THE ROENTGENOLOGIC DIAGNOSIS OF JEJUNAL OR MARGINAL ULCER

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PROMPTED by a desire to improve our accuracy in the roentgenologic diagnosis of marginal or jejunal ulceration, we reviewed all cases in which exploration had been carried out because of a provisional diagnosis of such ulceration. Fifty-six patients who had been operated upon within six months of roentgenologic examination are included in this series.

Of these 56 cases, a marginal or jejunal ulcer was found at surgery in 37 patients. Scarring at the site of anastomosis without evidence of ulcer was evident in two patients, a jejuno-gastro-colic fistula was found in four instances and a gastroileostomy in two. In 11 cases there was no evidence of ulceration.

In the 37 surgically proved ulcers a positive radiographic diagnosis had been made in 19. An equivocal diagnosis had been made in seven and a negative diagnosis in 11 cases. This corresponds to the findings of Priestley and Gibson[1] who report 52 per cent accuracy in the roentgenographic diagnoses of marginal ulcers.

Ulcers were presumed to have been present in both cases in which scarring was found at the site of anastomosis.

Correct diagnoses were made in three cases of gastro-jejuno-colic fistula prior to surgery, and in one case of gastroileostomy.

Of the 11 negative explorations, correct preoperative diagnoses were made in five, equivocal diagnoses in three, and positive or incorrect diagnoses in three cases.

Twenty-four patients with proved ulcer had had simple gastroenterostomies; in five, gastroenterostomies had been combined with vagotomies; seven had undergone subtotal gastric resections and, in one case, the original surgery was not recorded. For obvious reasons these figures do not indicate the relative incidence of ulceration following the various types of gastric surgery.

The average interval between radiographic diagnosis and final surgery was 28 days. The longest period was six months and the shortest, one day.

The average interval between the initial surgical procedure and final exploration was eight years. Thirty-one years was the longest period of time, and three months the shortest. Thus it is seen that ulceration developed within three months of the original surgery in one case in this series.

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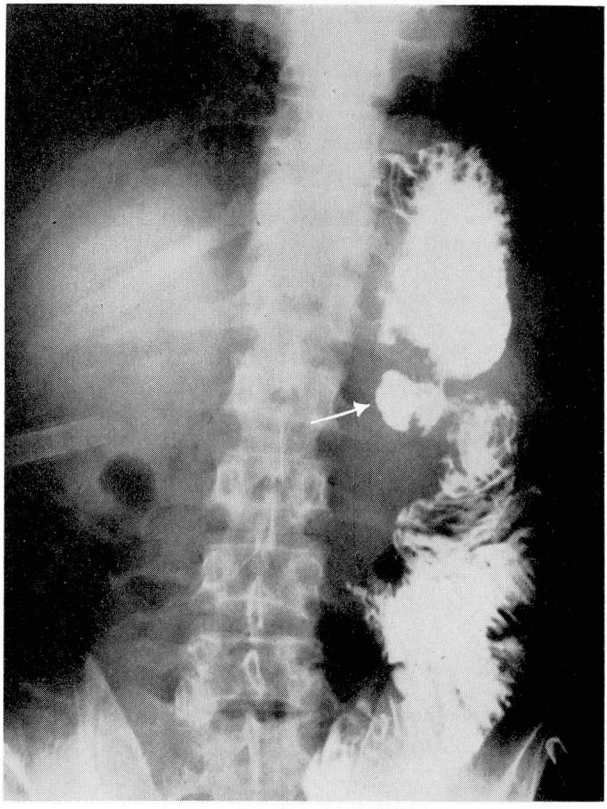

FIG. 1. (a) Subtotal gastrectomy and gastrojejunostomy with subsequent jejunal ulceration. The large collection of barium (at arrow) represents a walled perforation.

Thirty-two ulcers were found in men and five in women. While this of course does not necessarily indicate the relative incidence of ulceration in men and women, it is in agreement with the figures of Beck[2] who found that 12.5 per cent of marginal ulcers occur in women.

