Upper Gastro-Intestinal Endoscopy

Sadiq Shah,* M.B., B.S., M.R.C.P.,
Division of Gastro-enterology,
Department of Medicine,

Postgraduate Medical Institute,
Lady Reading Hospital,
Peshawar, Pakistan

Summary

Two thousand eight hundred and thirty four cases of upper gastro-intestinal endoscopy are discussed in this article, especially as to the main presenting symptoms and the most common lesions seen on endoscopy. The correlation between Barium studies done before endoscopic examination and the endoscopic findings reveal that half of the radiologically 'Normal' and 1/3rd of 'Abnormal' cases were found to have a definite endoscopic lesion. Gastric ulcer had no specific relation to any blood group; while Duodenal ulcer was found to correlate well with Blood group O Rh +ive. About half of those cases who took spicy food and 77% of those who gave a history of smoking showed endoscopic lesions, especially duodenal ulcer.

Introduction

Gastroscopes have had a venerable history. A humble beginning was made in the 1870's when rigid instruments were used to view the gastro-intestinal tract. Sixty years later (1930), semiflexible instruments became a definite improvement on the rigid ones. Gastric cameras in 1950 could photograph gastric pathologies and ten years later fibreoptics with flexible oesophagoscopes and gastroscopes brought in a real revolution in the field of endoscopy. It took another decade before duodenoscopes, pan-endoscopes, colonoscopes, biopsy and teaching aids, cold light and four-way angulation were added to the fibrescopes.

The most upto-date and recent fibreoptic instruments have undoubtedly revolutionised the examination of the gastro-intestinal tract and opened a new chapter in gastro-enterology. Over the past few years, technical developments have unlocked the doors to the duodenum, the papilla of Vater and the entire colon.

*Associate Professor of Medicine and Incharge, Division of Gastro-enterology, Postgraduate Medical Institute; Consultant Physician and Gastro-enterologist, Lady Reading Hospital.

Indeed as a tour de force, it is now technically possible to examine and biopsy the entire gastro-intestinal tract either by passing the instrument from the mouth to the anus or by a combined fore-and aft-approach with consummation in the ileum.

Material and Methods

Upper and lower G.I. endoscopy has recently come of age in our Province. It was not until the middle of 1981 that we, at Lady Reading Hospital, Peshawar, started providing endoscopic service to our in-patients and the public at large on an out-patients basis.* (Fig. 1–3 are normal).

To-date we have completed 2834 upper gastro-intestinal endoscopies: a break-up of which is given in Table I.

TABLE I.

AGE AND SEX DISTRIBUTION

Age (Years)	Males	%	Females	%	Total	%
0 — 9	—		—		—	—
10 — 19	40	2.3	15	1.3	55	1.9
20 — 29	65	3 8	41	3.6	106	3.7
30 — 39	234	13.8	205	18.1	439	15.5
40 — 49	375	22.1	245	21.6	620	21.9
50 — 59	410	24.1	290	25.6	700	24.7
60 — 69	485	28 5	272	24.0	757	26.7
70 and above	91	5.4	66	5.8	157	5.6
Total	1700	100.0	1134	100.0	2834	100.0

Total number of endoscopies carried out was two thousand eight hundred and thirty four. Male-to-female ratio is about 1.5:1. The majority fall in the 4th – 6th decade.

*Recently the Welch Allyn Video Endoscopic system has been added to our armour which is equipped with T.V. Monitor and Video-recorder and so a bigger audience can watch what is going on, record what is being seen and even take photographs at the same sitting. This system is specifically helpful in teaching. Apart from upper G.I. endoscopic service, we also provide Colonoscopy for large gut problems and Sclerotherapy for bleeding oesophageal varices.

SYMPTOMS. Pain was the main symptom, followed by hematemesis, dyspepsia and dysphagia, which brought the majority of the patients for endoscopy. (Table II).

TABLE II.

MAIN PRESENTING SYMPTOMS

Main Symptoms	Males	%	Females	%	Total	%
i) Pain	751	44.2	348	30.7	1099	38.8
ii) Dyspepsia	50	2.9	34	3.0	84	3.0
iii) Hematemesis	120	7.0	42	3.7	162	5.7
iv) Melaena	30	1.8	11	1.0	41	1.4
v) Hematemesis & Melaena	40	2.3	37	3.3	77	2.7
vi) Dysphagia	50	2.9	37	3.3	87	3.1

TABLE III.

