"A CLINICAL STUDY ON IRRITABLE BOWEL SYNDROME (IBS) AND ITS HOMOEOPATHIC MANAGEMENT"

Dissertation submitted to the Tamilnadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the rules and regulations for the Degree of BACHELOR OF HOMEOPATHIC MEDICINE AND SURGERY (BHMS)

By

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CERTIFICATE

This is to certify that **Dr. ANJUM.EC** has carried out the dissertation entitled "**A CLINICAL STUDY ON IRRITABLE BOWEL SYNDROME (IBS) AND ITS HOMOEOPATHIC MANAGEMENT"** under my guidance and supervision for the degree of BACHELOR OF HOMEOPATHIC MEDICINE AND SURGERY [B.H.M.S] during the year of 2004-2010 as a partial fulfillment of the one year internship programme during the year 2009-2010 at R.V.S Homoeopathic Medical College & Hospital affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai, to my complete satisfaction and work in recommended for awarding the degree of BHMS.

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DECLARATION

I here by declare that this dissertation "A clinical study on IRRITABLE BOWEL SYNDROME (IBS) and it's Homoeopathic Management" has been prepared by me under the guidance of Dr.P.Vinay Kumar M.D (HOM) ,Head of the Department, Department of physiology during the year 2004_2010 in the partial fulfillment of the regulation of Tamilnadu Dr.M.G.R Medical University, Chennai, for the award of BACHELOR OF HOMOEOPATHIC MEDICINE AND SURGERY(BHMS) degree.

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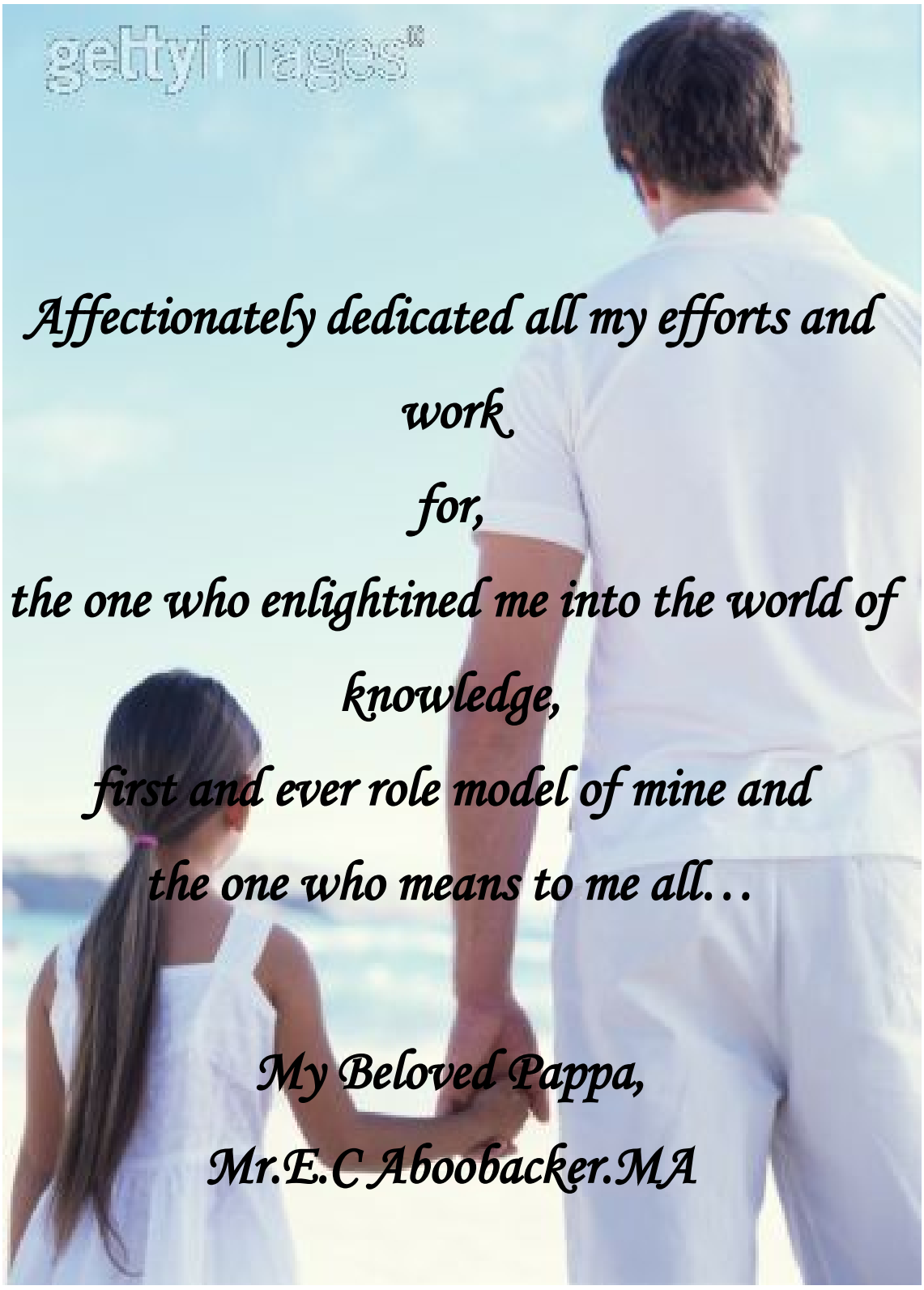


Affectionately dedicated all my efforts and work

for,

the one who enlightined me into the world of knowledge,

first and ever role model of mine and

the one who means to me all…

My Beloved Pappa,

Mr.E.C Aboobacker.MA

CONTENTS

INTRODUCTION

Irritable bowel syndrome, or IBS, is a problem that affects mainly the bowel, which is also called the large intestine. The bowel is the part of the digestive system that makes and stores stool. The word syndrome means a group of symptoms. IBS is a syndrome because it can cause several symptoms. For example, IBS causes cramping, bloating, gas, diarrhea, and constipation IBS is not a disease. It's a functional disorder, which means that the bowel doesn't work as it should.

