ROLE OF SCINTIGRAPHY IN DIAGNOSIS OF LOWER GASTROINTESTINAL BLEEDING

ESSAY

Submitted in partial fulfilment for the Master Degree in General Surgery

By

TAREK FATHI FATHALLA

Supervised by

Prof. Dr.: AHMED SEDKI

PROFESSOR OF GENERAL SURGERY
FACULTY OF MEDICINE AIN SHAMS UNIVERSITY

Dr. MOHAMED SAID KAMEL

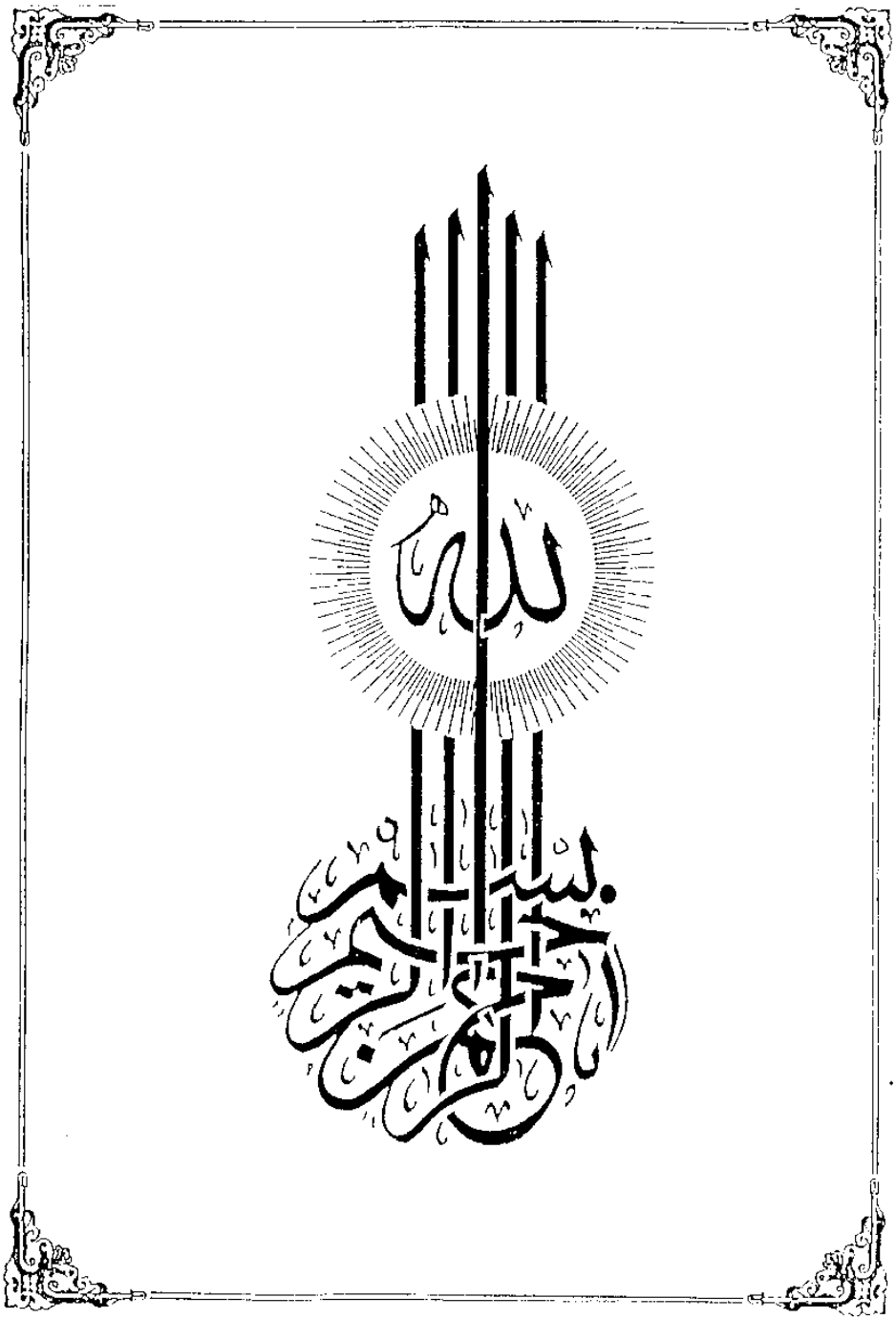
LECTURER OF GENERAL SURGERY
FACULTY OF MEDICINE AIN SHAMS UNIVERSITY

1989

ACKNOWLEDGEMENT

*I would like to express my deepest gratitude to Professor Doctor/ **AHMED SEDKI**, Professor of general surgery, Ain Shams university, who suggested this topic, for his encouragement and continuous support, without which, this work could never been accomplished.*

