

**THE ROLE OF BARIUM MEAL EXAMINATION IN
DIAGNOSIS AND EVALUATION OF DISEASES OF THE UPPER
GASTROINTESTINAL TRACT AT KENYATTA NATIONAL
HOSPITAL**

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by

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SUMMARY

In this prospective study over a period of six months (May-November 1997), to determine the role of Barium Examination in evaluation of upper gastro-intestinal tract (GIT) diseases at Kenyatta National Hospital, a total of 320 patients were investigated.

During this period 520 patients were booked for upper GIT examination. 200 patients were not investigated because half of them never turned up while the rest were re-booked as only one fluoroscopy unit was operational. Of those who underwent the investigation 183 (57.2%) were females and 137(42.8%) were males.

After double contrast upper GIT examination the results showed 100 (31.3%) patients to have normal upper GIT though they may have been sick elsewhere. Suspected peptic ulcer disease (PUD) was by far the leading clinical diagnosis prompting clinicians to request for an upper GIT barium examination. Among the 258(80.6%) patients thought to have PUD 70(27.1%) were found to be normal, 130 (50.4%) had duodenal ulcer and 36 (14.0%) had duodenitis.

The next leading provisional clinical diagnosis requiring upper GIT investigation was oesophageal carcinoma with 14 (4.4%) cases followed by gastric carcinoma with 10(3.1%) cases.

Patients of all age groups were examined and included in the study so long as there was no contraindication. The mean age group was 25-30 years with a total number of 99(31%) patients.

Those undergoing upper GIT barium examination were questioned on their blood group. 76(23.8%) out of 320 patients could recall their blood group which was recorded down. The majority of these were blood group "O" (45/76).

The low figure of those who know their blood group could be explained, among other reasons, by the fact that some patients were either too young or too old to understand blood group, or had not even been tested. It is therefore appreciated that the best way to correlate blood group and upper GIT diseases is to perform venipuncture (or finger prick) for blood grouping on every patient undergoing upper GIT barium investigation.

INTRODUCTION AND LITERATURE REVIEW

Barium meal examination is a study of the upper gastrointestinal tract (GIT) using Barium Sulphate suspension as a positive contrast medium to outline the oesophageal, stomach and duodenal mucosa during fluoroscopy. The examination has two parts i.e. fluoroscopic examination and associated filming and the diagnostic interpretation of the fluoroscopy and resulting radiographs.

There are four barium meal examination techniques which may be used either singly or in combination. These are mucosal relief, compression filming, double contrast and single contrast examination (1). The mucosal relief technique involves the ingestion of small amount of barium sulphate (about 60-80 ml) to outline the gastric mucosa but not distend the stomach. A supine and prone films are taken after turning the patient once or twice to distribute the barium sulphate. It is useful supplement to the double contrast barium examination especially in demonstration of anterior gastric wall mucosa which may not be very well shown by the latter. It is usually performed at the start of other barium meal examinations.

The single contrast barium examination requires a stomach full of barium sulphate to demonstrate lack of dispensability due to scarring or neoplasm. Films are taken in lateral, prone, posteriors oblique with the table horizontal. An upright view is also taken. Small lesions not causing rigidity of the stomach are usually hidden by the opaque mass of barium and therefore missed. This examination is best done after the other barium meal examination.

Compression filming requires barium suspension of 100-250% w/v enough to modestly fill the distal half of the stomach. Compression pushes the anterior and posterior gastric walls together and spreads the rugae folds apart (1,2). Compression filing demonstrates both the anterior and posterior walls of the distal stomach and is therefore very efficient in identifying gastric ulcers and erosion which have a higher incidence in this area.

The double contrast barium meal examination involves the ingestion of a gas producing substance (effervescent agent) followed by ingestion of high density, low viscosity Barium sulphate (3,7,8). The effervescent agent, which produce about 200-300 ml of gas to distend the stomach, is swallowed with 2-5 ml of water.

Various preparations of Barium sulphate are available like E-Z HD 250% w/v, Barospere 110% w/v, micropaque 100% w/v and polibar 125% w/v among others. During Double contrast Barium meal examination about 100-120ml of high density, low viscosity barium sulphate is required. This is just enough to give a thin film coating of the upper gastrointestinal tract mucosa. Polibar is the barium sulphate used in Kenyatta National Hospital.

Hypotonic agents like glucagon 0.3 mg iv may be given during a double contrast barium meal examination. The hypotonic agent has the advantage of relaxing the GIT smooth muscles and hence reducing the transit time of barium sulphate (3,7,8). However these drugs are not routinely used in our set up.

Intermittent fluoroscopy and spot filming is done during swallowing and transit of barium sulphate through the oesophagus. Two three-on-one spot films are taken and preferable with the patient upright (3,7,9). The patient then lies horizontal on the table and turns through 360 degrees to the right to facilitate gastric mucosa, coating with barium sulphate. Should the patient be too ill or elderly to turn, then the table is rocked to and fro (3). Radiographs of the stomach are taken in supine, left lateral, prone, left and right posterior oblique positions. Spot films of the duodenal cap and loop are taken when full of barium sulphate and when full of gas on four-on-one films. Additional views of the fundus may be taken in erect position if there is suspicion of a fundal lesion prior to the examination the patient is requested during booking not to eat or drink anything 6 hours before investigation. The 28-day rule is observed in female patients

during booking to ensure they are not pregnant (7). Patients are requested to desist from smoking while awaiting the barium meal examination as this causes increased gastric motility. They are also informed that they may take some time in the department and that their bowel motion will be white for a few days.

Techniques for supervision and

When a lesion is suspected on fluoroscopy the bi-phasic examination is geared to demonstrate the lesion *en face* and in profile (1,3,5). The quality of a well performed double contrast examination results may be poor due to retained debris or fluid in the stomach if the above preparation of patient is not followed (7,10).

Fluoroscopy examination

Though barium sulphate is relatively safe as it is inert, it should not be given to a patient suspected of having visceral perforation as it can cause barium peritonitis (1,3,7,8).

The main indications for upper GIT examination are dysphagia, suspected peptic ulceration, dyspepsia, weight loss, abdominal mass and gastro-intestinal haemorrhage and partial obstruction (1,3,4,7,11).

Other methods of evaluating upper GIT diseases are endoscopy, ultrasonography, CT Scan, MRI and radionuclide imaging. CT Scan, MRI and ultrasonography are mainly useful when demonstrating a large tumour but cannot show the mucosal pattern or dynamic function of the upper GIT which is clearly demonstrated by barium meal examination. Radionuclide scanning (Scintigraphy) using 11 mBq of ^{99m}Tc sulphur colloid diluted in 15ml of water is employed to demonstrate oesophageal motility disorders like achalasia and scleroderma but cannot display the mucosal pattern (1). While fibre optic endoscopy is known to be highly accurate in identifying upper GIT lesions, it is an invasive procedure with a certain risk of visceral perforation. The double contrast barium meal examination is equally good in evaluating upper GIT pathology and relatively safe as well as cheap (3,4).

In Kenyatta National Hospital the list for those awaiting fluoroscopy examination is long. There are 3 fluoroscopy rooms in the x-ray department but often only one or two will be

functioning. There are 11 radiologists, 6 of whom are employees of Kenyatta National Hospital and the rest from Department of Radiology, University of Nairobi. Presently there are 12 Registrars in the Radiology department, 5 of whom can handle screening procedures with fair amount of confidence but also requires the presence of a Consultant Radiologist for supervision and guidance. There is a limited number of radiographers who can man the 3 rooms effectively and therefore if all the fluoroscopy units are functional there may be shortage of qualified personnel, KNH is also a training Institution for Radiographer Technicians.