Irritable Bowel Syndrome (IBS), more common in developed countries like the U.S. and the U.K., is a nervous system disorder that affects the bowels (specifically the large intestine, which is responsible for absorption of water and excretion of solid waste).

IBS is a disorder that affects the normal functioning of the body. It does not, however, harm the bowel or cause any other disease. Rather, it is a syndrome or a set of symptoms. In simple terms, it is a malfunction in the interaction between the intestines, the brain and the autonomic nervous system, which affects the bowel movement. IBS is diagnosed and treated by gastroenterologists, who are physicians that specialize in dealing with diseases or disorders affecting the intestines, stomach and associated organs.

IBS can be caused by a disturbance in the functioning of the colon, which is the lower part of the large intestine and connects the small intestine with the rectum and the anus. The colon absorbs the water, nutrients and salt from the partially digested food that enters from the

small intestine. It is the contractions of the colon that lead to a bowel movement. In some people, the colon is more sensitive and reacts strongly to certain foods and sometimes to stress. However, while stress may not directly lead to IBS, it can definitely trigger and intensify the symptoms. In fact, researchers have established a direct link between emotional stress and IBS-related symptoms. Studies also indicate that IBS is often preceded by a severe bout of gastroenteritis.

It has been estimated that one out of every five adults in U.S. suffers from this disorder. IBS can develop at any age, but it is more common in the 15- to 40-year-old age group. Often, patients are embarrassed to approach a physician for treatment. It helps to remember that IBS is a common disorder that affects approximately 10 to 20 percent of the population and the best way to cure it is to receive treatment as soon as possible.

The medicines can be used in IBS. Homeopathy for Irritable Bowel Syndrome is very safe, working with the body's own immune system to enhance its capability to fight off illness. Homeopathic treatment for Irritable Bowel Syndrome are obtained from plants, animals and minerals so are 'natural'. The substances are diluted, sometimes to very dilute levels, to the extent where the initial substance is undetectable by modern science. This is then spun/shaken rapidly. The process is called sucussion and the number of times this process takes place determines the 'potency' of the medicine. It is thought this double process imparts healing energy into the treatment. The more potent it is, the greater its properties.

Homeopathic practitioners use potentised remedies to treat IBS. The remedy used is usually a much diluted form of the trigger to the illness hence treating "like with like".

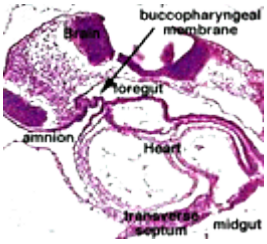
AIMS & OBJECTIVES

- ✓ A brief clinical study on Irritable bowel syndrome (IBS).
- ✓ To study the scope of homoeopathy in the cases of Irritable bowel syndrome (IBS)

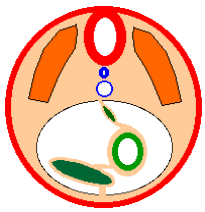
REVIEW OF LITERATURE

EMBRYOLOGY OF GASTRO INTESTINAL TRACT

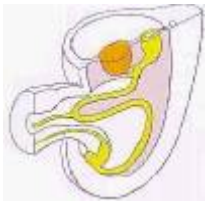
The gastrointestinal tract (GIT) extending from the buccopharyngeal membrane to the cloacal membrane arises from the endoderm of the trilaminar embryo (week 2, 3).



Foregut behind the develping heart



Cartoon of GIT cross-section and peritoneal cavity



Herniation of the midgut

During the 4th week the 3 distinct portions (fore-, mid- and hind-gut) extend the length of the embryo and will contribute different components of the GIT. The large mid-gut is generated by lateral embryonic folding which "pinches off" a pocket of the yolk sac, the 2 compartments continue to communicate through the vitelline duct.

The oral cavity (**mouth**) is formed following breakdown of the buccopharyngeal membrane (=oropharyngeal) and contributed to mainly by the pharynx lying within the pharyngeal arches.

From the oral cavity the next portion of the foregut is initially a single gastrointestinal (oesophagus) and respiratory (trachea) common tube, the pharynx which lies behind the heart.

GIT Foregut

Foregut - beneath the transverse septum the tract grows rapildy, dilating and rotaing to form the primitive stomach. Growth and rotation generates curvatures, peritoneal sacs and a large attached omentum The hepatic diverticulum (**liver** bud) lies under the septum transversum and is the earliest associated GIT organ that has differentiated, and will occupy a substantial region of the abdomen during development.

GIT Midgut

Midgut - beneath the stomach the initial portion of the small intestine, the duodenum, and the associated pancreas now lie.

Much of the **midgut is herniated** at the umbilicus external to the abdomen through development. A key step in development is the rotation of this midgut that must occur to place the GIT in the correct abdominal position with its associated mesentry. The GIT itself differentiates to form significantly different structures along its length: oesophagus, stomach, duodenum, jejunum, iliem (small intestine), colon (large intestine).

The **mesentries** of the GIT are generated from the common dorsal mesentry, with the ventral mesentry contributing to the **lesser omentum** and **falciform ligament**.

The **spleen** arises in week 5 within the dorsal mesogastrium as proliferating mesenchyme. Cells required for its hemopoietic function arise from the yolk sac wall and near dorsal aorta. The spleen generates both red and white cells in the 2nd trimester. Note that many embryonic RBCs remain nucleated.

The **pancreas** arises from 2 sources: the hepatic diverticulum (ventral) and the duodenum (dorsal). The pancreas must also differentiate to establish specific cells for endocrine and exocrine function

GIT Hindgut

Hindgut - distral transverse colon, descending colon, sigmoid colon, rectum and cloaca.

The **cloaca** is the common urogenital sinus which will later become partitioned into an anterior urinary and posterior GIT rectal component.

