GASTROSCOPY AND GASTRIC COLOUR PHOTOGRAPHY IN THE DIAGNOSIS OF GASTRIC DISEASES

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INTRODUCTION

Ten years ago, gastroscopy played only a minor role in the diagnosis and management of gastric diseases. Gastroscopy was then practised in only a few specialised centres using a few variants of the original Wolf-Schindler gastroscope. At present there are at least 14 types of lens gastroscopes, 22 fiberscopes and 13 gastrocameras available (Morrissey *et al*, 1967). Since then gastroscopy has been shown to be a safe and valuable adjunct to radiography, each procedure complementing the other. This combination of gastroscopy and radiology will enable one to arrive at a much more accurate diagnosis of gastric lesions than either can alone (Hillman and Parsons, 1962). Recently gastroscopy has been used for the early diagnosis of patients with upper gastrointestinal bleeding. This can be done within the first 24 hours of the bleed and together with early radiology has become standard procedure, in the investigation of gastrointestinal haemorrhage, in many centres of the world. In a recent report from Boston, for example, it was found that carefully performed early endoscopy was useful diagnostically in most patients with upper gastrointestinal bleeding and was particularly valuable in those with massive haemorrhage. Diagnostic failure was found to be rare when endoscopy was performed within the first 24 hours of hospitalisation, followed rapidly by radiology (Hedberg, 1966).

In Singapore, gastroscopy had not been performed as a proper routine endoscopic service until very recently. In August 1966, the author started the first routine gastroscopic service in Singapore using a Storz gastroscope. Patients with haematemesis and maelena were gastroscoped routinely within the first 24 to 48 hours whenever possible. As gastric carcinoma is so common here, especially among the Chinese in Singapore (second commonest cancer in Singapore male, Tan, 1968), gastroscopy was performed in all cases presenting with clinical or radiological suspicion of gastric malignancy. Many patients were also gastroscoped for confirmation of gastric ulceration. This report deals with the personal experience of the author in the gastroscopy and gastric colour photography of 205 cases examined with the Storz gastroscope, from August 1966 to August 1969.

MATERIAL AND METHOD

The Storz is a German lens gastroscope with cold-light illumination. For normal viewing, a 10 watt lamp is used, the light being transmitted into the stomach via a fiberoptic bundle built into the scope. This system has the advantage that there is no hot bulb at the tip of the gastroscope. It also enables still and cine photography by attachment of an external camera and flash unit. For colour photography, an Exakta Varex 2b camera was attached to the eyepiece of the scope by a coupling telephoto lens of 135 mm. focal length. Colour film used was Super-Ektachrome (ASA 160) and the light source for still colour photography was an electronic flash unit providing 28 watt second.

Patients were fasted overnight and premedication consisted of injection omnopon gr. 1/3 and atropine gr. 1/100. Gastroscopy was done under local anaesthesia of the oropharynx using 2% amethocaine and the patient was examined in the left lateral position.

RESULTS

The results of gastroscopy in the 205 patients are shown in Tables I to V. Examples of photography of the gastric lesions, as seen through the gastroscope, are shown in Figs. 1(a)-(h) and 2(a)-(h).

DISCUSSION

From Table I it can be seen that the majority of the cases were gastroscoped for upper gastrointestinal haemorrhage. This was done within the first 24 to 48 hours of hospitalisation whenever possible. This early endoscopy in the investigation of gastrointestinal bleeding was most rewarding for, as shown in Table III a definite diagnosis could be made in 80 out o

TABLE I

INDICATIONS FOR GASTROSCOPY

Haematemesis and Maelena -	95 cases
? Gastric Malignancy - -	67 cases
? Gastric Ulcer - - -	43 cases
TOTAL	205 cases

TABLE II

GASTROSCOPIC FINDINGS IN 205 CASES

Chronic Gastric Ulceration -	63 cases (30.7%)
Acute Gastritis and Erosions -	52 cases (25.4%)
Gastric Carcinoma - - -	21 cases (10.2%)
Hypertrophic Gastritis - -	8 cases (4.0%)
Atrophic Gastritis - - -	5 cases (2.4%)
Cardio-Oesophageal Growth -	4 cases
Malignant Gastric Ulcer - -	1 case
Antral Tumour - - -	1 case