Fluoroscopy examination of patients is done on 5 working days of the week usually by one radiologist or registrar per day and occasionally both of them may work together. On an average day there would be 8-9 barium meal and swallow examinations, three Hysterosalpingograms, two barium enema, two radiculograms, two venograms/arteriograms, one micturition cystourethrogram, less than one genitogram/colostrogram on average per day. Patient booking is more or less on the same scale. Due mainly to frequent breakdown of the fluoroscopy unit the outpatients are presently booked up to two months in advance and backlogs are common. Inpatients are usually booked within a week after the request is made.

The aim of the study was to establish the prevalence of upper GIT diseases at Kenyatta National Hospital through barium meal examination. The study also tried to find out the number of patients subjected to unnecessary radiation following a normal barium meal examination either due to inadequate clinical evaluation or otherwise. On occasions x-ray examinations are misused as a tool for getting a diagnosis rather than for assisting the clinician in confirming or excluding a diagnosis. Some patients are referred for barium examination by paramedical personnel like clinical officers or even nurses from private institution/clinic without first being evaluated by a doctor. On other occasions a less invasive or less harmful examination like ultrasonography should have been the first line of investigation. This will usually be evident in the vague indication and inadequate clinical

findings on the requesting form accompanying the patient. It is hoped that the outcome of this study will help reduce such incidences.

The current workload in the screening rooms on a normal working day is about 12-16 patients. However if all the three fluoroscopy units were working and a radiologist assigned per room, then a total of about 36-40 patients per day could be handled.

The usual situation is a registrar screening about 15 patients alone with little or no guidance. The result are films of lower diagnostic value or even totally missing a lesion and increase in repeat of examinations resulting in higher patient dose.

Peptic ulcer disease is a fairly common upper GIT disease in most parts of the world as shown both endoscopically and by double contrast barium meal examination (12, 13, 14). Here in Kenyatta National Hospital duodenal ulcer has been found to be more common than gastric ulcer. G.N. Lule et al in their study (11, 14), found the ratio of duodenal ulcer to gastric ulcer to be 15:2 with a male to female ratio of 2:1. The average age group mostly affected are 20-40 years (11, 14). The development of duodenal ulcer depends both on genetic predisposition and environmental factors which such an individual is exposed to. No significant difference has been found between ABO blood group distribution in patients known to have duodenal ulcer and the general population (11).

One of the commonest cause of upper GIT bleeding is peptic ulcer disease. These patients are fairly young, aged 30-40 years and have been shown by some studies to have mostly duodenal ulcer (14, 15, 16). These and other causes of upper GIT bleeding like oesophageal varices are easily detected by double contrast barium meal examination (3, 4).

The oesophagus is screened during barium meal examination for motility disorders, filling defects and gastro-oesophageal reflux. Should any pathology be noted then spot films of the relevant parts of the oesophagus are taken. Gastro-oesophageal reflux disease is the most common inflammatory disease of the oesophagus. The radiological efficacy of

diagnosing this has been ascertained by correlation of the oesophageal pH testing and radiographic findings (9, 19). Other causes of oesophagitis like candidosis which manifest radiologically as discrete plaque like lesion with intervening normal mucosa have become important with advent of AIDS (1, 20, 21, 22).. Early oesophageal cancer may also manifest with plaque like but often centrally ulcerated or small manifest with plaque like but often centrally ulcerated or small with plaque like but often centrally ulcerated or small protruded lesions radiologically. When suspicious lesions are seen during double contrast barium examination, endoscopy and biopsy should follow.

Most patients with carcinoma of the stomach in Kenya present late unlike in developed countries such as Japan where they have developed a very sophisticated system of diagnosing and classifying these lesions (1, 4). Gastric carcinoma is mostly located in the gastric antrum where it may cause gastric outlet obstruction (1, 24, 25, 26). Vincent H. S. et al in their study showed that the double contrast barium meal examination can detect up to 96% of the gastric carcinomas accurately (4). Because the double contrast study is safer and cheaper than endoscopy, it should be used as diagnostic tool for gastric carcinomas (23).

MATERIALS AND METHODS

The project was a six-month project.

OBJECTIVES OF THE STUDY

done both by senior registrars and

done by a consultant radiologist.

1. To show the disease pattern of the upper GIT, by radiological evaluation, at Kenyatta National Hospital.
2. To determine the number of patients suspected to have upper GIT pathology but are found to be normal following upper GIT radiological examination.

MATERIALS AND METHODS

The project was a six-month prospective study carried out at Kenyatta National Hospital, X-ray department between May and November 1997. Barium meal examinations were done both by senior registrars and consultant radiologist with the final comment being made by a consultant radiologist. The double contrast gastro-intestinal examination was performed as a bi-phasic study in which double and single contrast views of the oesophagus, stomach and duodenum were obtained.

The patient was given Duogast (effervescent agent) to swallow with about 5mls of water followed by a high density low viscosity barium sulphate (100-120mls) suspension. Strict adherence to technique was observed throughout the study.

Patients booked for barium examination of the upper GIT presented their request form (appendix A) which was perused for the following information. Name, Age, Sex, Clinical Summary and Provisional diagnosis. These information was recorded in the barium meal examination interview form (appendix B). Patients were also asked if they knew their blood group which was also recorded in the interview form. Thereafter the patients were explained the procedure of examination before commencement.

They were explained how to hold their breath briefly during exposure when requested to do so. This was to avoid motion artefacts. The patients were also requested to cooperate as several manoeuvres might be necessary during fluoroscopy to get the best mucosal coating with barium and view of a lesion. After the examination the patients were informed that their bowel motion would be white for a few days in case they get alarmed by the finding.

RESULTS

The study involved 320 patients aged from 1 month to over 70years. The majority of the patients were females as shown both in table 1 and figure 1.

Most of the patients undergoing upper GIT barium examination were between age 20-45 years with mean age of 30 years (fig 1.)

Out of the 320 patients investigated 100 were found to have no abnormal radiological features in their upper GIT as demonstrated in table 2. The age and sex distribution of these normal patients were similar to the rest of the population study (fig 2.)

In those patients who had radiologically detectable pathology the area mostly affected was the duodenum (table 3) comprising 77.28% of all upper GIT. This was followed by the stomach with 29 out of the 220 cases.

Oesophageal Carcinoma was the most common clinical diagnosis leading to request for oesophagogram. It was also the leading radiological diagnosis following barium swallow examination (table 4). Those listed as others were one hiatus hernia and one tracheo - oesophageal fistula.

Double contrast barium meal examination of the upper GIT clearly showed duodenal ulcer disease to be the most frequent pathology of the duodenum comprising 78.83% (table 5). It was also the commonest upper GIT pathology. The male to female ratio of duodenal ulcer was 1:1 (fig 3). Duodenitis was also fairly common as it comprised 21.18% of the duodenal diseases. The male to female ratio of duodenitis was 1.5:1 (fig 4).

Diseases affecting the stomach were 13.18% of the total GIT lesions following double contrast barium meal examination.

Carcinoma of the stomach was the leading lesion with 34.48% (table 6) followed by gastritis. Gastric ulcer comprises only 13.79%. The ratio of duodenal ulcer to gastric ulcer was high (33:1).

Among those patients who knew their blood group, the commonest was blood group O which comprised 59.21% (table 7). There was only one AB blood group. More male patients were able to remember their blood group than their female counterparts (Table 8).

Among the patients who had duodenal ulcer disease and could recall their blood group the commonest effected was blood group 'O' with 62.16% followed by blood group 'A' (table 9). The only individual with blood group AB had no duodenal ulcer.