MAIN UPPER GASTRO-INTESTINAL LESIONS

Lesions	Males	%	Females	%	Total	%
1. Oesophagitis	30	5.3	11	3.1	41	4.5
2. Hiatus Hernia	25	4.4	17	4.7	42	4.5
3. Oesophageal Varices	61	10.9	42	11.7	103	11.2
4. Ca. Oesophagus	20	3.5	21	5.9	41	4.5
5. Atrophic Gastritis	8	1.4	4	1.1	12	1.3
6. Gastric Ulcer	29	5.1	19	5.3	48	5.2
7. Gastric Carcinoma	44	7.8	31	8.6	75	8.1
8. Duodenal Ulcer	260	46.5	160	44.7	420	45.8
9. Duodenal Diverticulum	26	4.6	18	5.0	44	4.8
10. Gastric Ulcer and Duodenal Ulcer	5	0.9	2	0.6	7	0.8
11. Pyloric Stenosis	19	3.4	4	1.1	23	2.5
12. Duodenitis	14	2.5	16	4.5	30	3.4
13. Erosive Gastritis	20	3.6	12	3.3	32	3.5
14. Hypertrophic Gastritis	4	0.7	3	0.8	7	0.8
Total	559	100.0	358	100.0	917	100.0

Table III shows that out of a total number of 2834 cases, only 917 (32.3%) showed lesions in the upper gastro-intestinal tract. Of these, 559 (61%) were male and 358 (39%) were female. It is interesting to note that in both the sexes,

Duodenal ulcer (Fig. 4) predominates, followed by Oesophageal varices (Fig. 5) which has been the commmon cause of upper G.I. bleed. Gastric cancer, Gastric ulcer (Fig. 6, 7, 8), Duodenal diverticulum, Hiatus hernia (Fig. 9), Oesophagitis, Oesophageal carcinoma and Erosive gastritis (Fig. 10) were the other common pathologies. It is noteworthy that Atrophic gastritis (Fig. 11), which still receives a lot of attention as a precursor of gastric cancer, brings up the rear in our series, despite the fact that we see a sizeable number of gastric cancers (Fig. 12, 13).

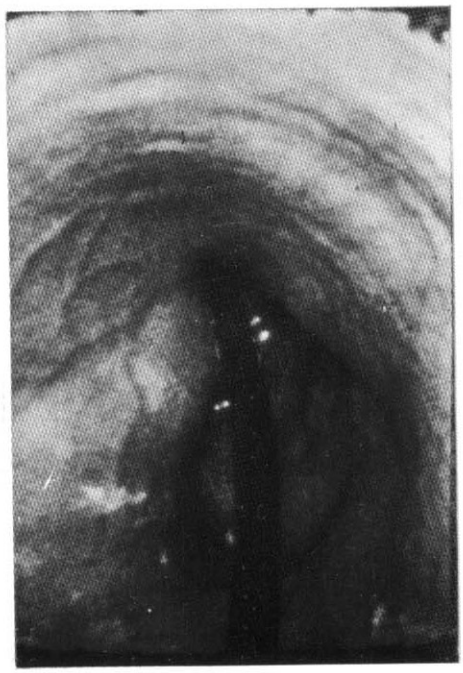

Fig. 1. 'U' turn to see the fundus and the gastro-oesophageal junction.

