is, itself, a very common disease in this area, we cannot make any serious deductions from these figures. During the time covered by this series in the last four years we have operated on 214 other cases of gall bladder disease.

Carcinoma of the stomach was found in 25 cases in the last four years. In a few cases with no general spread, we have been able to do a partial gastrectomy. In those cases which were not completely inoperable we have done a palliative gastro-jejunostomy.

Conclusions

We are now cautiously enthusiastic about the procedure of vagotomy and gastro-jejunostomy for chronic duodenal ulcer cases in this area, for the following reasons:

1. It appears to be a safe operation. There is also a very small morbidity rate, apart from chest complications which do not seem to be significantly more frequent than after any other abdominal operation.
2. The patients seem to be very comfortable and satisfied after this operation. There has been a complete absence of any serious complaints from patients who have come back to see us for any reason. Post vagotomy diarrhoea does not appear to be a problem in this part of the world and if there is a slight looseness of the bowels it is probably appreciated.
3. This operation brings the opportunity of radical surgical cure within the reach of almost all patients, even the poor risk patients, who would certainly not be suitable for a gastrectomy. It is a curative procedure for such serious complications as very advanced pyloric stenosis. Even relatively anaemic patients can be safely subjected to this operation. In this whole series we have never been required to give a blood transfusion because of anaemia. We have delayed some operations until the haemoglobin level was up to at least 5 or 6 G%.

4. This operation in which the normal stomach capacity is preserved, seems to be tailor made to the dietary habits of the people, who are accustomed to large bulky and twice a day meals. The small stomach remnant after a high gastrectomy does not so easily accommodate these large meals.
5. These should be less interference with iron and mineral absorption than after partial gastrectomy, although we have ourselves not seen any cases of serious nutritional disturbances in our own series of gastrectomies.

We count ourselves privileged to have been able to bring this branch of surgery within reach of many patients in this area.

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I wish also to record my very great appreciation for the long hours of diligent hard work on the part of the operation theatre staff, which has made it possible for us to handle surgically so many peptic ulcer patients in this hospital.

The splendid nursing care given in the wards to all these patients has ensured the maximum comfort and has been a major reason why so many of them have recovered their well being and returned to their homes to live and work again.

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