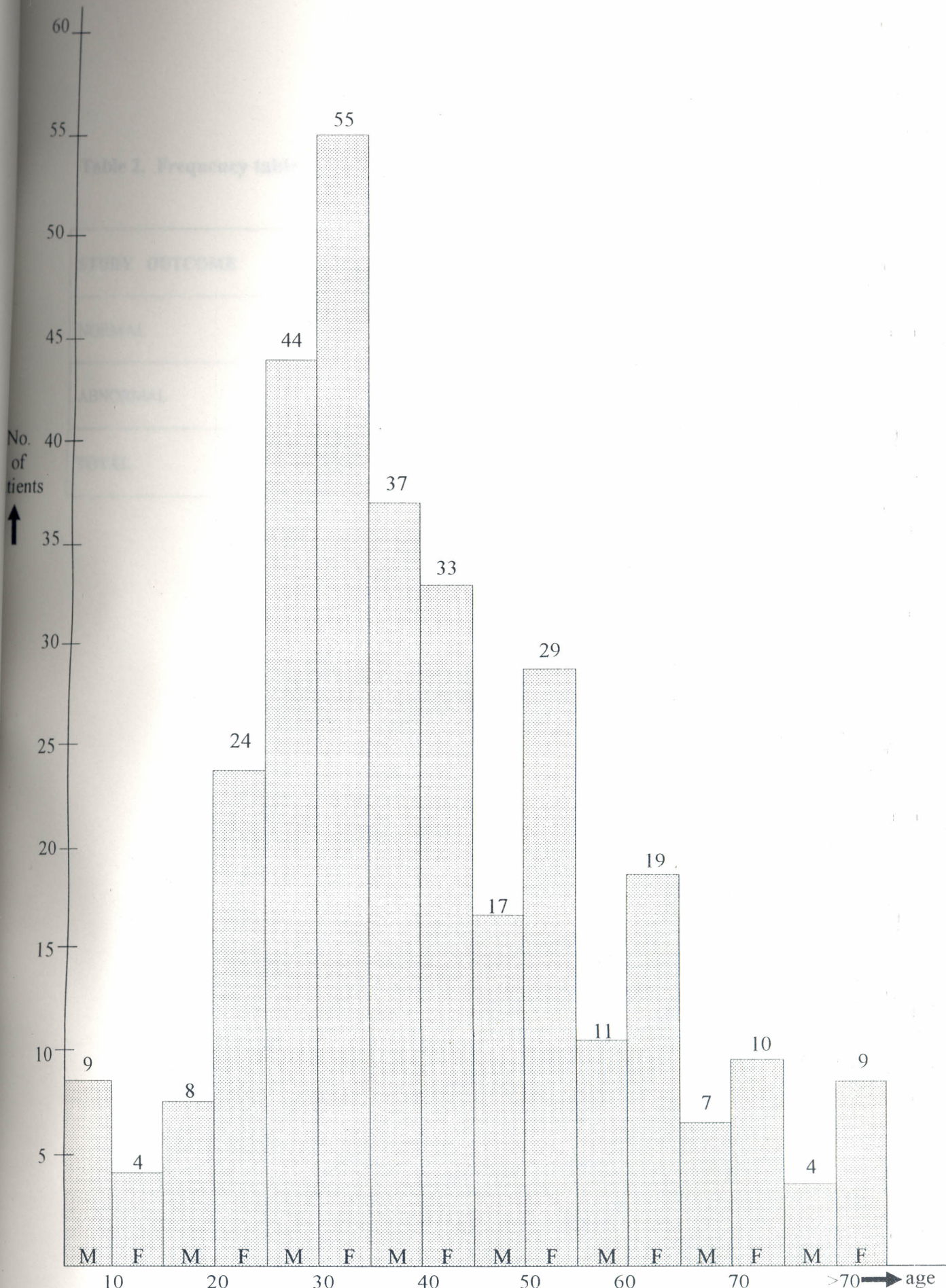


Fig. 1: Sex frequency of patients undergoing upper GIT barium examination in KNH.

Table 2. Frequency table of patients whose radiological findings were normal.

STUDY OUTCOME	NO. OF CASES INVESTIGATED	FREQUENCY
NORMAL	100	31.25
ABNORMAL	220	68.75
TOTAL	320	100.00

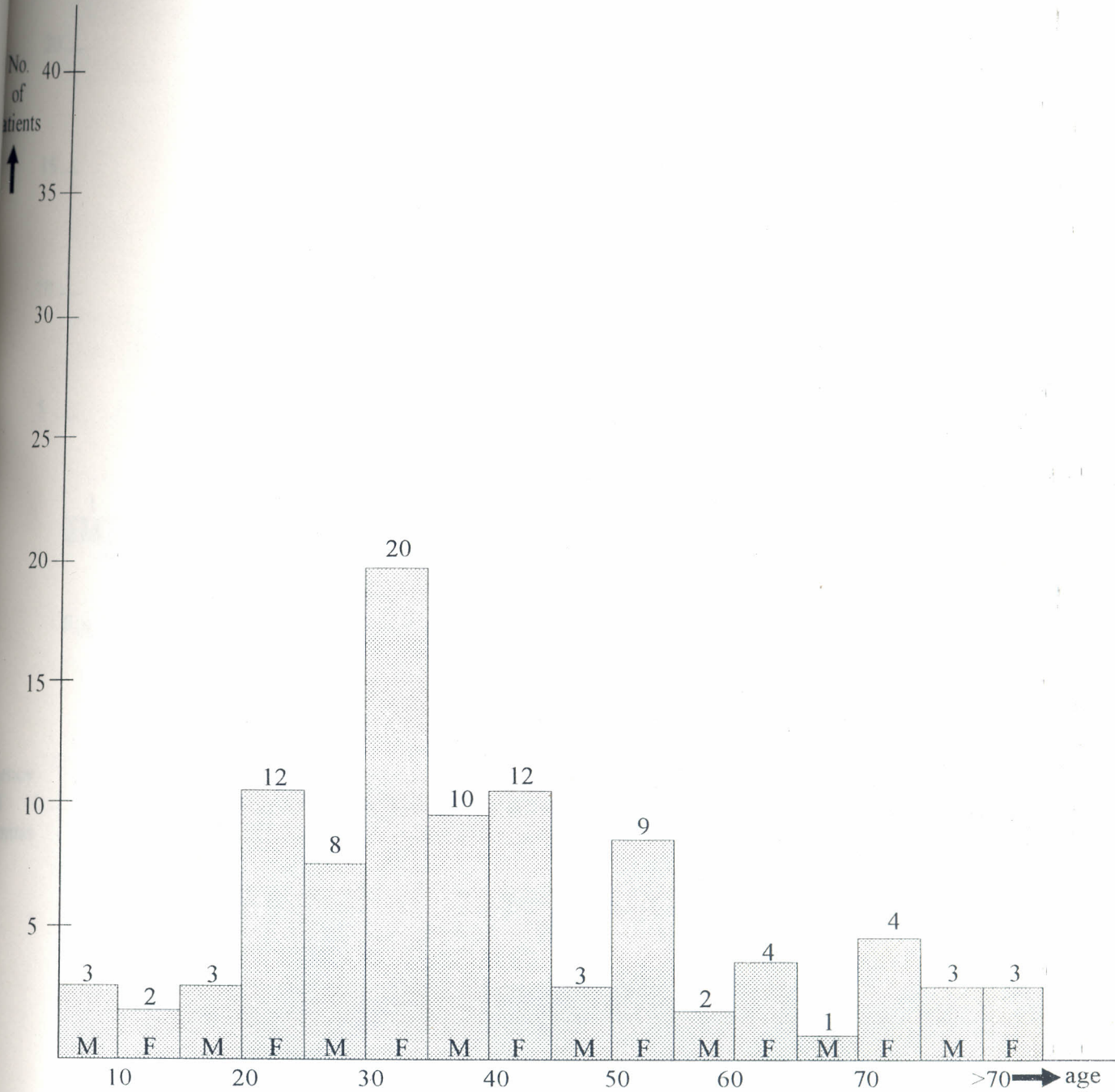


Fig. 2: Sex distribution of patients found to be normal on upper G.I.T. barium examination