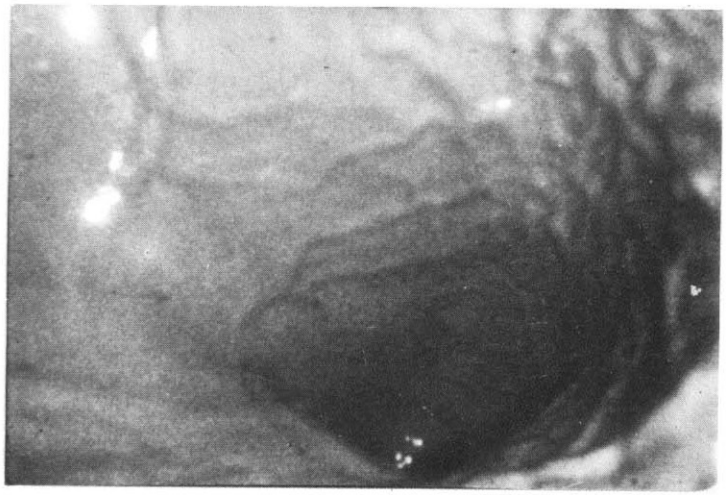

Fig. 2. Normal gastric rugii and flat antral mucosa.

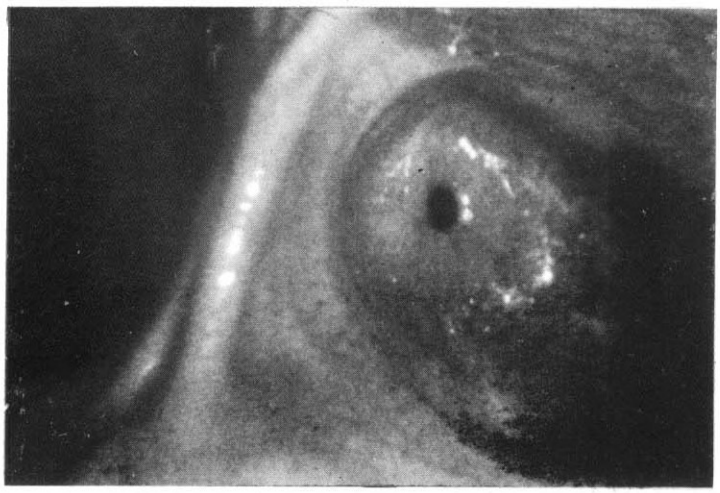

Fig 3. Normal gastric angle and pyloric ring

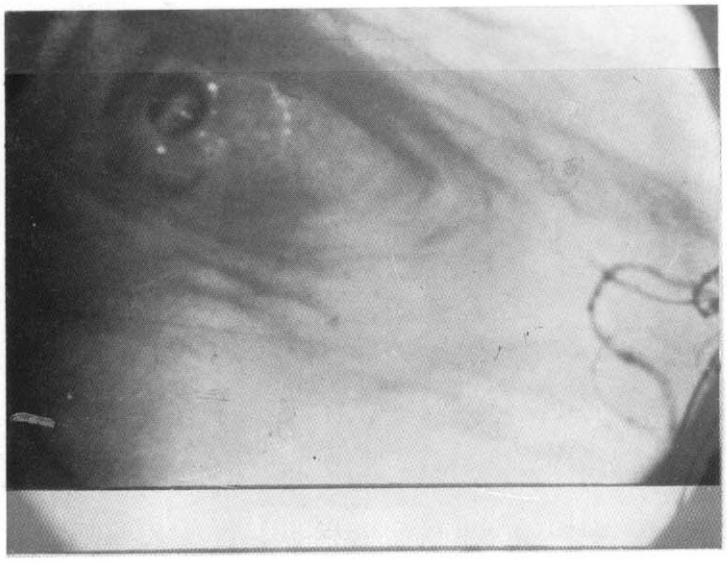

Fig. 4. Telescopic view of the duodenal bulb ulcer through the pyloric ring.

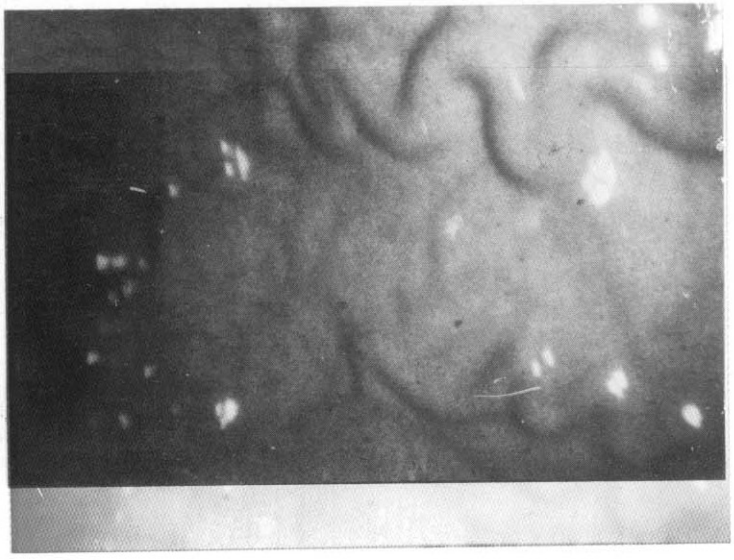

Fig. 5. Fundic varices.