ANATOMY OF INTESTINE

The **small intestine** is a convoluted tube, extending from the pylorus to the colic valve, where it ends in the large intestine. It is about 7 meters long, and gradually diminishes in size from its commencement to its termination. It is contained in the central and lower part of the abdominal cavity, and is surrounded above and at the sides by the large intestine; a portion of it extends below the superior aperture of the pelvis and lies in front of the rectum. It is in relation, in front, with the greater omentum and abdominal parietes, and is connected to the vertebral column by a fold of peritoneum, the **mesentery.** The small intestine is divisible into three portions: the **duodenum,** the **jejunum,** and the **ileum.** The **Duodenum** has received its name from being about equal in length to the breadth of twelve fingers (25 cm.). It is the shortest, the widest, and the most fixed part of the small intestine, and has no mesentery, being only partially covered by peritoneum. Its course presents a remarkable curve, somewhat of the shape of an imperfect circle, so that its termination is not far removed from its starting-point. As it unites with the jejunum it turns abruptly forward, forming the **duodendojejunal flexure.** From the above description it will be seen that the duodenum may be divided into four portions: **superior, descending, horizontal,** and **ascending.**

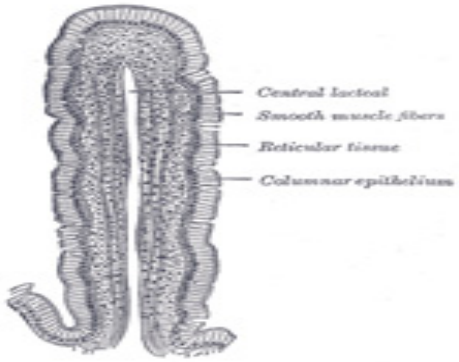
Jejunum and Ileum.—The remainder of the small intestine from the end of the duodenum is named **jejunum** and **ileum;** the former term being given to the upper two-fifths and the latter to the lower three-fifths. There is no morphological line of distinction between the two, and the division

is arbitrary; but at the same time the character of the intestine gradually undergoes a change from the commencement of the jejunum to the end of the ileum, so that a portion of the bowel taken from these two situations would present characteristic and marked differences.

The **Jejunum** (*intestinum jejunum*) is wider, its diameter being about 4 cm., and is thicker, more vascular, and of a deeper color than the ileum, so that a given length weighs more. The circular folds (*valvulæ conniventes*) of its mucous membrane are large and thickly set, and its villi are larger than in the ileum. The aggregated lymph nodules are almost absent in the upper part of the jejunum, and in the lower part are less frequently found than in the ileum, and are smaller and tend to assume a circular form.

The **Ileum** (*intestinum ileum*) is narrow, its diameter being 3.75 cm., and its coats thinner and less vascular than those of the jejunum. It possesses but few circular folds, and they are small and disappear entirely toward its lower end, but aggregated lymph nodules (Peyer's patches) are larger and more numerous. The jejunum for the most part occupies the umbilical and left iliac regions, while the ileum occupies chiefly the umbilical, hypogastric, right iliac, and pelvic regions. The terminal part of the ileum usually lies in the pelvis, from which it ascends over the right Psoas and right iliac vessels; it ends in the right iliac fossa by opening into the medial side of the commencement of the large intestine. The jejunum and ileum are attached to the posterior abdominal wall by an extensive fold of peritoneum, the **mesentery,** which allows the freest motion, so that each coil can accommodate itself to changes in form and position. The mesentery is fan-shaped; its posterior border or root, about 15 cm. long, is attached to the posterior abdominal wall from the left side

of the body of the second lumbar vertebra to the right sacroiliac articulation, crossing successively the horizontal part of the duodenum, the aorta, the inferior vena cava, the ureter, and right Psoas muscle. Its breadth between its vertebral and intestinal borders averages about 20 cm., and is greater in the middle than at its upper and lower ends. According to Lockwood it tends to increase in breadth as age advances. Between the two layers of which it is composed are contained bloodvessels, nerves, lacteals, and lymph glands, together with a variable amount of fat.



Meckel's Diverticulum (*diverticulum ilei*).—This consists of a pouch which projects from the lower part of the ileum in about 2 per cent. of subjects. Its average position is about 1 meter above the colic valve, and its average length about 5 cm.

Structure.—The wall of the small intestine is composed of four coats: **serous, muscular, areolar,** and **mucous.**

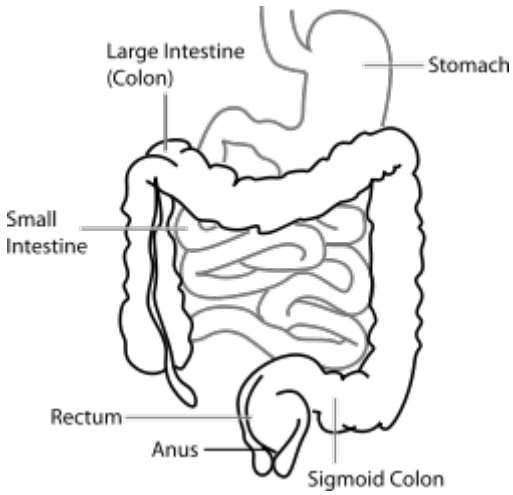
Serous coat (*tunica serosa*)
Muscular coat (*tunica muscularis*)
Areolar or **submucous coat** (*tela submucosa*)

The **intestinal villi** (*villi intestinales*) are highly vascular processes, projecting from the mucous membrane of the small intestine throughout its whole extent, and giving to its surface a velvety appearance. They are largest and most numerous in the duodenum and jejunum, and become fewer and smaller in the ileum.

The essential parts of a villus are: the lacteal vessel, the bloodvessels, the epithelium, the basement membrane, and the muscular tissue of the mucosa, all being supported and held together by retiform lymphoid tissue.

The *lacteals* are in some cases double, and in some animals multiple, but usually there is a single vessel. Situated in the axis of the villus, each commences by dilated cecal extremities near to, but not quite at, the summit of the villus. The walls are composed of a single layer of endothelial cells.