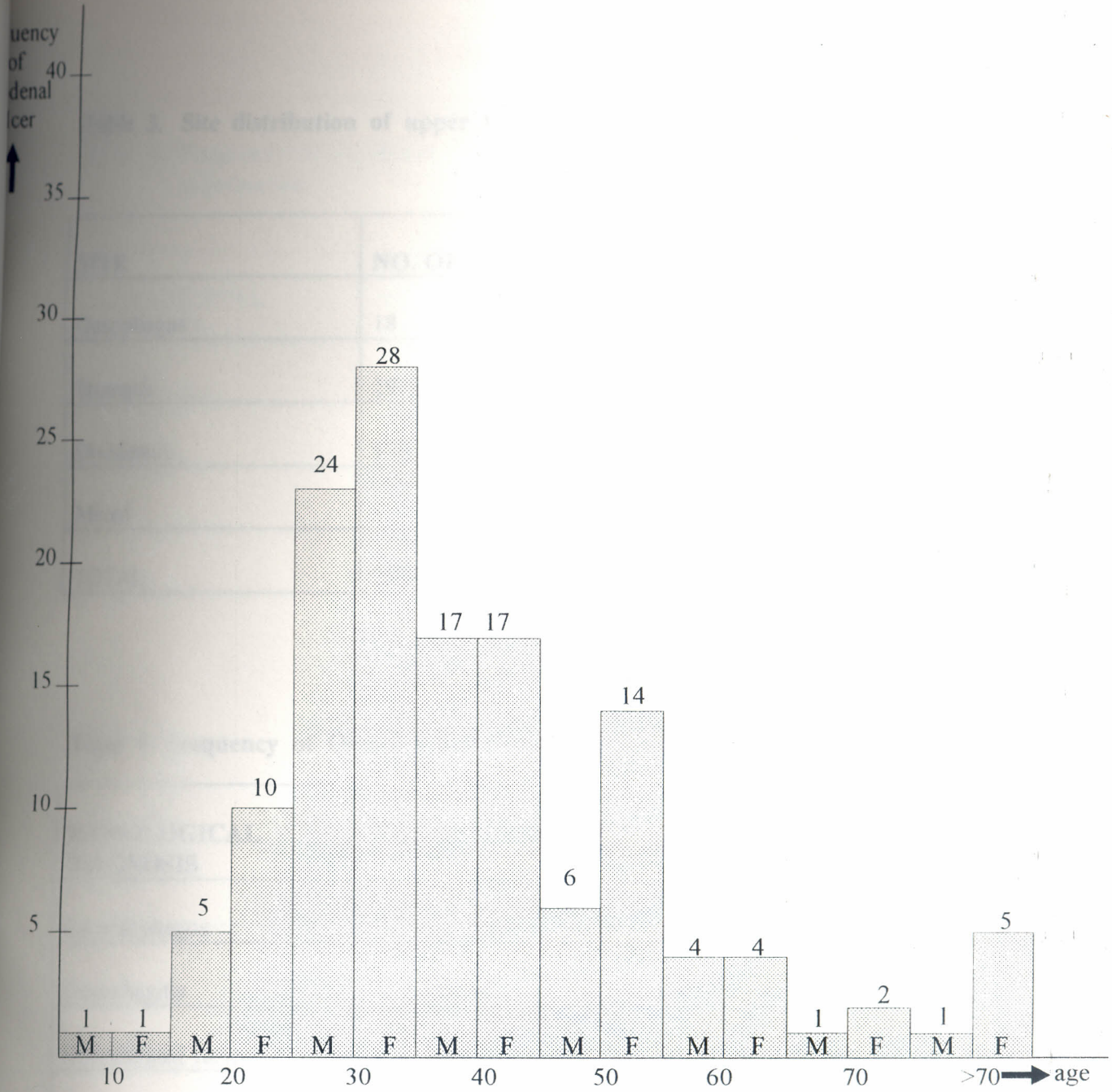


Fig.3: Sex distribution in duodenal ulcer disease.

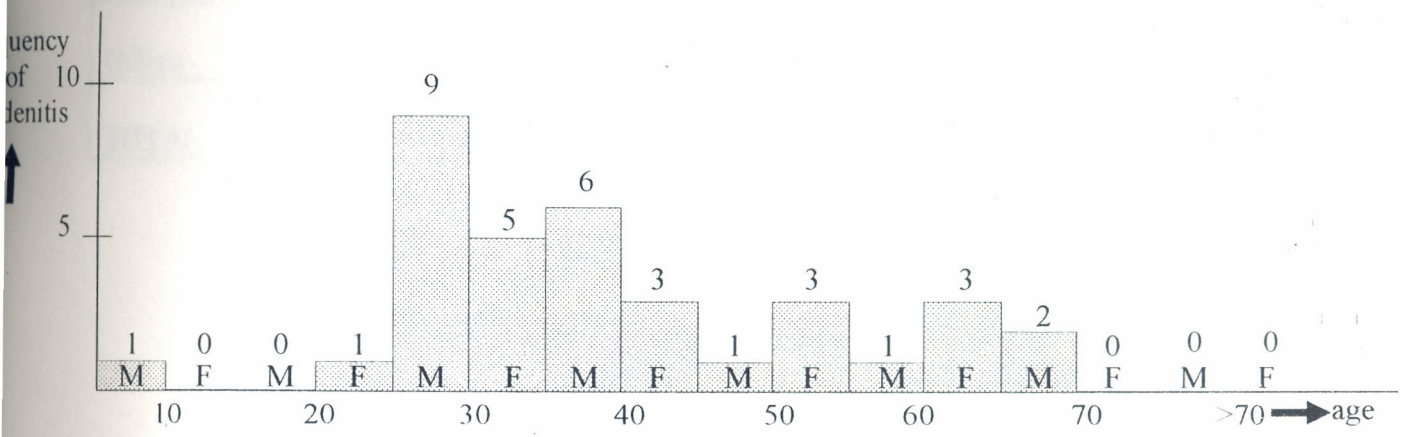


Fig.4: Sex distribution in duodenitis

M:F = 1.5:1

Table 3. Site distribution of upper GIT diseases

SITE	NO. OF CASES	FREQUENCY
Oesophagus	18	8.18
Stomach	29	13.18
Duodenum	170	77.28
Mixed	3	1.36
TOTAL	220	100.00

Table 4. Frequency of Oesophageal diseases following barium examination

RADIOLOGICAL DIAGNOSIS	NO. OF CASES	FREQUENCY
Ca oesophagus	10	52.63
Oesophagitis	1	5.26
Oesophageal varices	1	5.26
Scleroderma	1	5.26
Mobility disorders	1	5.26
Achalasia	3	15.78
Others	2	10.53
TOTAL	19	100.00

Table 5. Frequency of duodenal disease following double barium meal examination

RADIOLOGICAL DIAGNOSIS	NO. OF CASES	FREQUENCY
Duodenal ulcer	133	78.23
Duodenitis	36	21.18
Others	1	0.59
TOTAL	170	100.00

Table 6. Frequency of gastric diseases following double barium examination

RADIOLOGICAL DIAGNOSIS	NO. OF CASES	FREQUENCY
Stomach Carcinoma	10	34.48
Gastritis	8	27.59
Gastric ulcer	4	13.79
Gastric outlet obstruction	6	20.69
Others	1	3.45
TOTAL	29	100.00

Table 7. Blood Group frequency table.