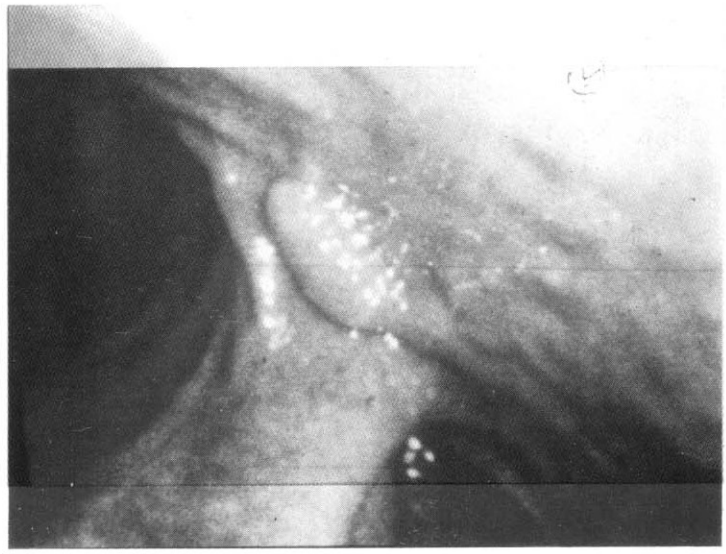

Fig. 6. Gastric ulcer.

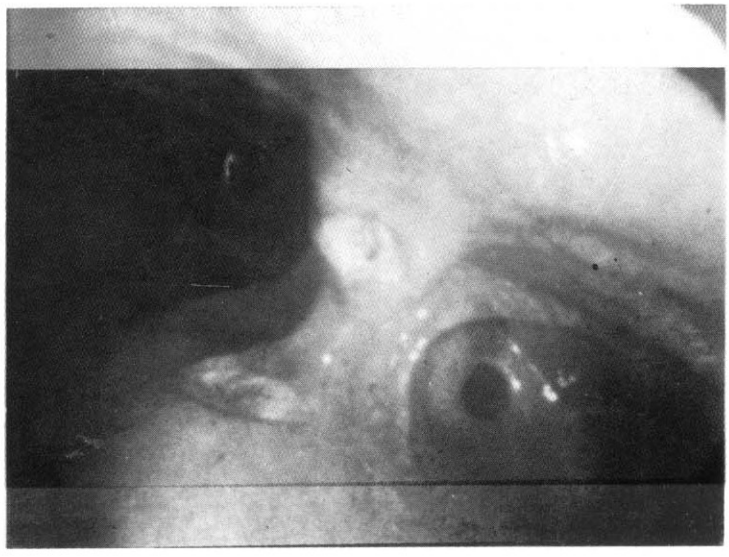

Fig. 7. Two gastric ulcers on the gastric angle — "Kissing Ulcers."

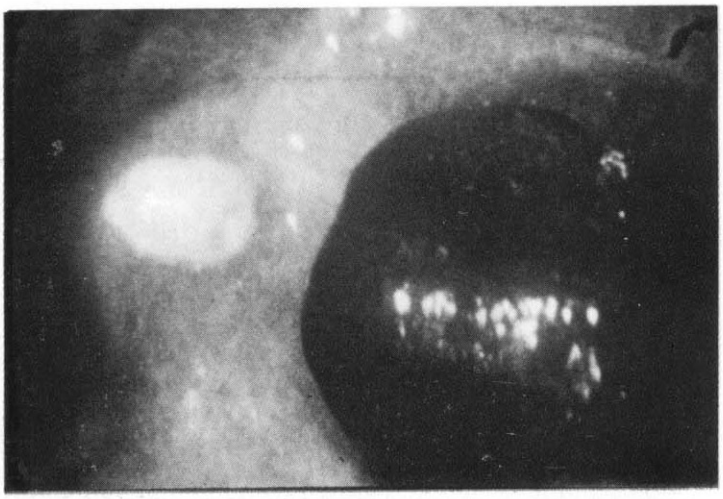

Fig. 8. Benign, clean looking gastric ulcer.