TABLE III

GASTROSCOPIC FINDINGS IN 95 CASES EXAMINED FOR HAEMATEMESIS AND MAELENA

Acute Gastritis and Erosions -	38 cases (40.0%)
Chronic Gastric Ulcer - -	33 cases (34.7%)
Gastric Carcinoma - - -	5 cases (5.3%)
Cardio-Oesophageal Growth -	2 cases
Antral Tumour - - -	1 case
Hypertrophic Gastritis - -	1 case

TABLE IV

GASTROSCOPIC FINDINGS IN 67 CASES EXAMINED FOR SUSPICION OF GASTRIC MALIGNANCY

Gastric Carcinoma - - -	16 cases (23.9%)
Chronic Gastric Ulcer (Benign) -	6 cases (8.9%)
Hypertrophic Gastritis - -	5 cases (7.4%)
Atrophic Gastritis - - -	5 cases (7.4%)
Acute Gastritis - - -	4 cases
Cardio-Oesophageal Growth -	2 cases
Malignant Gastric Ulcer - -	1 case

TABLE V

GASTROSCOPIC FINDINGS IN 43 CASES EXAMINED FOR DETECTION OF GASTRIC ULCERATION

Chronic Gastric Ulcer - -	24 cases (55.8%)
Acute Gastritis and Erosions -	10 cases (23.2%)
Hypertrophic Gastritis - -	2 cases
Antral Stenosis (? Ulceration) -	1 case

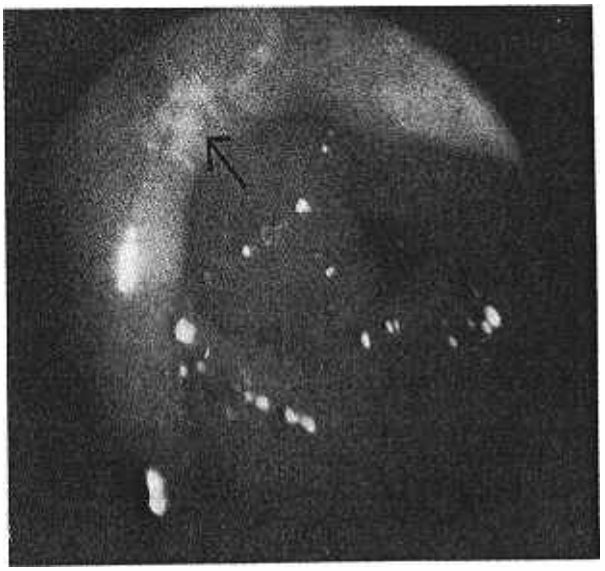

Fig. 1(a). Gastroscopic view of antrum of stomach showing the scarring of a healed gastric ulcer (arrow) on the lesser curve.

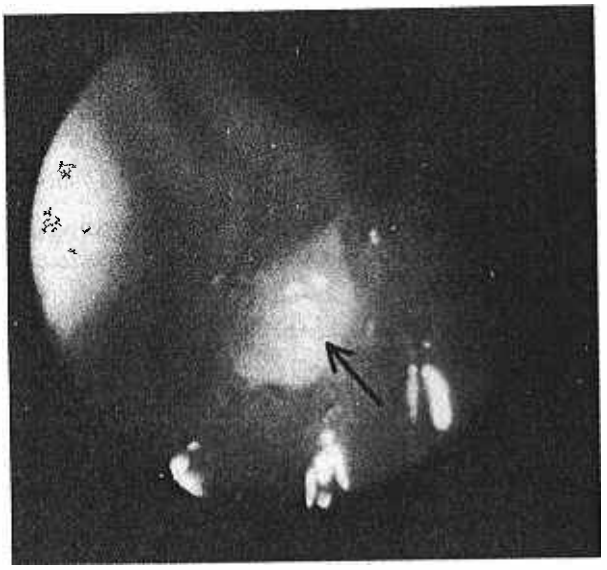

Fig. 1(b). Endoscopic view of a gastric ulcer (arrow) situated on the lesser curve of the stomach.