	BLOOD GROUP				
	A	B	O	AB	TOTAL
No.	13	17	45	1	76
Frequency	17.11	28.37	59.21	1.31	100.00

Table 8. Sex distribution of blood group

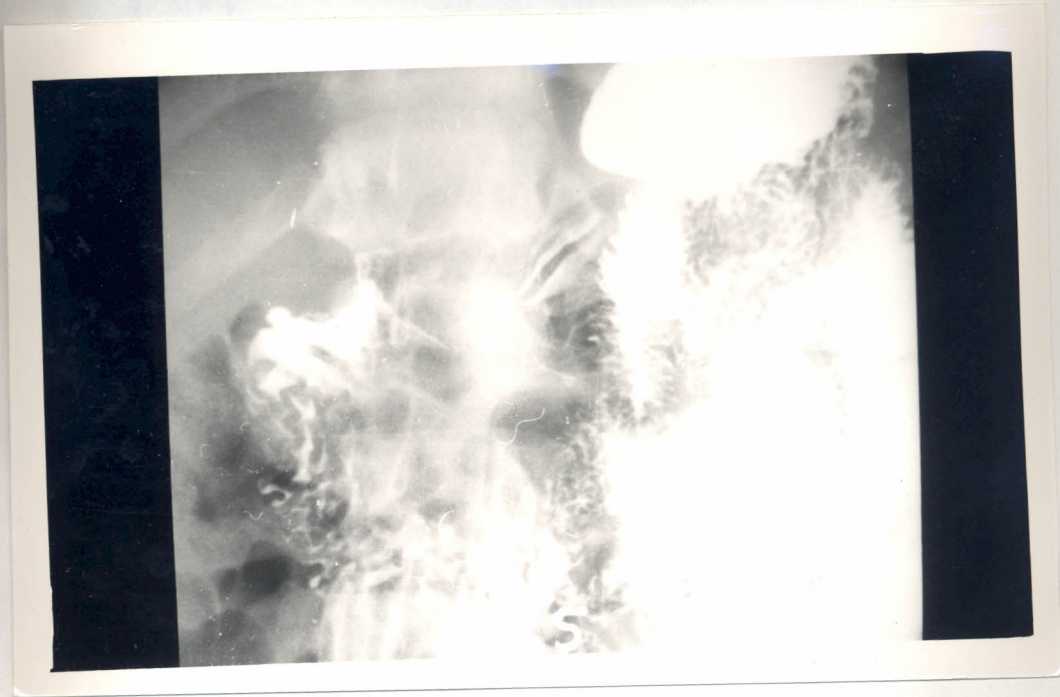
	BLOOD GROUP									
	A		B		O		AB		TOTAL	
SEX	M	F	M	F	M	F	M	F	M	F
NO.	9	4	3	14	29	16	0	1	41	35
Frequency	21.95	11.43	7.32	40.00	70.73	45.72	0.00	2.85	100.00	100.00

Table 9. Frequency table of patients with known blood group who had duodenal ulcer.

	BLOOD GROUP (No. of Cases)				
Sex	A	B	O	AB	TOTAL
Male	5	0	18	0	23
Female	3	6	5	0	14
TOTAL	8	6	23	0	37
Frequency	21.62	16.22	62.16	0	100.00

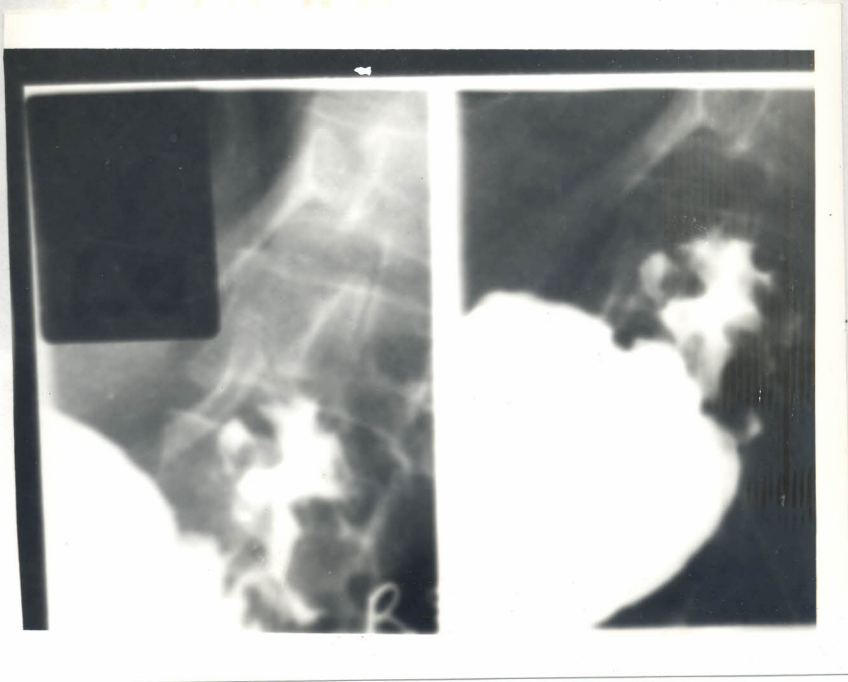
ILLUSTRATIONS:

1. A 25 year old male with history of epigastric pain.
Radiograph shows a normal air filled duodenal cap.

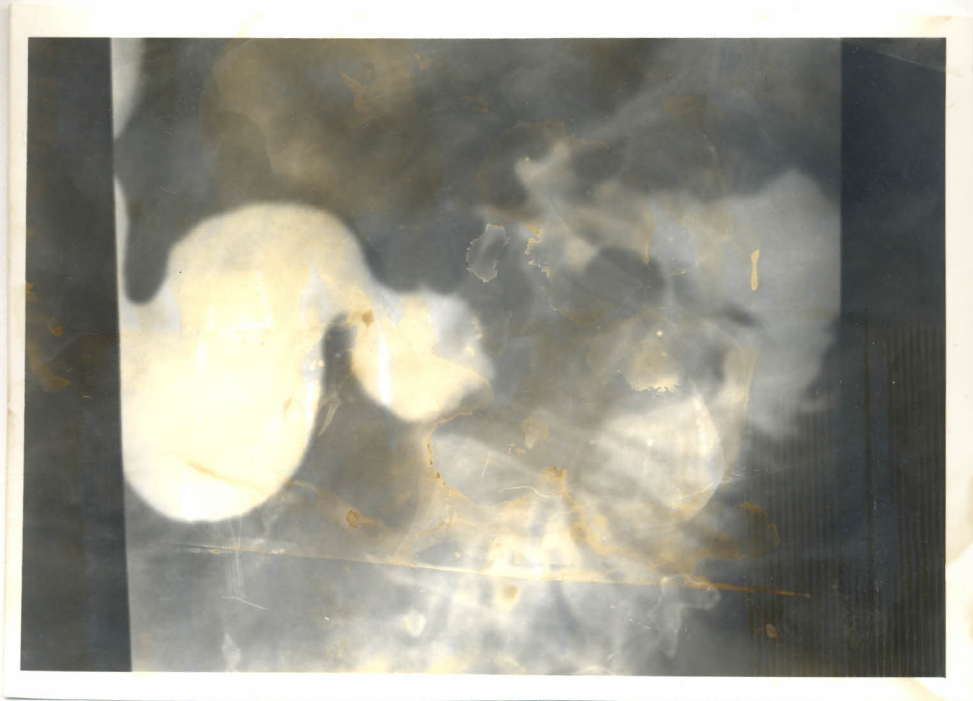


- 1b. Barium filled normal
duodenal cap.

- 2a. Trifoliate deformity of the duodenal cap. A 68year old female with history of epigastric pain and dyspepsia.