The *muscular fibers* are derived from the muscularis mucosæ, and are arranged in longitudinal bundless around the lacteal vessel, extending from the base to the summit of the villus, and giving off, laterally, individual muscle cells, which are enclosed by the reticulum, and by it are attached to the basement-membrane and to the lacteal.



The **colon** is the last part of the digestive system in most vertebrates; it extracts water and salt from solid wastes before they are eliminated from the body, and is the site in which flora-aided (largely bacteria) fermentation of unabsorbed material occurs. Unlike the small intestine, the colon does not play a major role in absorption of foods and nutrients. However, the colon does absorb water, potassium and some fat soluble vitamins.

The colon consists of four sections: the ascending colon, the transverse colon, the descending colon, and the sigmoid colon (the proximal colon usually refers to the ascending colon and transverse colon). The colon, cecum, and rectum make up the large intestine.

The ascending colon, on the right side of the abdomen, is about 25 cm long in humans.It is the part of the colon from the cecum to the hepatic flexure (the turn of the colon by the liver).

The transverse colon is the part of the colon from the hepatic flexure to the splenic flexure (the turn of the colon by the spleen). The

transverse colon hangs off the stomach, attached to it by a wide band of tissue called the greater omentum. On the posterior side, the transverse colon is connected to the posterior abdominal wall by a mesentery known as the transverse mesocolon.

The transverse colon is encased in peritoneum, and is therefore mobile (unlike the parts of the colon immediately before and after it).

The descending colon is the part of the colon from the splenic flexure to the beginning of the sigmoid colon. The function of the descending colon in the digestive system is to store food that will be emptied into the rectum. It is retroperitoneal in two-thirds of humans. In the other third, it has a (usually short) mesentery.

The **sigmoid colon** is the part of the large intestine after the descending colon and before the rectum. The name *sigmoid* means S-shaped (see sigmoid). The walls of the sigmoid colon are muscular, and contract to increase the pressure inside the colon, causing the stool to move into the rectum.

One variation on the normal anatomy of the colon occurs when extra loops form, resulting in a longer than normal organ. This condition, referred to as **redundant colon**, typically has no direct major health consequences, though rarely volvulus occurs resulting in obstruction and requiring immediate medical attention.

The **Rectum** (*intestinum rectum*) is continuous above with the sigmoid colon, while below it ends in the anal canal. From its origin at

the level of the third sacral vertebra it passes downward, lying in the sacrococcygeal curve, and extends for about 2.5 cm. in front of, and a little below, the tip of the coccyx, as far as the apex of the prostate. It then bends sharply backward into the anal canal. It therefore presents two antero-posterior curves: an upper, with its convexity backward, and a lower, with its convexity forward. Two lateral curves are also described, one to the right opposite the junction of the third and fourth sacral vertebræ, and the other to the left, opposite the left sacrococcygeal articulation; they are, however, of little importance. The rectum is about 12 cm. long, and at its commencement its caliber is similar to that of the sigmoid colon, but near its termination it is dilated to form the **rectal ampulla.** The rectum has no sacculations comparable to those of the colon, but when the lower part of the rectum is contracted, its mucous membrane is thrown into a number of folds, which are longitudinal in direction and are effaced by the distension of the gut. Besides these there are certain permanent transverse folds, of a semilunar shape, known as **Houston's valves**.

They are usually three in number; sometimes a fourth is found, and occasionally only two are present.

The **Anal Canal** (*pars analis recti*) or terminal portion of the large intestine, begins at the level of the apex of the prostate, is directed downward and backward, and ends at the anus. It forms an angle with the lower part of the rectum, and measures from 2.5 to 4 cm. in length. It has no peritoneal covering, but is invested by the Sphincter ani internus, supported by the Levatores ani, and surrounded at its termination by the Sphincter ani externus.

In the empty condition it presents the appearance of an antero-posterior longitudinal slit. Behind it is a mass of muscular and fibrous tissue, the **anococcygeal body** (Symington); in front of it, in the male, but separated by connective tissue from it, are the membranous portion and bulb of the urethra, and the fascia of the urogenital diaphragm; and in the female it is separated from the lower end of the vagina by a mass of muscular and fibrous tissue, named the **perineal body.**

PHYSIOLOGY OF INTESTINE

The Small Intestine

The duodenum, about 25 cm (10 in) long, receives chyme from the stomach through the pyloric sphincter. Ducts that empty into the duodenum deliver pancreatic juice and bile from the pancreas and liver, respectively.

The jejunum, about 2.5 m (8 ft) long, is the middle section of the small intestine.

The ileum, about 3.6 m (12 ft) long, is the last section of the small intestine. It ends with the ileocecal valve (sphincter), which regulates the movement of chyme into the large intestine and prevents backward movement of material from the large intestine.

The functions of the small intestine include

Mechanical digestion. Segmentation mixes the chyme with enzymes from the small intestine and pancreas. Bile from the liver separates fat into smaller fat globules. Peristalsis moves the chyme through the small intestine.

Chemical digestion. Enzymes from the small intestine and pancreas break down all four groups of molecules found in food (polysaccharides, proteins, fats, and nucleic acids) into their component molecules.

Absorption. The small intestine is the primary location in the GI tract for absorption of nutrients:

Carbohydrates, proteins, nucleic acids, and water-soluble vitamins. The components of these molecules are absorbed by facilitated diffusion or active transport. They are then passed to blood capillaries.

Vitamin B_{12}. Vitamin B_{12} combines with intrinsic factor (produced in the stomach) and is absorbed by receptor-mediated endocytosis. It is then passed to the blood capillaries.

Lipids and fat-soluble vitamins. Because fat-soluble vitamins and the components of lipids are insoluble in water, they are packaged and delivered to cells within water-soluble clusters of bile salts called micelles. They are then absorbed by simple diffusion and, once inside the cells, mix with cholesterol and protein to form chylomicrons. The chylomicrons are then passed to the lymphatic capillaries. When the lymph eventually empties into the blood, the chylomicrons are broken down by lipoprotein lipase, and the breakdown products, fatty acids and glycerol, pass through blood capillary walls to be absorbed by various cells.