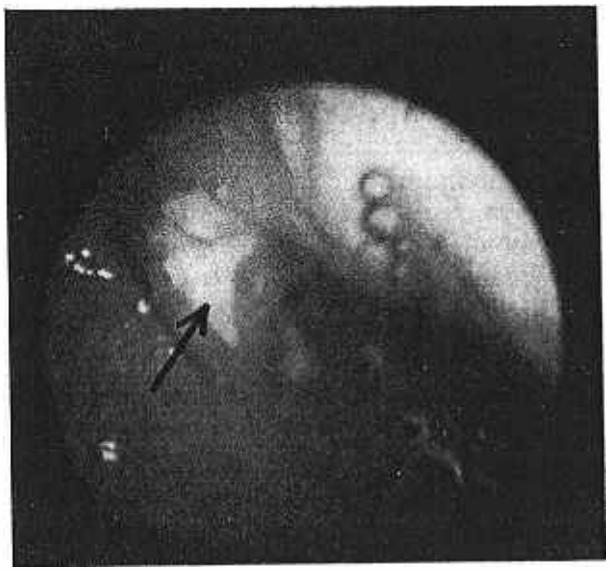

Fig. 1(c). Endoscopic view of gastric ulcer (arrow) on lesser curve of antrum.

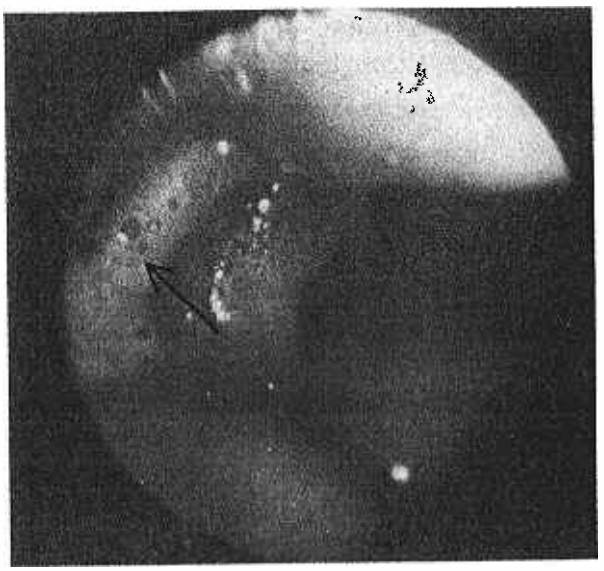

Fig. 1(d). Chronic benign gastric ulcer (arrow) on lesser curve of stomach.

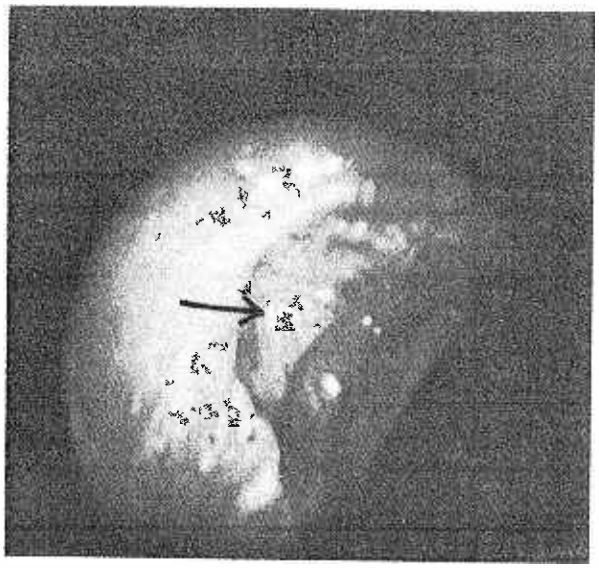

Fig. 1(e). Close-up view of a large chronic gastric ulcer (arrow) on the lesser curve of stomach.

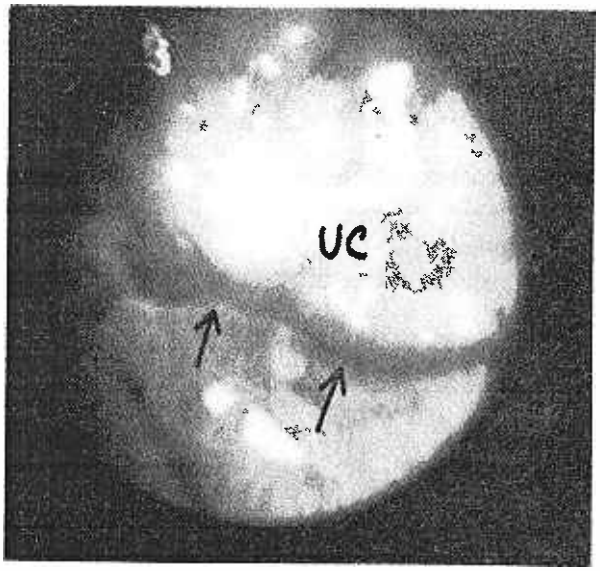

Fig. 1(f). Close-up view of a very large ulcer crater (UC) on the lesser curve of the stomach. Arrows indicate the edge of the ulcer crater. The ulcer was so big that only half the crater can be seen in this picture.