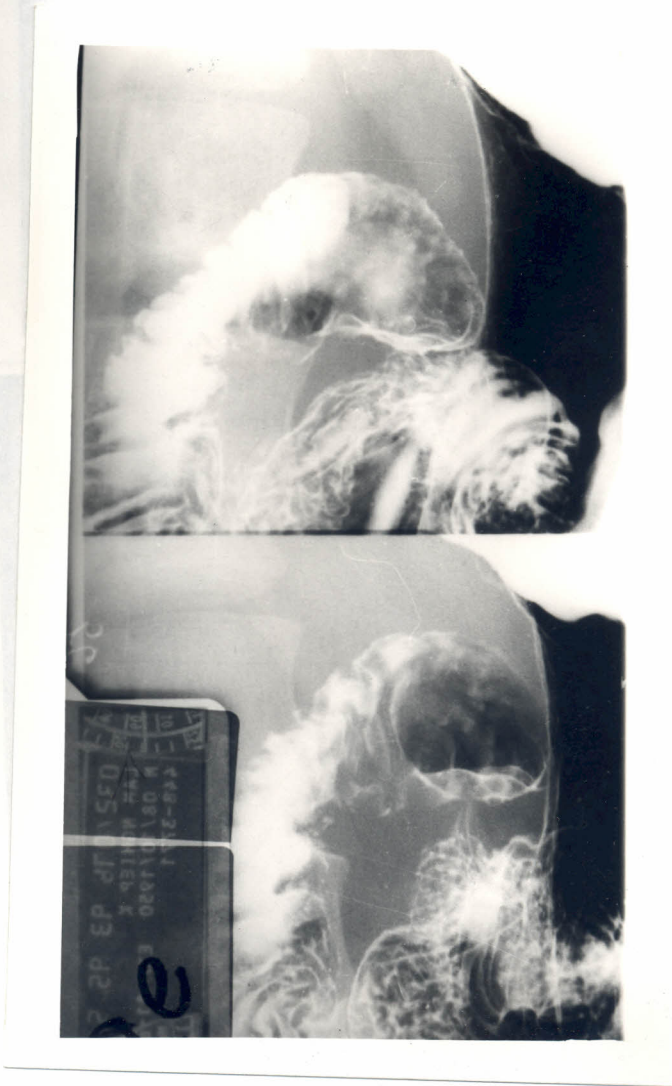
2b. Duodenitis - 23 year old male with history of epigastric pan.



2c. Chronic duodenal ulcer in a 21 year old male.



2d. Erosive duodunitis



3a. Gastric Carcinoma. A 43 year old patient with abdominal mass and vomiting.

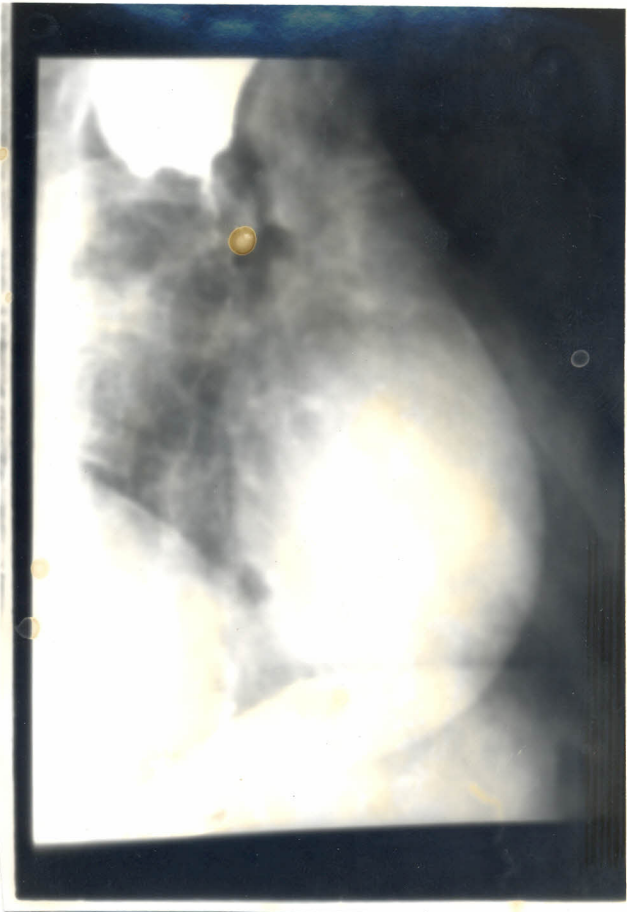


Same patient
upright position

4. Gastritis - Coarse gastric mucosa shown.



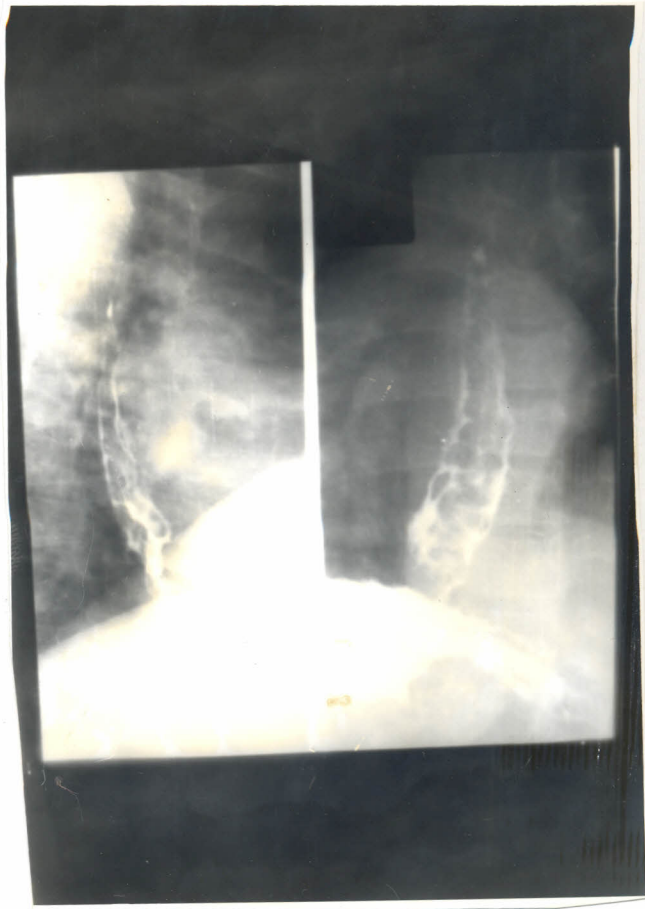
5a. Patient with oesophageal carcinoma. *oesophageal*
Note: *tracheal suspension* outlining the right bronchus.



- 5b. Tracheo oesophageal fistula due to oesophageal carcinoma.
Note the barium suspension outlining the right bronchial tree.



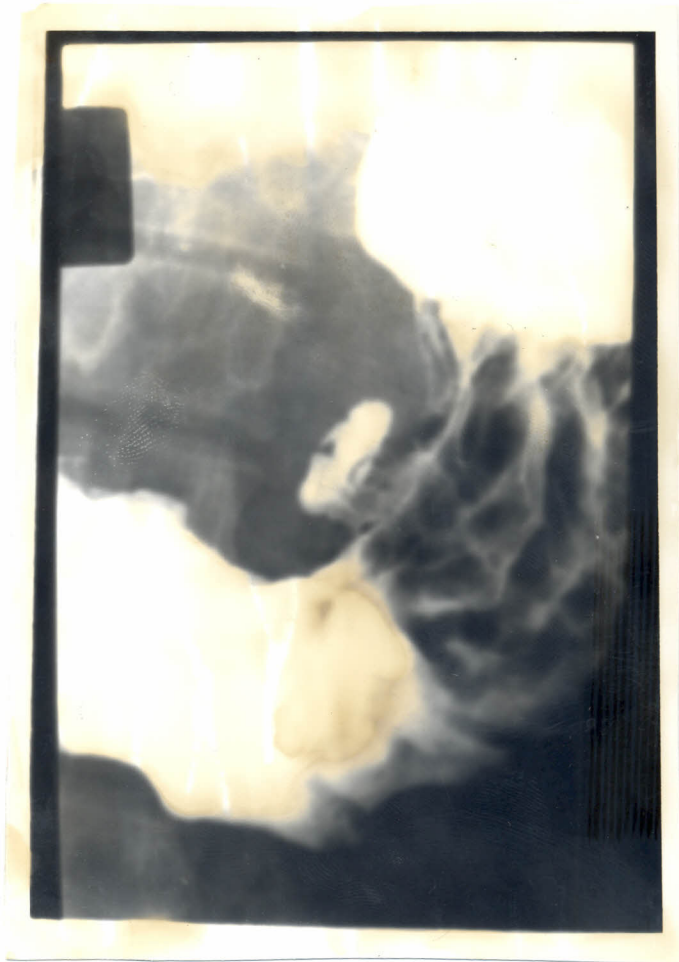
6. Oesophageal varices in a 29 year old male with haematemesis and ascites.