Water and electrolytes. About 90 percent of the water in chyme is absorbed, as well as various electrolytes (ions), including Na^-, K^-, Cl^-, nitrates, calcium, and iron.

Modifications of the mucosa for its various specialized functions in the small intestine include the following:

The plicae circulares (circular folds) are permanent ridges in the mucosa that encircle the inside of the small intestine. The ridges force the food to spiral forward. The spiral motion helps mix the chyme with the digestive juices.

Villi (singular, villus) are fingerlike projection that cover the surface of the mucosa, giving it a velvety appearance. They increase the surface area over which absorption and digestion occur.

The spaces between adjacent villi lead to deep cavities at the bases of the villi called intestinal crypts (crypts of Lieberkühn). Glands that empty into the cavities are called intestinal glands, and the secretions are collectively called intestinal juice.

Microvilli are microscopic extensions of the outer surface of the absorptive cells that line each villus. Because of their brushlike appearance (microscopically), the microvilli facing the lumen form the brush border of the small intestine. Like the villi; the microvilli increase the surface area over which digestion and absorption take place.

The villi of the mucosa have the following characteristics:
An outer epithelial layer (facing the lumen) consists of the following cell types:

Absorptive cells, the primary cell type of the epithelial layer, synthesize digestive enzymes called brush border enzymes that become embedded in the plasma membranes around the microvilli. Various nutrients in the chyme that move over the microvilli are broken down by these brush border enzymes and subsequently absorbed.

Goblet cells, located throughout the epithelial layer, secrete mucus that helps protect the epithelial layer from digestion.
Enteroendocrine cells secrete hormones into blood vessels that penetrate the villus.

Paneth cells, located in the epithelial layer facing the intestinal crypts, secrete lysozyme, an enzyme that destroys bacteria.

An inner core of lamina propria (connective tissues) contains blood capillaries and a small lymphatic capillary called a lacteal.

The submucosa that underlies the mucosa of the small intestine bears the following modifications:

Brunner's (duodenal) glands, found only in the submucosa of the duodenum, secrete alkaline mucus that neutralizes the gastric acid in the incoming chyme.

Peyer's patches (aggregated lymphatic nodules), found mostly in the submucosa of the ileum, are clusters of lymphatic nodules that provide a defensive barrier against bacteria.

LARGE INTESTINE

The **diameter of the colon** is much **larger** than the **small intestine**; three longitudinal bands make up the external muscular layer. The fact that the bands are shorter than the rest of the colon makes for "**outpouchings**" on the wall of the colon. The colonic mucosa has no villi, however it does have glands, short inward projections that secrete mucus.

When food leaves the stomach, the cecum relaxes, and the chyme passes through the ileocecal valve. This is thought to be a **vagal reflex**, and **sympathetic stimulation increases** the tonic **contraction** of the valve. Contractions and peristaltic waves move the contents through for eventual elimination.

The colon has an immense absorptive capacity, mainly for water, sodium and minerals. "Some enteric microorganisms synthesize vitamin K and a number of B complex vitamins, and the folic acid produced by bacteria can be shown to be absorbed in significant amounts" (Review of Medical Physiology, 1987, Appleton & Lange, San Mateo, Ca. p.425)

These microorganisms are the "healthy" bacteria, and they usually keep the "unhealthy" bacteria in check, partly by creating lactic acid from carbohydrate. However, an upset in the immune system, such as that caused by antibiotic administration, kills off the beneficial bacteria and ultimately allows the harmful bacteria to flourish

BLOOD SUPPLY, NERVE SUPPLY AND LYMPHATICS OF INTESTINE

The **arteries** supplying the duodenum are the right sgastric and superior pancreaticoduodenal branches of the hepatic, and the inferior pancreaticoduodenal branch of the superior mesenteric. The **veins** end in the lienal and superior mesenteric. The **nerves** are derived from the cœliac plexus.

The *bloodvessels* form a plexus under the basement membrane, and are enclosed in the reticular tissue.

The jejunum and ileum are supplied by the **superior mesenteric artery,** the intestinal branches of which, having reached the attached border of the bowel, run between the serous and muscular coats, with frequent inosculations to the free border, where they also anastomose with other branches running around the opposite surface of the gut. From these vessels numerous branches are given off, which pierce the muscular coat, supplying it and forming an intricate plexus in the submucous tissue. From this plexus minute vessels pass to the glands and villi of the mucous membrane. The **veins** have a similar course and arrangement to

the arteries. The **lymphatics** of the small intestine (lacteals) are arranged in two sets, those of the mucous membrane and those of the muscular coat. The lymphatics of the villi commence in these structures in the manner described above. They form an intricate plexus in the mucous and submucous tissue, being joined by the lymphatics from the lymph spaces at the bases of the solitary nodules, and from this pass to larger vessels at the mesenteric border of the gut. The lymphatics of the muscular coat are situated to a great extent between the two layers of muscular fibers, where they form a close plexus; throughout their course they communicate freely with the lymphatics from the mucous membrane, and empty themselves in the same manner as these into the origins of the lacteal vessels at the attached border of the gut.

The **nerves** of the small intestines are derived from the plexuses of sympathetic nerves around the superior mesenteric artery. From this source they run to the **myenteric plexus** (*Auerbach's plexus*) of nerves and ganglia situated between the circular and longitudinal muscular fibers from which the nervous branches are distributed to the muscular coats of the intestine. From this a secondary plexus, the **plexus of the submucosa** (*Meissner's plexus*) is derived, and is formed by branches which have perforated the circular muscular fibers. This plexus lies in the submucous coat of the intestine; it also contains ganglia from which nerve fibers pass to the muscularis mucosæ and to the mucous membrane.