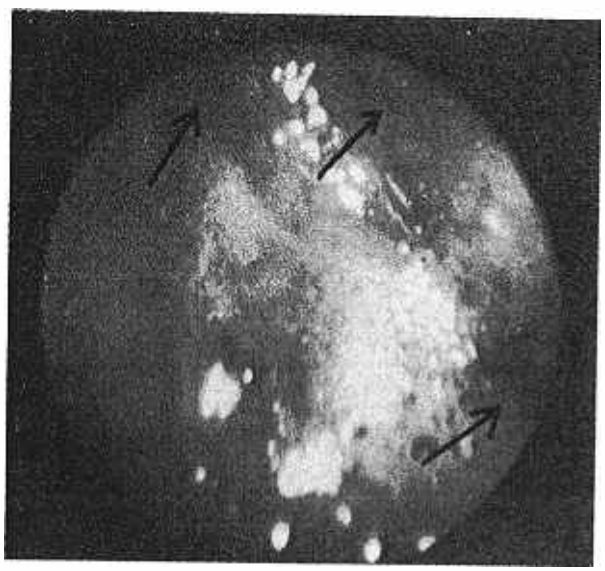

Fig. 1(g). Endoscopic view of the gastric mucosa showing acute gastritis and multiple gastric erosions (arrows) with bleeding.

Fig. 1(h). Endoscopic view of the gastric mucosa of a case of gastric tuberculosis showing areas of acute haemorrhagic gastritis (Red areas) and areas of pale looking atrophic gastritis. Surgical biopsy of the mucosa confirmed the diagnosis.

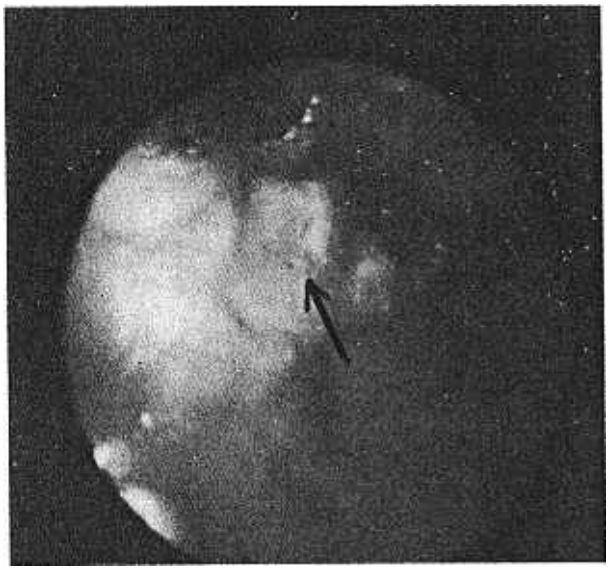

Fig. 2(a). Endoscopic view of an infiltrative carcinoma of the stomach (arrow) with marked narrowing of the antral lumen.

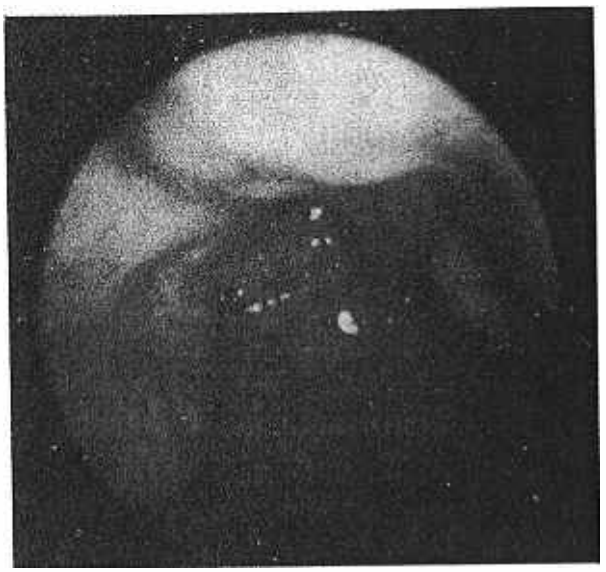

Fig. 2(b). Annular carcinoma of the antrum.