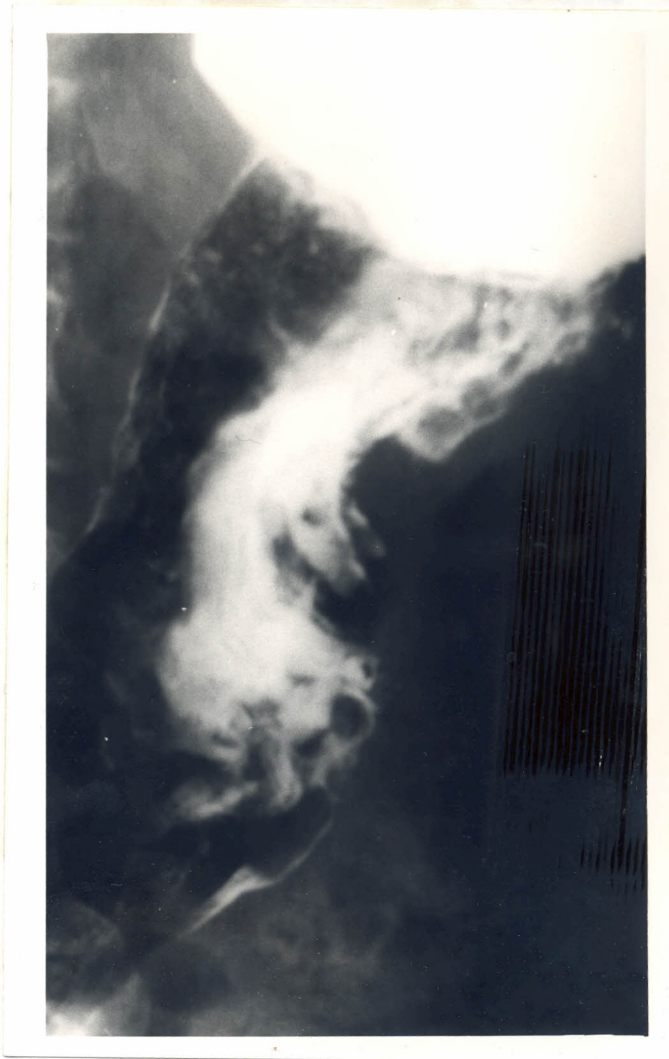
7. Hiatus hernia in a 41 year old female complaining of epigastric pain.



8. Gastric ulcer in a 36 year old male with history of epigastric pain.



9. Suspected gastric lymphoma in a 60 year old female with history of malaena stool and epigastric pain.



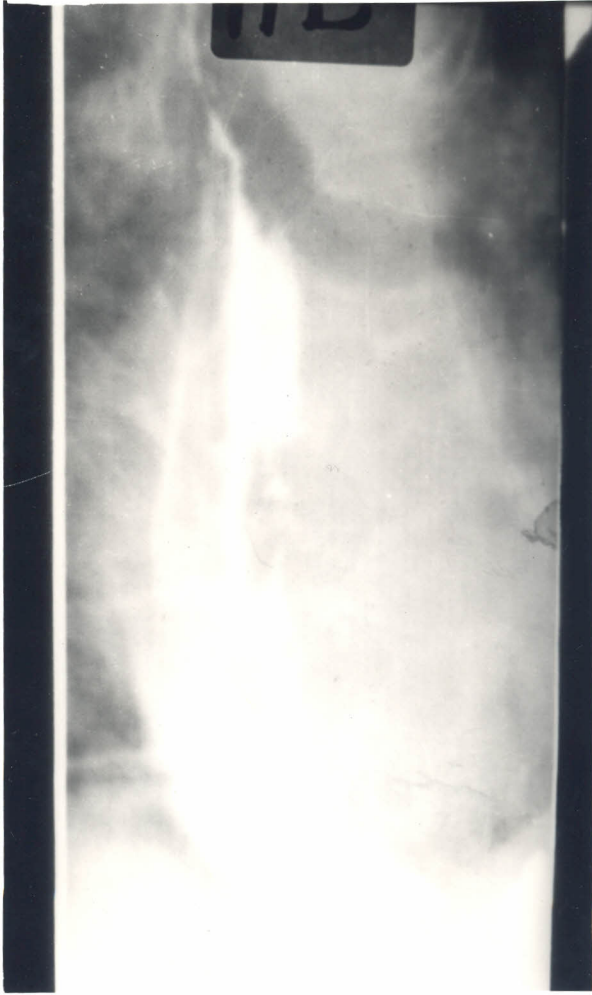
10. Achalasia - 25 year old male with history of progressive dysphagia and food regurgitation. Dilated Oesophagus with food debris.



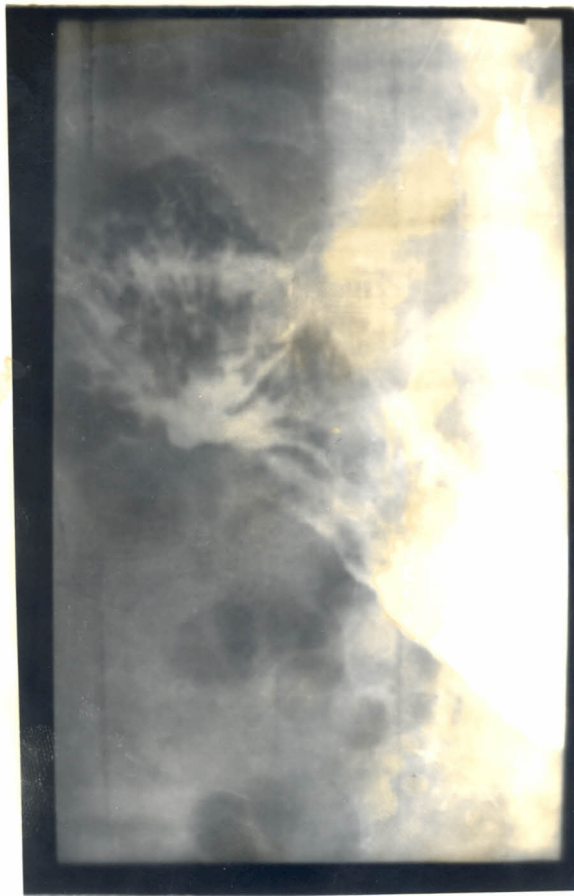
11a. Oesophageal diverticula.



11b. Benign Oesophageal ulcer.



12. Benign gastric ulcer.



DISCUSSION

The two most valuable investigations for diagnosis of upper gastro intestinal tract (GIT) diseases are the complimentary techniques of barium examination and fibre-optic endoscopy. Both have been found to be equally useful in management of upper GIT pathologies (1,4).

A series of studies has been carried out by Lule G.N. et al to determine the incidence rates of various upper GIT pathologies by endoscopy at Kenyatta National Hospital (KNH) (11, 14), but the same has not been done using barium meal double contrast examination.

In this study 320 patients of all age groups were recruited. A standardised double barium examination was done. The study population had more females (183) than males (137).

The disease pattern showed duodenal ulcer disease to be the commonest upper GIT pathology diagnosed at barium meal double contrast examination. Of the 258 patients clinically thought to have PUD, 50.4% had duodenal ulcer and 36(14.0%) had duodemitis. Gastric ulcer comprised only 13.8% of the total gastric lesions encountered at double contrast barium meal examination. The ratio of duodenal ulcer to gastric ulcer was 33:1 while the male to female ratio of duodenal ulcer was 1:1. The gastric ulcer was therefore relatively rare compared to duodenal ulcer which was consistent with other studies done here in K.N.H. and elsewhere (14,27).