Arterial supply to the colon comes from branches of the superior mesenteric artery (SMA) and inferior mesenteric artery (IMA). Flow between these two systems communicates via a "marginal artery" that runs parallel to the colon for its entire length. Historically, it has been

believed that the arc of Riolan, or the meandering mesenteric artery (of Moskowitz), is a variable vessel connecting the proximal SMA to the proximal IMA that can be extremely important if either vessel is occluded. However, recent studies conducted with improved imaging technology have questioned the actual existence of this vessel, with some experts calling for the abolition of the terms from future medical literature.

Venous drainage usually mirrors colonic arterial supply, with the inferior mesenteric vein draining into the splenic vein, and the superior mesenteric vein joining the splenic vein to form the hepatic portal vein that then enters the liver.

Lymphatic drainage from the entire colon and proximal two-thirds of the rectum is to the paraaortic lymph nodes that then drain into the cisterna chyli. The lymph from the remaining rectum and anus can either follow the same route, or drain to the internal iliac and superficial inguinal nodes. The pectinate line only roughly marks this transition.
The ascending colon is supplied by parasympathetic fibers of the vagus nerve (CN X).

Arterial supply of the ascending colon comes from the ileocolic artery and right colic artery, both branches of the SMA. While the ileocolic artery is almost always present, the right colic can be absent in 5–15% of individuals.

The sigmoid colon is supplied with blood from several branches (usually between 2 and 6) of the sigmoid arteries, a branch of the IMA. The IMA terminates as the superior rectal artery.

The **arteries** supplying the colon are derived from the colic and sigmoid branches of the mesenteric arteries. They give off large branches, which ramify between and supply the muscular coats, and after dividing into small vessels in the submucous tissue, pass to the mucous membrane. The rectum is supplied by the superior hemorrhoidal branch of the inferior mesenteric, and the anal canal by the middle hemorrhoidal from the hypogastric, and the inferior hemorrhoidal from the internal pudendal artery. The superior hemorrhoidal, the continuation of the inferior mesenteric, divides into two branches, which run down either side of the rectum to within about 12.5 cm. of the anus; they here split up into about six branches which pierce the muscular coat and descend between it and the mucous membrane in a longitudinal direction, parallel with each other as far as the Sphincter ani internus, where they anastomose with the other hemorrhoidal arteries and form a series of loops around the anus.

Veins of the rectum commence in a plexus of vessels which surrounds the anal canal. In the vessels forming this plexus are smaller saccular dilatations just within the margin of the anus; from the plexus about six vessels of considerable size are given off. These ascend between the muscular and mucous coats for about 12.5 cm., running parallel to each other; they then pierce the muscular coat, and, by their union, form a single trunk, the superior hemorrhoidal vein. This arrangement is termed the **hemorrhoidal plexus;** it communicates with the tributaries of the middle and inferior hemorrhoidal veins, at its commencement, and thus a communication is established between the systemic and portal circulations. The **nerves** are derived from the sympathetic plexuses around the branches of the superior and inferior

mesenteric arteries. They are distributed in a similar way to those found in the small intestine.

REVIEW OF LITERATURE

WHAT IS IRRITABLE BOWEL SYNDROME(IBS)?

Irritable Bowel Syndrome is a chronic condition of the lower gastrointestinal tract. The symptoms of IBS may include abdominal pain, distention, bloating, indigestion and various symptoms of defecation. There are three subcategories of IBS, according to the principal symptoms. These are pain associated with diarrhea; pain associated with constipation; and pain and diarrhea alternating with constipation (Figure 3). Each patient's symptoms are unique. While IBS may occur as an occasional nuisance for some people, others may experience intense pain that compromises their quality of life.

The three symptom subcategories of Irritable Bowel

IBS does not lead to more serious disease, nor does it shorten the life span of those affected. It is not an inflammatory, infectious or malignant condition and has not been found to lead to colitis. Furthermore, IBS is not a psychiatric disorder, although it is tied to emotional and social stress, which can affect both the onset and severity of symptoms. While IBS is not considered a life-threatening disease, IBS patients suffer from a disproportionately higher rate of co-morbidity with other disorders, such as fibromyalgia, chronic fatigue, pelvic pain and psychiatric disorders.

Primary features of the syndrome include motility, sensation and central nervous system dysfunction. Motility dysfunction may be manifest in muscle spasms; contractions can be very slow or fast. An increased sensitivity to stimuli causes pain and abdominal discomfort. Researchers also suspect that the regulatory conduit between the central and enteric pathway in patients suffering from IBS may be impaired.

Research suggests that many patients with Irritable Bowel Syndrome have disorganized and appreciably more intense colonic contractions than normal controls. A study at Johns Hopkins reported that healthy volunteers had 6–8 peristaltic contractions in the colon in a 24-hour period. In contrast, IBS volunteers in whom the primary symptom was constipation had almost no contractions, and IBS volunteers in whom the primary symptom was diarrhea had as many as 25 contractions a day. Researchers have also found that pain is frequently associated with irregular motor activity of the small intestine when compared with either normal controls or patients with Inflammatory Bowel Disease. Patients with this disease appear to have a defect of visceral pain processing—

although whether or not this is a true hypersensitivity or hyper-vigilance remains controversial. Interestingly, however, ileal and rectosigmoid balloon-distention studies have demonstrated that patients with IBS experience pain and bloating at balloon pressures and volumes that are significantly lower than those which cause symptoms in normal controls.