Review of Films

Upon consideration of the preceding figures it was felt that the accuracy of diagnosis might be improved if the films were reviewed. Reexamination of these films disclosed a great variation in ulcer size: surgical reports showed that they varied from 0.3 to 3.5 cm. in diameter. These reports did not differentiate simple ulcerations and those ulcerations which had perforated and subsequently walled off. Undoubtedly those which are several centimeters or more in depth

represent the latter condition. Radiographically these are seen as large collections of barium representing the extent of the walled off perforations. Several of these had been mistakenly diagnosed as "surgical pockets."

Although the actual size was not recorded in all cases, it is apparent from the films that the walled off perforations may reach 4 or 5 cm. in diameter (fig. 1a).

Those which represented simple ulceration usually showed smooth shallow crater formation, and the large walled off areas of perforation usually showed slight irregularity of outline. Most cases demonstrated large folds in the jejunum which appeared to radiate from the site of ulceration (fig. 2). In one case filling of the ulcer crater was apparently prevented by obstruction of the jejunum, presumably secondary to the ulceration (fig. 3). Eusterman and Kirklin[3] found that 77 per cent of patients with obstruction of the jejunum had associated ulceration.

From the surgical reports it was not possible to determine the exact location of the ulceration in all cases, but the majority of ulcers were located in the

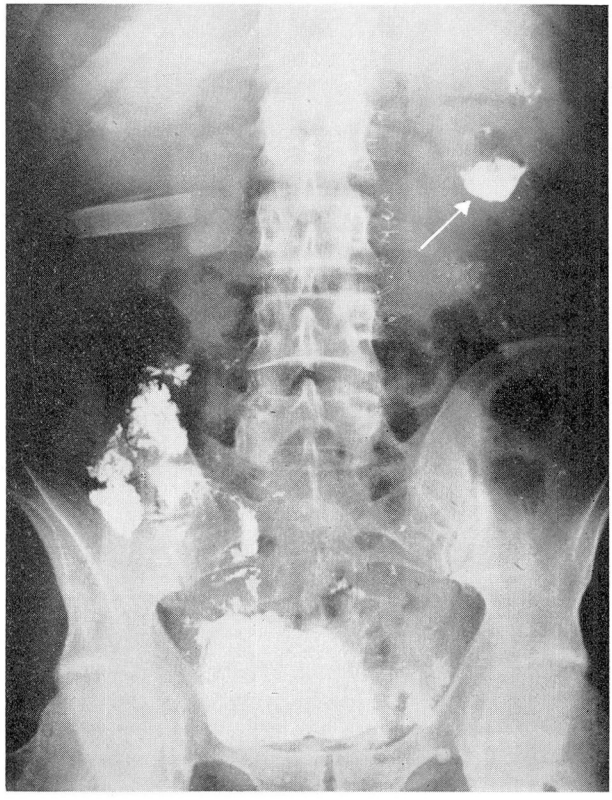

FIG. 1. (b) Six hour retention film demonstrating retention of barium in the large crater.

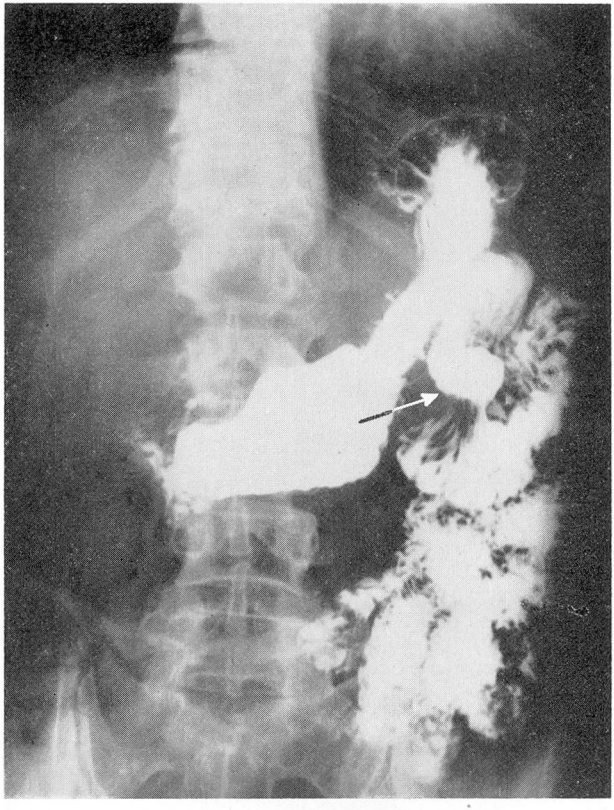

FIG. 2. Gastroenterostomy with subsequent jejunal ulceration demonstrating characteristic radiating mucosal folds.