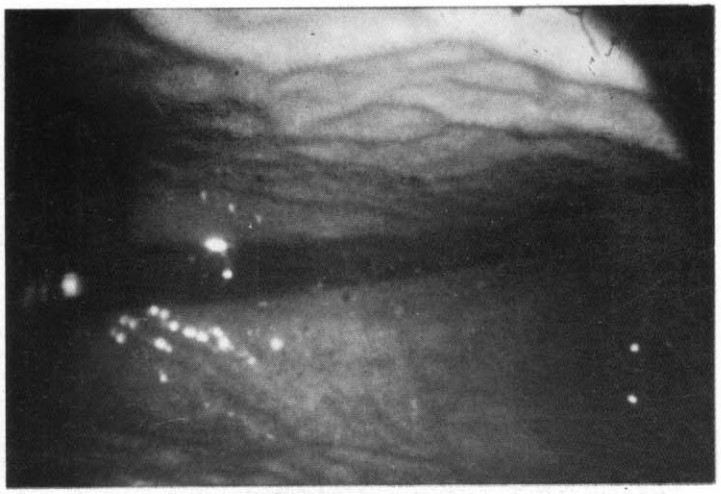

Fig. 9. 'U' turn and a Hiatus hernia.

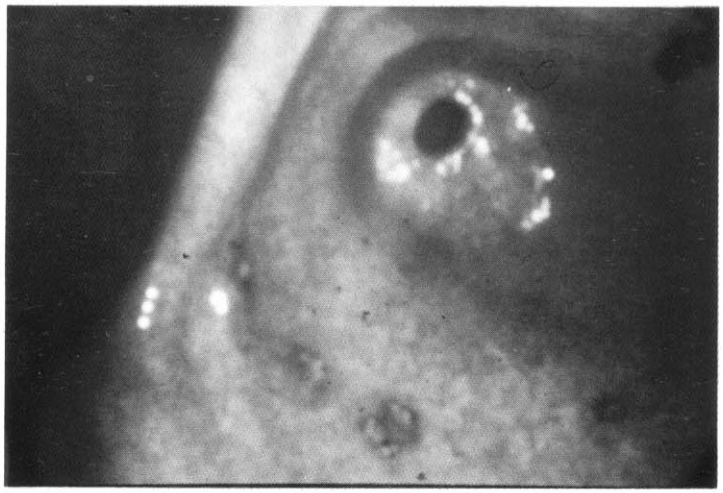

Fig. 10. Erosive gastritis.