SYNONYMS OF IBS

- **Irritable Bowel Syndrome**
- **Spastic Colon**
- **Spastic Bowel**
- **Irritable Bowel**

EPIDEMIOLOGY OF IBS

The frequency of IBS in any given population depends, in part, on the ethnic and cultural background of the population being studied, and the criteria used to diagnose the disease. Eight to 20% of adults in the Western world report symptoms consistent with IBS (60-70% of these are women). In the United States, as many as 15% of adults (about 35 million people) report IBS symptoms (note: the frequency of IBS among Caucasian, African American and Hispanic populations is relatively consistent). Asia and Africa have similar rates to those in the United States, and the Western world in general. In India and Sri Lanka, IBS is more common among men, although it is possible that this is a result of differences in symptom reporting and health care use between genders. Physiological differences between men and women impact gastrointestinal transit time, visceral sensitivity, central nervous system processing, and specific effects of estrogen and progesterone on gut function. While the effect of gender on seratonergic agents efficacy has been examined, much less is understood about gender differences in nondrug therapies for treatment of IBS. Overall, the differences in IBS incidence rates between genders and populations can probably be explained by viewing IBS as a biopsychosocial disorder in which not

only abnormal sensation and motility, but also psychosocial factors play a role.

Only about 10% of people with symptoms of IBS present to physicians for evaluation or treatment. In spite of this, the health-care related costs of IBS are substantial. IBS accounts for nearly 3.5 million physician visits in the U.S. annually, and is the most common diagnosis in gastroenterologists' practice

Frequency

United States

Symptoms consistent with irritable bowel syndrome are present in 10-20% of adolescents and adults. Less than one third of patients seek medical advice. In the pediatric population, irritable bowel syndrome symptoms are reported in 14% of high-school students and 6% of middle-school students. One third of patients with irritable bowel syndrome trace their symptoms to childhood.

International

Prevalence in developing countries is probably lower than in Western countries, but this may be explained by a combination of reduced availability of medical care and different cultural approaches to illness.

Mortality/Morbidity

Irritable bowel syndrome is not a life-threatening condition but can have a serious impact on a patient's daily activities and quality of life. Greater impairments in quality of life are reported in patients with irritable bowel syndrome who sought medical care compared with those

who did not consult their physicians for irritable bowel syndrome symptoms. It is a major cause of absenteeism at the workplace and at school. Abdominal pain in patients with irritable bowel syndrome is responsible for significant school absences in 4-5% of middle and high-school students.

Race

Irritable bowel syndrome is not well characterized outside Western countries. According to reported studies, the disease prevalence is lower in Hispanic and Asian populations than in Caucasian populations, and whites are more likely to have irritable bowel syndrome than blacks.

Sex

Women are 2-3 times more likely than men to have irritable bowel syndrome. In pediatric patients, both sexes are equally affected.

Age

Irritable bowel syndrome is a disorder of young people. One half of patients experience symptom onset when younger than 35 years, and 40% of patients are aged 35-50 years when symptoms begin. Irritable bowel syndrome is recognized in children. Symptoms consistent with irritable bowel syndrome are reported in 16% of students aged 11-17 years. Irritable bowel syndrome is not described in preschool-aged and younger children because the diagnosis depends on the child's ability to report detailed symptoms.

AETIOLOGY OF IBS

Irritable bowel syndromehas no identifiable cause, and laboratory testing is unrevealing. Over the last 5 decades, the understanding of irritable bowel syndrome has evolved from a disorder of motor activities in the upper and lower GI tracts to a more integrated understanding of visceral hypersensitivity and brain-gut interaction.

GI motility abnormalities

Studies evaluating the motor response of the colon to meals, pain, and stress suggest a difference between control subjects and patients with irritable bowel syndrome. Pretreatment with anticholinergic medication in irritable bowel syndrome was demonstrated to reduce meal-stimulated pain and diarrhea. The finding of an abnormal, 3-cycle-per-minute, slow-wave activity in the colon of patients with irritable bowel syndrome was not confirmed by other studies and was noted in some individuals without irritable bowel syndrome.

Abnormal small-bowel motility has also been reported by some investigators. Intestinal transit has been demonstrated to be delayed in patients with constipation-predominant irritable bowel syndrome. In contrast, the transit was accelerated in patients with diarrhea-predominant irritable bowel syndrome. Clustered contractions in the duodenum and jejunum and prolonged propagated contractions in the ileum were noted more frequently in patients with irritable bowel syndrome. Small-bowel motility studies have demonstrated more abnormal findings in patients with irritable bowel syndrome in conscious states than during sleep, suggesting that the condition may result in part from CNS input.

Non-GI smooth-muscle abnormalities

Bladder dysfunction was identified in 50% of patients with irritable bowel syndrome and in only 13% of control subjects. One study found patients with irritable bowel syndrome to have a higher incidence of orthostatic hypotension. A clinical study demonstrated a greater reduction of forced expiratory volumes in 1 second (FEV1) induced by methacholine in patients with irritable bowel syndrome than in control subjects.

Visceral hypersensitivity

Most patients with functional disorders appear to have inappropriate perception of physiologic events and altered reflex responses in different gut regions. Patients with irritable bowel syndrome undergoing balloon distension studies of the colorectum demonstrated awareness of distension and pain at pressures and volumes that were significantly lower than in control subjects. The development of chronic hyperalgesia within the GI tract can be explained by the development of hyperexcitability of neurons in the dorsal horn in response to peripheral tissue irritation or to descending influences from the brain stem. Multiple factors are proposed to alter neuroreceptors and afferent spinal neuron functions. These factors include genetic, inflammatory, local nerve mechanical irritation, motility, and psychological factors.

Brain-gut interaction

The brain-gut axis is a bidirectional pathway that links higher cortical centers with visceral afferent sensation and intestinal motor function. Regulation of these connections occurs via numerous neurotransmitters found in the brain and gut, including cholecystokinin,

vasoactive intestinal peptide, substance P, serotonin (5-hydroxytryptamine [5-HT]), and many others. These transmitters act at different sites in the brain and gut and lead to varied effects on gastrointestinal motility, pain control, emotional behavior, and immunity. Serotonin plays a critical role in the regulation of GI motility, secretion, and sensation. In the GI tract, 5-HT is synthesized by the enterochromaffin cells (EC) located within the mucosa of the intestine. 5-HT released by EC cells initiates peristaltic and secretory reflexes by acting on its receptors. Several subclasses of 5-HT receptors are differentiated on the basis of structure, molecular mechanism, and function. Excess serotonin is removed by the serotonin transporter (SERT) expressed by intestinal epithelial cells. Studies have shown that irritable bowel syndrome symptoms may be related to imbalance in mucosal 5-HT availability caused by defects in 5-HT production, serotonin receptors, or SERT.