The peak age group for those having duodenal ulceration was 25-40 years though the pathology was demonstrated in all age groups. Similiar findings have been published

following endoscopic review of upper GIT pathologies at KNH (11), These age group happens to be the most productive economically.

The sex ratio of 1:1 in this study may appear to contradict endoscopic findings by Lule G.N. and Wankya at K.N.H. who detected that twice as many males suffered from duodenal ulceration as their female counterparts (11). However their study population comprised only 50 patients of whom the males were double the females. In the present study using barium meal examination the ratio of female to male attendance was approximately 1:1 (57/42). Another plausible explanation for the discrepancy is the change in our female population life style. They are equally involved in the day to day running of the country's economic infrastructure and family care. Some of them are actually head of family and are therefore subjected to the same stress as their female counterparts. Smoking and alcohol consumption is no longer taboo to the fairer sex.

Out of 320 patients investigated during this period 100 were found to be have no abnormal radiological features in their upper GIT as shown in table 2. Sex and age distribution of those found to be normal was similar to the rest of the population study.

Like already noted, the mean age group of the population study is in the reproductive period (25-40yrs). 31.3.% of the total patients were normal and therefore subjected to unnecessary radiation. The International Commission on Radiological Protection recommends that unnecessary exposures should be avoided and that necessary exposures should be justifiable in terms of benefits that would not otherwise have been received(28) The presence of positive contrast medium in the GIT may increase the radiation dose to the gonads upto sixteen times (28)

Barium examinations are inherently high-dose procedures to the patient especially to the thyroid and the gonads because these organs are directly in or in proximity with the primary x-ray beam (29).

It is not expected that all patients undergoing upper GIT barium study will have radiological features of pathology but the number of those found to be normal can, and should be brought down. It's the onus of the examining clinician to reduce the number of unnecessary barium examinations provided the benefit to the patient is not compromised. The nature of some of the request forms presented by the patient in the x-ray department and the inadequacy of information contained therein (see appendix c) may reflect the superficial clinical examination afforded to such a patient.

The next commonest pathology of upper GIT following barium studies was in the stomach which comprised 13.2% (29/220) of all abnormal cases. Carcinoma of the stomach was leading in gastric pathologies with 10/29 (34.5%) patients followed by gastritis (27.6%). Gastric Carcinoma presented late with huge antral lesions causing gastric outlet obstruction. This was consistent with other studies where gastric malignancy in developing countries are detected late (1, 24, 25). Double contrast barium meal examination have been shown to be quite efficient in studying gastric pathologies and can detect upto 96% of gastric malignancies accurately (4).

Some of the gastric outlet obstruction lesions were thought to be due to chronic duodenal ulceration and have therefore been grouped separately. This is because it was thought that an endoscopy and biopsy would be necessary before the lesion was categorically stated to be either malignant or benign.

Oesophageal lesions were encountered in 18/220 (8.2%) during upper GIT barium examination. Clinical diagnosis of carcinoma of the oesophageal was the most frequent reason for requesting an oesophagogram. Radiological findings also showed it to be the commonest oesophageal lesion. Out of 14 patients with dysphagia and therefore suspected to have Carcinoma of oesophagus 9 (62.3%) were confirmed by barium swallow.

Two of these patients had achalasia and one had a motility disorder. Some of these patients were quite elderly and others had obvious signs and symptoms of obstruction

Such are the patients who may not require any special preparation and should be investigated on arrival without booking. One screening room may be kept ready for these patients to avoid delay in their management.

On enquiry only 76/320 (23.8%) of the population study could recall their blood group with certainty. 59.2% of these were blood group 'O' followed by blood group B with 22.4%. In those who had duodenal ulcers 62.16% of those who knew their blood group were in blood group O. It would appear that patients with blood group O are more prone to duodenal ulceration but because of the low number of those who knew their blood group no conclusion can be made from this study. This may warrant further investigation.

CONCLUSION

Duodenal ulcer is the commonest upper GIT pathology encountered in K.N.H. x-ray department during upper GIT barium examination. The trend of sex distribution of duodenal ulcer in K.N.H. appears to be shifting with the females being as equally afflicted as their male counterpart. As the development of duodenal ulcer depends both on genetic predisposition, and the environment in which such an individual lives in, it can be stated that the latter has become more harsh to the female population.

The number of patients exposed to unnecessary radiation are alarmingly high possibly due to inadequate clinical evaluation. However considering the cost of an endoscopy examination, the safety and accuracy of double contrast barium examination makes it the most affordable first line of investigation in upper GIT pathology.

RECOMMENDATION

Since occasionally x-ray examinations are misused as a tool for making a diagnosis rather than assisting the clinician in confirming or excluding a diagnosis, it is necessary that all patients be adequately assessed by a competent clinician before being referred for a barium examination. Liason between the requesting physician and the radiologist is at times very necessary especially where patient peculiarity cannot be provided on the request form.

Physician education as to what particular radiological examination is suited to a cluster of symptoms or of greatest diagnostic yield cannot be overstressed. Perhaps the teaching of radiology at undergraduate level is the most suitable starting point.

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APPENDIX:

- A - X-ray request form.
- B. - Ba meal examination interview form.
- C. - Ba meal request form of a patient from a private clinic who had come to K.N.H. X-ray department for investigation demonstrating the scanty information which is sometimes provided to the radiologist.
- D. - Properly completed Ba meal request form.

APPENDIX A

K.N.H. 206




KENYATTA NATIONAL HOSPITAL
X-RAY REQUEST/REPORT FORM

TYPE OF INVESTIGATION REQUESTED				NAME	
WALKING	CHAIR	TROLLEY	PORTABLE	SEX	AGE
APPOINTMENT			TIME	HOSPITAL No.	
L.M.P. IF PERIODS MISSED				X-RAY No.	
IS EXAM STILL NECESSARY (YES/NO)				REPORT TO BE SENT TO	
BRIEF CLINICAL SUMMARY:				PREVIOUS X-RAY No.	
				OFFICIAL USE ONLY	
REQUESTING DOCTOR (<i>Print Name</i>)			SIGNATURE	NO. OF FILMS	CHARGES
RADIOGRAPHER NAME				COMMENTS:	
DATE:.....					

RADIOLOGIST NAME	SIGNATURE	DATE
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APPENDIX C:

Ba Meal request form of a patient from a private clinic who had come to K.N.H. X-ray department for investigation demonstrating the scanty information which is sometimes provided to the radiologist.

X 347281
JH
JONATHAN KHAZIKWA
OPNO: 6242/92
AGE: 47 YRS
R: ? P.O.D 11/7/92
REP
Ba meal
18/7/92 AT 800 AM


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APPENDIX D



KENYATTA NATIONAL HOSPITAL
X-RAY REQUEST/REPORT FORM

K.N.H. 206

TYPE OF INVESTIGATION REQUESTED <i>Bar meal</i>				NAME <i>Elizabeth Kama</i>	
WALKING <input checked="" type="checkbox"/>	CHAIR	TROLLEY	PORTABLE	SEX <i>F</i>	AGE <i>18-12</i>
APPOINTMENT TIME				HOSPITAL No. <i>0483324</i>	
L.M.P. <i>16/11/97</i> IF PERIODS MISSED				X-RAY No.	
IS EXAM STILL NECESSARY (YES/NO)				REPORT TO BE SENT TO	
BRIEF CLINICAL SUMMARY: <i>RT with severe epigastric pain</i>				<i>wd 24</i>	
<i>no palpable mass</i>				PREVIOUS X-RAY No.	
<i>2/6 RAB</i>				OFFICIAL USE ONLY	
REQUESTING DOCTOR (Print Name) <i>P.W.G / Dr. Um...</i>			SIGNATURE <i>[Signature]</i>	NO. OF FILMS	CHARGES
RADIOGRAPHER NAME				COMMENTS:	
DATE <i>24/11/97</i>					

RADIOLOGIST NAME	SIGNATURE	DATE
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