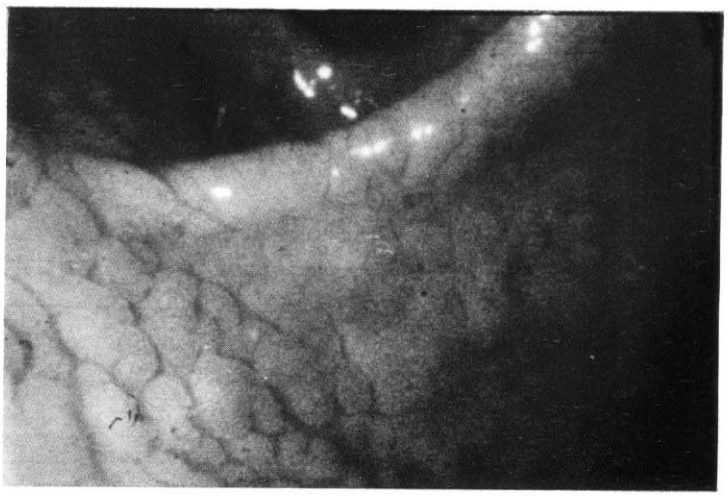

Fig. 11. Atrophic gastric mucosa

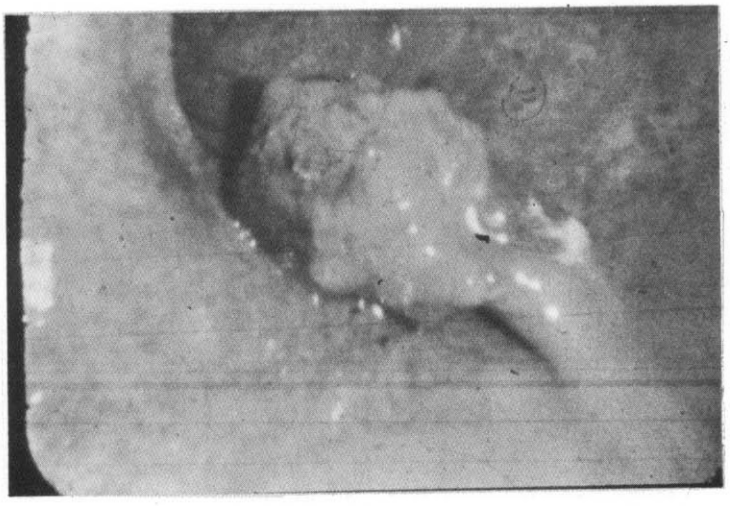

Fig. 12. Elevated malignant lesion — prepyloric.

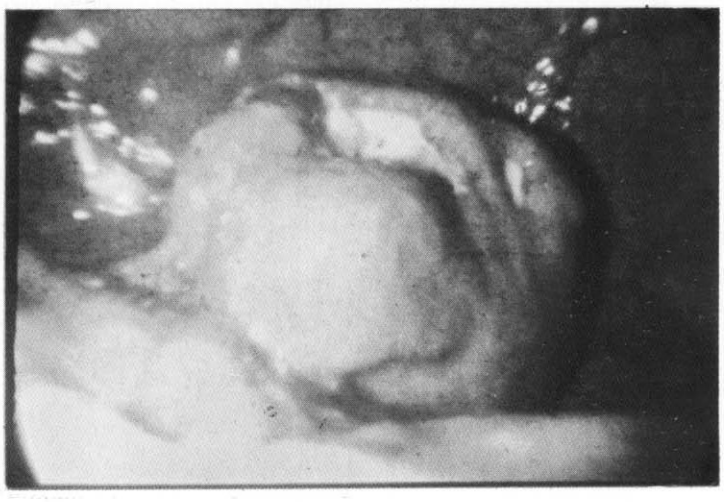

Fig. 13. Elevated lesion with an ulcer in the centre — malignant.

The incidence of both Oesophagitis and Oesophageal carcinoma is equal. This needs further study as to whether Oesophagitis and snuff in particular has anything to do as an aetiological factor in Oesophageal carcinoma. It is necessary to go into more detailed observation of the change that occurs in the gastric and oesophageal mucosa toward adopting a malignant character. All gastric cancers seen during this period were of invasive nature; there has not been a single one, observed upto now, that can be called early Gastric cancer (Carcinoma in-situ) which has a 95% cure rate after surgery.

TABLE IV.

RESULTS OF 313 BARIUM STUDIES VERSUS ENDOSCOPIC EXAMINATION

Barium Studies	No.	Endoscopic Examination				
		Normal	%	Abnormal	%	Remarks
Barium studies reported as "normal"	79	42	53.2%	37	46.8%	(% out of 79)
Barium studies reported as "abnormal"	234	162	69.2%	72	30.8%	(% out of 234)

Table IV shows that we were able to get only three hundred and thirteen patiens to have their barium studies done before endoscopic examination. This is 11% of the total number (2834) endoscoped. The correlation of the two procedures shows that out of 79 Barium studies reported as normal, 37 (46.8%) were seen to have a definite lesion endoscopically. Out of a total of 234 Barium studies reported as showing evident lesions, 72 (30.8%) were seen to substantiate these findings endoscopically and refute the Barium findings in 162 (69.2%) of the cases.