*I am quite indebted and grateful to Doctor/ **MOHAMED SAID KAMEL**, Lecturer of general surgery, Ain Shams university, for the time and effort he gave to review and refine every step in this work.*



CONTENTS

INTRODUCTION

INTRODUCTION

Lower gastrointestinal haemorrhage represents a challenging problem to most of surgeons. With the development of improved methods of diagnosis, a clearly defined approach to its diagnosis and management is necessary A successful outcome requires close co-operation between the GI surgeon gastro-enterologist, endoscopist, and radiologist in order to formulate a rational approach to the management of these patients.

Although the majority of cases of lower gastrointestinal bleeding can be managed conservatively (Behringer & Albright 1973) some cases of acute, uncontrolled lower gastrointestinal bleeding will require emergency surgical intervention.

The major problems facing the surgeon, in these cases is to determine which patients will require operation, when to operate and finally, identification of the site of bleeding, in order to perform the correct surgical procedure.

Total colectomy and iliorectal anastmosis has been recommended as the procedure of choice for the patients with massive colonic bleeding (Heald & Ray 1972, Ramanath & Hinshaw 1971, Tagart 1974, Eaton 1981). Fortunately, progress has been made in the management

of these difficult cases with the development of advanced techniques of diagnosis such as upper gastrointestinal endoscopy, colonoscopy mesentric angiography and radio nuclide imaging techniques (scintigraphy).

Scintigraphy represents a new, safe, non invasive simple and highly accurate method of diagnosis of lower gastrointestinal bleeding.

Since the discovery of the emissive nature of radionuclides by Marie Curie in 1898 the uses of these materials have been continuously developing and maturating for the sake of better human life.

AETIOLOGY
PATHOLOGY
DIAGNOSIS

REVIEW OF LITERATURE

(1) Aetiology

(2) Pathology

(3) Diagnosis
- I. History
- II. General examination
- III. Local examination
- IV. Documentation of intestinal blood loss
- V. Faecal occult blood testing

(1) Aetiology :

It can be classified according to the presentation into acute and chronic bleeding.

1- Causes of acute lower gastrointestinal bleeding :

The order of frequency will varify according to the different age groups.

Fig (1). Causes of acute lower gastroimtestinal haemorrhage. (Hunt 1986)

Children and adolescents	Adults	Adults over 60
-Meckel's diverticulum	-Diverticular disease	-Angiodysplasia
-Juvenile polyps	-Inflammatory bowel disease	-Diverticular disease
-Inflammatory bowel disease	-Polyps	-Polyps
	-Cancer	-Cancer
	-Arteriovenous malformations	-Ischaemic colitis

In children : The commenst causes of lower gastrointestinal bleeding are probably hamartomatous (juvenile) polyps, or solitory adenomas. Inflammatory or infective colitis may present with diarrhea and bleeding per rectum as in the adult but massive bleeding is unusual in these conditions. bleeding from Meckel's diverticulum is seen more frequently in children than in adults. Vascular abnormalities in the younger age groups, usually haemangiomas may be found and are most usually situated above the rectosigmoid junction.

In adults: Adenomatous polyps and carcinomata are important causes of rectal bleeding (Staniland et al 1976) but haemorrhage from these lesions is rarely severe. Inflammatory bowel disease is also associated with bleeding but rarely causes acute massive blood loss unless the disease is advanced and poorly controlled.

Diverticular disease is commonly associated with blood loss of varying degree, which may accosionally be severe, particularily from isolated right colonic diverticula (Casarella et al 1972).

Angiodysplasia, usually affecting the caecum and ascending colon is becoming more frequently recognised as a cause of massive colonic bleeding, particularily in the older age group. This lesion is rarely encoun-

tered in patients under 50 years of age (Boley et al 1977, Howard et al 1982).

In elderly patients : Angiodysplasia is a common cause of bleeding per reetum. Ischaemic colitis usually presents with bleeding per reetum either fresh blood or dark altered blood. Diverticulosis, polyps and cancer are also causes of bleeding in old age.