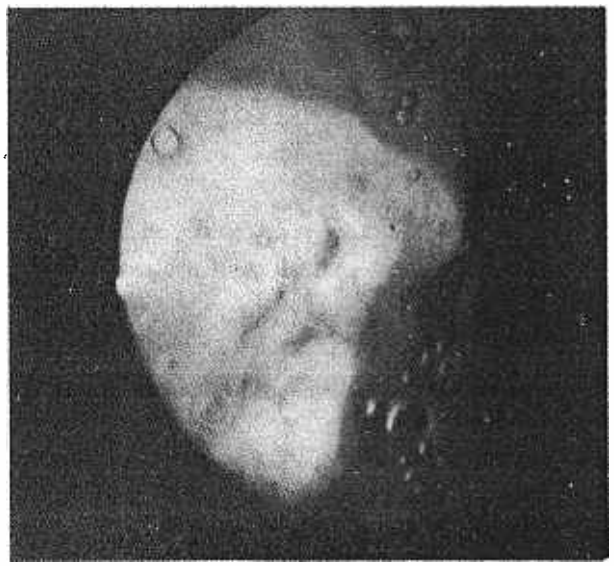

Fig. 2(c). Close-up view of a fungating carcinoma of the stomach.

Fig. 2(d). Advanced carcinoma of the stomach with tumour protruding into the gastric lumen.

Fig. 2(e). Advanced fungating carcinoma of the stomach with haemorrhage from the surface of the tumour.

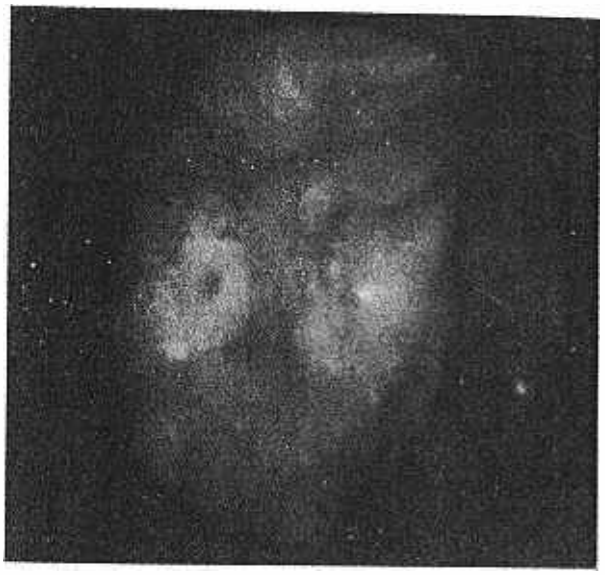

Fig. 2(f). Infiltrative carcinoma of the stomach showing the large rigid infiltrated gastric folds, with some superficial haemorrhage.

Fig. 2(g). Close-up view of a very large gastric fold with acute gastritis in a case of hypertrophic gastritis.

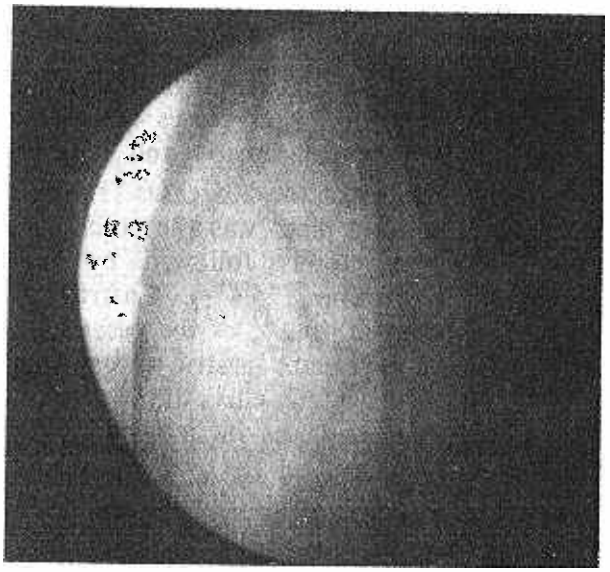

Fig. 2(h). Endoscopic view of the gastric mucosa showing marked atrophic gastritis. Note the marked pallor of the mucosa and the prominent blood vessels which could easily be seen on the mucosa.