jejunum several centimeters from the stoma. In only one instance was the ulcer actually "marginal," i.e., located at the stoma.

Of 13 of the 37 cases demonstrating marginal ulceration, retention films were made from 3 to 24 hours following the examination. In each of these, barium was retained in the crater (fig. 1b). In some patients, however, considerable barium was retained in the intestinal tract, obscuring detail so that accurate localization of the crater was not always possible.

Technic of Examination

As a result of this study a modified technic for the examination has been instituted for patients with suspected marginal ulceration.

The patient is first given one swallow of barium mixture under fluoroscopic control. Spot films of the stoma are made and, subsequently, anterior-posterior and posterior-anterior survey films. The entire cup of barium is then given.

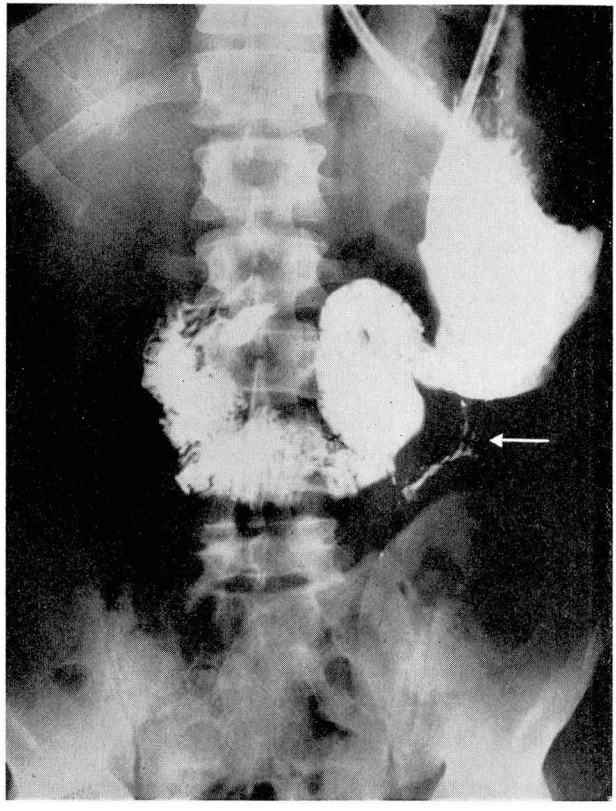

FIG. 3. Subtotal gastric resection with gastrojejunostomy. Arrow points to narrowed obstructed efferent limb of the jejunum. A large associated jejunal ulceration was found at surgery.

Spot films are taken in upright and horizontal positions. Following this, anterior-posterior, posterior-anterior, right anterior oblique and left posterior oblique films are made.

A four hour retention film is then taken and reviewed in conjunction with the preceding ones. If the diagnosis of ulceration is not confirmed or excluded, a repeat fluoroscopic examination is performed with particular attention to any suspicious, retained flecks of barium.

In the few patients we have had the opportunity to examine since institution of this technic, the accuracy of diagnosis appears to have been greatly improved, but a sufficient number of cases has not been accumulated to permit accurate evaluation.

Summary

1. A series of 56 patients explored for jejunal ulcer has been reviewed.

2. Review of the films has demonstrated that marginal ulcerations with subsequent perforation may reach the unusually large size of 4 or 5 cm. in diameter.

3. Characteristic radiating folds of jejunal mucosa frequently occur about the area of ulceration.

4. Every retention film made demonstrated retained barium in the ulcer crater.

5. A technic is described which we believe will improve the accuracy of roentgenologic diagnosis of marginal or jejunal ulceration.

References

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