The correlation would be closer for the two procedures, which are both complementary to each other, if the Barium sulphate used had a smaller particle size to form a much more uniform paste and all patients were X-rayed by an expert in front of a television screen rather than use the out-dated blind procedure. This would reduce the load on endoscopy, a much more expensive procedure taking into consideration the wear and tear of the instruments.

TABLE V.

CORRELATION BETWEEN BARIUM STUDIES AND ENDOSCOPIC EXAMINATION

Total No. of Endoscopic Examinations	=	2834	
Barium Studies Not Done and Endoscopic Examination was :—	=	2521	
Normal	=	1713	(68%)
Abnormal	=	808	(32%)

Table V shows that Barium studies were not done in 2521 cases before endoscopic examination. Out of these, 808 (32%) showed definite lesions and 1713 (68%) showed no lesion ednoscopically.

TABLE VI.

CORRELATION BETWEEN BLOOD GROUPS AND GASTRIC/DUODENAL ULCER

	Gastric Ulcer		Duodenal Ulcer	
	No.	%	No.	%
A (positive)	9	32.0	25	24.0
B (positive)	7	25.0	24	23.0
AB (positive)	6	21.5	8	8.0
O (positiae)	6	21.5	46	45.0
Total	28	100.0	103	100.0

Blood groups were examined in 131 cases (Gastric ulcer 28 and Duodenal ulcer 103 cases). There was no specific correlation between any particular Blood group and Gastric ulcer; however Blood group 'O' Rh +ve (45% out of 103 cases) correlated well with the Duodenal ulcer (Table VI).

TABLE VII.

CORRELATION OF SPICY FOODS TO VARIOUS LESIONS

Disease	No.	%
Duodenal Ulcer	91	53.0
Gastro-duodenitis	8	4.6
Atrophic Gastritis	9	5.0
Oesophageal Varices	10	5.8
Ca Oesophagus	8	4.6
Hiatus Hernia	9	5.0
Erosive Gastritis	7	4.1
Ca Stomach	7	4.0
Gastric Ulcer	7	4.1
Erosive Duodenitis	6	3.5
Duodenitis	6	3.5
Pyloric Stenosis	5	2.8
Total	173	100.0

Spicy food was taken by only 307 who came for endoscopy. Of these, 134 (44%) were found normal and 173 (56%) showed various pathologies in the upper G.I.T. endoscopically. Ninety one cases (53% out of 173) had Duodenal ulcer. Spicy foods, therefore, may be important aetiologically as one of the causes of Duodenal ulcer. (Table VII).

TABLE VIII.

CORRELATION OF SMOKING TO VARIOUS LESIONS

Disease	No.	%
Duodenal Ulcer	902	67.5
Oesophageal Varices	109	8.1
Pyloric Spasm	87	6.5
Erosive Duodenitis	87	6.5
Gastric Ulcer	22	1.6
Atrophic, Hypertrophic and Erosive Gastritis	88	6.6
Hiatus Hernia	22	1.6
Ca Oesophagus	22	1.6
Total	1339	100.0

Those who gave a definite history of smoking, either cigarette or hukka, were 1800. Of these, 461 (25.6%) showed no pathology in the upper G.I.T. ; the rest i.e., 1339 (74.4%) showed lesions endoscopically. (Table VIII).

Duodenal ulcer correlated well with the habit of smoking as 902 (67.5% out of 1339) had Duodenal ulcers, followed by Oesophageal varices and Erosive gastritis and Duodenitis.

Discussion

Most endoscopic examinations are well tolerated and can be performed on an out-patient basis with only light sedation.

The practising clinician is faced with the problem of deciding on the relevance of the investigation as to —

a) What size and range of endoscopy service should be offered locally and regionally ?

b) Who should be involved in this service ?

c) What equipment is necessary ?

Modern gastroscopy affords a direct picture of the whole of the stomach and enables close observation of details to be made. Any changes found can be photographed in their natural colours and investigated histologically by taking multiple biopsies.

Gastroscopy has acquired for itself an equal position alongside X-ray investigation in the routine examination of the stomach. Even when carried out expertly, X-ray examination remains an indirect method of observation.