In addition to the above, mentioned causes we have also local amorectal causes and haemorrhagic blood diseases as a causes of lower gastrointestinal bleeding.

Although these conditions may cause acute haemorrhage, they can also produce chronic intermittent bleeding (Hunt 1986).

Chronic Intestinal blood loss:

It usually comes to clinical attention because of anaemie or positive test for faecal occult blood. Patients are usually elderly and often with serious diseases and may tolerate invasive procedure poorly The clinician may find that a multiplicity of possible causes of blood loss are present. Elderly, frail, arthritic patients with cardiac disease often have reflux oesphagitis, multiple gastric erosions, large bowel diverticular disease, colonic polyps and angiodysplasia

of the right colon in a varying degrees and combinations.

A number of conditions may cause anaemia, but do so, uncommonly, at least as a sole cause. Reflux oesphagitis antral erosions, haemorrhoids and large bowel diverticulae are all possible causes of chronic anaemie, but the clinician should be reluctant to accept them without having excluded concomitant more likely sources e.g carcinoma. (Cowen 1981).

It is to be mentioned here that the bleeding site may be located in the upper part of the gastrointestinal tract (above the ligament of Treitz) and due to rapid transit of blood the patient may present with bleeding per rectum.

(2) Pathology :

1-Meckel s diverticulum :

It represents the proximal end of the vitello-intestinal duct. is usually between 2-8 cm in length and may be lined by heterotopic gastric mucosa and occasionally with associated duodenal, colonic or pancreatic tissue. The diverticulum occurs in the distal ileum, approximately 30 cm proximal to the ileocoecal valve in infants and up to 90 cm proximal in adults. It occurs in 1-4 % of population with an equal sex incidence, although symptoms are more common in males. It is often an incidental operative finding but symptoms may occur with complications in (10-20% of cases). Secretion of acid and pepsin from the heterotopic gastric mucosa can cause ulceration either in the diverticulum itself or adjacent ileal mucosa with subsequent haemorrhage or perforation. Other complications include volvulus and intestinal obstruction usually due to a residual congenital band connecting the diverticulum to the umbilicus.

Acute gastrointestinal bleeding in children is due to Meckel's diverticulum in up to 50% of cases. The bleeding is usually dark red in colour and may be accompanied by abdominal pain.

Most accurate diagnosis is made by 99 technetium sodium pertechnetate isotope scan (Jewett et al 1970).

(II) Inflammatory bowel disease :

Recatal bleeding commonly occurs in ulcerative colitis (staniland et al 1976) but is seen less often in Crohn's disease. As many as 10% of patients complaining of episodes of persistant recal bleeding, or anaemia, with an apparently normal sigmoidoscopy and reportedly normal barium enema are subsequently found to have inflammatory bowel disease at colonoscopy (Hunt 1978).

However, acute severe bleeding is usually seen as a complication of extensive ulcerative colitis or Crohn's disease, although it occasionally may be a presenting feature of Crohn's disease in the younger patient.

The concept that Crohn's disease is a local lesion in the bowel which is less likely to recur if surgeons excise all the histologically affected bowel is one which at last being recognised as wrong.

A number of recent chemical and histological studies indicate that Crohn's disease is pathophysiologically a diffuse disorder of the gastrointestinal tract (Allan et al. 1975) and the surgeon s role is therefore to treat the complications of the disease. The factors responsible for this diffuse disease remain something of an enigma. (Keighley et al 1982).

(III) Radiation injury :

Irradiation of either the large or small bowel may also result in considerable lower gastrointestinal bleeding. Intestinal damage due to radiotherapy may become evident up to 20 - 30 years after treatment (Morson & Dawson 1979).

Macroscopic appearances range from friable bleeding mucosa in the acute stage through multiple telangectasia, to stricturing and loss of the normal haustral pattern as the disease progresses. Accurate diagnosis is essential following radiotherapy for pelvic carcinoma in order to differentiate between local recurrence and possible primary colorectal tumour (Swarbrick & Hunt 1981)or radiation colitis.

(IV) Ischaemic colitis:

It occurs usually in patients over 50 years of age and is divided into the gangrenous and non-gangrenous types (Brown 1968). In over 50% of cases it is not associated with any specific underlying cuase, other than generalized arteriosclerosis. It most frequently affects the inferior mesentric artery, causing left sided lesions (Marcuson 1972).

Specific aetiological factors occur more often in patients under the age of 50 and include the use of oral contraceptives, diabetes mellitus, mesentric embo-