95 cases, giving a positive diagnosis in 84.2% of cases. This is in complete agreement with Hedberg, 1966, who reported on the great value of early endoscopy in the diagnosis of upper gastrointestinal bleeding and who goes further to say that accuracy decreases when the procedures are delayed or when radiography is done first.

Acute gastritis and erosions were the commonest findings (40.0%) in cases with haematemesis and maelena, closely followed by gastric ulceration (34.7%). Aetiological factors in cases with acute gastritis and erosions included ingestion of asprin, alcohol and native medicines. Most cases of gastric ulcer were in their late forties, fifties or sixties and they were predominantly male. Gastric cancer was found in only 5.3% of cases gastroscoped for haematemesis and maelena (Table III) showing that it does not commonly present as bleeding. These figures in Table III however do not apply to our overall series of cases with upper gastrointestinal bleeding, as those cases with a typical history of, or radiological evidence of duodenal ulceration, were not gastroscoped. These patients were mostly young men in their twenties.

Gastroscopy was very useful in the diagnosis of gastric carcinoma as a positive diagnosis could be made in 23.9% of cases gastroscoped for clinical or radiological suspicion of gastric malignancy. Malignant gastric ulcer was found in one case.

Gastroscopy was also very helpful in the diagnosis of gastric ulcer as ulceration was confirmed in more than half (55.8%) the cases examined for clinical or radiological suspicion of gastric ulceration. Many cases (23.2%) in this group had acute gastritis and erosions.

Overall analysis of the 205 cases (Table II) showed that gastric ulcer was the commonest finding (30.7%), closely followed by acute gastritis and erosions (25.4%). Gastric carcinoma was seen in 10.2% of the cases. Only one case had malignant gastric ulcer which was situated on the greater curve of the stomach. This case had secondaries in her ovaries. All chronic gastric ulcers on the greater curve of the stomach should be considered malignant until proven otherwise. This is especially important in Chinese since the incidence of gastric cancer in this ethnic group is so high.

In conclusion, routine gastroscopy was found to be extremely useful in the investigation of patients with acute or chronic gastric disease. In patients with haematemesis and maelena it should be done as soon as possible within the first 24 to 48 hours of hospitalisation, and even before radiology is done. In many cases when barium studies failed to reveal any lesion, endoscopy was able to detect the lesion, especially when it was acute gastritis and erosions. The two procedures should however be considered as complementary to each other.

SUMMARY

Gastroscopy, using the Storz gastroscope, was performed as a routine procedure in 205 cases. It was done in 95 cases for upper gastrointestinal bleeding; in 67 cases for suspicion of gastric malignancy and in 43 cases for detection of gastric ulceration. Early endoscopy (within the first 24 to 48 hours of hospitalisation) was found to be extremely valuable in the investigation of haematemesis and maelena, since a definite diagnosis could be made in 84.2% of cases examined. In this group, the commonest finding was acute gastritis and erosions (40.0%) closely followed by chronic gastric ulcer (34.7%) and gastric carcinoma (5.3%).

Gastroscopy was found to be very useful in the detection of gastric malignancy. Gastric cancer was found in 16 out of 67 cases (23.9%) examined for suspicion of gastric malignancy. Only 1 case of malignant gastric ulcer was seen.

Endoscopy was also very helpful in the diagnosis and confirmation of gastric ulceration since the diagnosis could be established in more than half (55.8%) the cases examined.

In the whole series (205 cases) gastric ulcer (30.7%) was the commonest finding, followed by acute gastritis and erosions (25.4%). Gastric cancer was found in 10.2% of the total.

Routine gastroscopy was thus found to be very useful in the diagnosis of acute and chronic gastric lesions.

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REFERENCES

1. Hedberg, S.E. (1966): "Early endoscopic diagnosis in upper gastrointestinal haemorrhage." Surg. Clin. N. Amer. 46: 499-512.
2. Hillman, H. and Parsons, P. (1962): "Gastroscopy—its uses and limitations." Med. J. Aust., 49: 11.
3. Morrissey, J.F., Tanaka, Y., Thorsen, W.B. (1967): "Gastroscopy—A review of the English and Japanese literature." Gastroenterology, 53: 456-476.
4. Tan, K.K. (1968): "Personal communication."