Endoscopic examination can be either diagnostic or therapeutic. Broadly speaking the therapeutic element has minimised surgery to a great extent.

DIAGNOSTIC ENDOSCOPIC EXAMINATION can be elective or done as an emergency procedure depending on circumstances. The indication are :–

1. All unexplained abdominal pains, particularly epigastric, where previous investigations have been negative.
2. Radiologically established local changes in the form and outline of the stomach e.g., erosions, small flat ulcers, polyps and early gastric cancers.
3. Diagnosis and monitoring of gastric ulcers.
4. To note any progression of already recognised changes.
5. Pyloric stenosis.
6. Gastric problem arising after gastric surgery e.g., stomal ulcer, cancer, sutures still being present.

7. All unexplained upper G.I. bleeds.

There are certain contra-indications to this simple procedure :–

1. Zenker's diverticulum.
2. Oesophageal stricture in the upper third, especially with a side-viewing instrument.
3. A large Aortic aneurysm.
4. Severe dyspnoea resulting from cardiac failure or bronchial asthma.

Complications that can arise from upper G.I. endoscopy are :–

1. Injury to the posterior wall of the pharynx and perforation of pyriform recess.
2. Perforation of the oesophagus.
3. Mellory Weiss Syndrome.
4. Perforation of the stomach.
5. Gastric bleeding.
6. Jamming of the gastroscope which has become inverted in the oesophagus.
7. Collapse due to excessive distension with air.

THERAPEUTIC ASPECTS of upper G.I. endoscopy include :–

(a) Electrosurgery.

(b) Laser photocoagulation.

(a) The management of gastro-intestinal bleeding, a common and in most instances a very serious problem, is often difficult and demanding. Recognition of the source of bleeding is essential for management. Despite early and accurate diagnosis, there has been very little improvement in the survival of patients. Such unsatisfactory results stimulated the development of techniques for the endoscopic control of G.I. bleeding. Electrosurgery is the direct application of electricity to tissues for the purpose of cutting or controlling bleeding. The three types of electro-coagulation used by the endoscopist via the fibreoptic gastroscope are :–

i. Monopolar electrocoagulation.

ii. Bipolar electrocoagulation.

iii. Fulguration.

(b) Laser photocoagulation is based on the conversion of light energy to thermal energy. Enough heat is produced in the tissues to coagulate the affected area. The ability to transmit this photo-energy, through thin, flexible and light guides via the biopsy channel of the endoscope, permits endoscopic photocoagulation of bleeding lesions in the gastro-intestinal tract. Recent studies show that in high-risk patients, laser photocoagulation might reduce both morbidity and mortality and provide an acceptable alternative to surgical treatment.

The mortality for bleeding oesophageal varices has been very high, prompting gastroenterologists to device other forms of treatment such as sclerotherapy. The main goal of sclerotherapy is to stop acute bleeding, thereby improving the patient's condition and permitting the patient to have an elective surgical procedure.

Conclusion

The main presenting symptoms which brought the patients for endoscopic examination were pain, hematemesis, dyspepsia and dysphagia.

32% showed lesions in the upper gastro-intestinal tract: 61% male and 39% female. The most common lesions were Duodenal ulcer, Oesophageal varices, Gastric cancer, Gastric ulcer, Duodenal diverticulum, Hiatus hernia, Oesophagitis and Oesophageal carcinoma.

Barium studies, done before endoscopic examination, revealed that 46.8% of those reported "Normal" had a definite lesion endoscopically; and only 30.8% of those reported as "Showing radiological lesion" were found to substantiate these findings endoscopically. The author recommends the use of Barium sulphate with smaller particle size and television screening of all patients so as to have a clear correlation between the two procedures which are both complementary to each other.

There is no specific correlation between Gastric ulcer and any particular Blood group; however Blood group O Rh +ive correlated well with Duodenal ulcer in 45% of the 103 cases studied in this sub-group.

Spicy food may be important etiologically; as 173 out of 307 who took spicy food showed various pathologies in upper gastro-intestinal tract endoscopically: half having Duodenal ulcer.

1800 cases (64% of total 2834) gave a definite history of smoking and out of these 1339 showed lesions endoscopically: 2/3rd having Duodenal ulcer.

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