Dysregulation of the brain-gut system is becoming an acceptable theory to explain the functional GI disorders. Furthermore, several studies have hypothesized that specific 5-HT receptor antagonists may be beneficial in irritable bowel syndrome. Numerous newer noninvasive imaging techniques (eg, positron emission tomography, functional MRI) have been applied to assess brain-gut interactions in healthy patients and in those with irritable bowel syndrome.

Genetics

Several studies suggest that irritable bowel syndrome may have a genetic basis. The genetic theory is based on twin studies as well as familial aggregation of irritable bowel syndrome. Several twin studies

have shown a higher concordance rate for irritable bowel syndrome in monozygotic twins than in dizygotic twins. Studies on familial aggregation have found that patients with irritable bowel syndrome are more likely than controls to present positive family history. However, familial and twin aggregation studies cannot exclude the influence of environmental and social learning in the development of irritable bowel syndrome.

In a twin study conducted by Levy et al, the proportion of dizygotic twins with irritable bowel syndrome who have mothers with irritable bowel syndrome was greater than the proportion of dizygotic twins with irritable bowel syndrome who have co-twins with irritable bowel syndrome. The data also revealed that having a mother or a father with irritable bowel syndrome are independent predictors of irritable bowel syndrome status and both are stronger predictors than having a twin with irritable bowel syndrome.

Several investigators have proposed that irritable bowel syndrome may be associated with select gene polymorphisms, including SERT, alpha-adrenergic receptors, interleukin-10, transforming growth factor, tumor necrosis factor-alpha, and sodium channel. However, the data are limited, and studies have failed to identify a specific irritable bowel syndrome gene.

Psychosocial factors in irritable bowel syndrome

Numerous studies have found an increased prevalence of abnormal psychiatric disorders, including anxiety, major depression, personality

disorders, and hysteria, in adult patients with irritable bowel syndrome, especially patients referred to medical facilities. These psychological disturbances are not believed to cause or induce the symptoms of irritable bowel syndrome but are thought to influence the patient's perception of the symptoms and affect the clinical outcome. Stressful events are known to affect GI functions and may lead to exacerbation of symptoms in patients with irritable bowel syndrome.

In addition, antidepressant or antipsychotic therapy is helpful in some patients with irritable bowel syndrome. A meta-analysis has confirmed the relative efficacy of antidepressant medications in irritable bowel syndrome, particularly in predominantly diarrheic patients experiencing severe pain. Studies have reported an increased frequency of prior sexual or physical abuse in patients with irritable bowel syndrome and other functional GI disorders.

Dietary factors

Some studies have proposed that carbohydrate intolerance may produce significant symptoms in patients with irritable bowel syndrome. Ingestion of lactose, sorbitol, or fructose is associated with increased GI symptoms. Likewise, a food allergy may play a minor role in triggering or exacerbating symptoms in some patients with irritable bowel syndrome. A study by Atkinson et al has shown that immunoglobulin (Ig)G food antibodies may have a role in irritable bowel syndrome and food elimination based on IgG antibodies may be effective in reducing irritable bowel syndrome symptoms.

GI infection and irritable bowel syndrome

Some investigations found a correlation between the development of irritable bowel syndrome and a prior severe GI infection, especially in patients with higher scores for anxiety. Symptoms compatible with irritable bowel syndrome affect 10-15% of adult patients after acute infectious gastroenteritis. Factors that increase risk to develop post infectious irritable bowel syndrome include severe and prolonged infection, female sex, younger age, antibiotic treatment for this infection, and concomitant presence of anxiety.

CLASSIFICATION OF IBS

Most people who have irritable bowel syndrome (IBS) have mild symptoms that usually don't disrupt their lives. They usually don't need to see a health professional, other than for reassurance that they do not have a more serious problem, such as cancer.

About 25% of people who have IBS have more bothersome symptoms that occasionally disrupt work, school, or other activities. Episodes may be related to stressful events or to eating a particular type of food. In these people, physical and emotional factors may affect their symptoms.

Only a few people (about 5%) with IBS have severe symptoms, such as abdominal pain that is much more severe than would be expected from stress, meals, or a physical problem. These people often are also anxious, depressed, or under a lot of stress, and they may have trouble acknowledging that stress-related factors may be contributing to their problem.

Sometimes people who have severe IBS symptoms visit many doctors, trying to find a physical cause for their symptoms and to find a cure. Some may believe that their doctors are overlooking a serious problem and may believe that they need more tests or treatments. This can be very frustrating. It is often helpful to get a second opinion, if possible from a doctor who specializes in treating functional bowel disorders.

There are two major clinical types of IBS, constipation predominate IBS, and Diarrhea predominate IBS.

In constipation-predominant IBS, constipation is common, but bowel habits vary. Most patients have pain over at least one area of the colon, associated with periodic constipation alternating with a more normal stool frequency. Stool often contains clear or white mucus. The pain is either colicky, coming in bouts, or a continuous dull ache; it may be relieved by a bowel movement. Eating commonly triggers symptoms. Bloating, flatulence, nausea, dyspepsia, and pyrosis can also occur.

Diarrhea-predominant IBS is characterized by precipitous diarrhea that occurs immediately on rising or during or immediately after eating. Nocturnal diarrhea is unusual. Pain, bloating, and rectal urgency are common, and incontinence may occur. Painless diarrhea is not typical and should lead to consider other diagnostic possibilities e.g., malabsorption, osmotic diarrhea, and etc.

PATHOLOGY OF IBS

The walls of our intestines are lined with layers of muscle that expand and contract at regular intervals in order to move and digest the food through our intestines.

A few times, each day, strong muscle contractions move down the bowel pushing fecal material ahead. Some of these strong contractions result in a bowel movement. In a normal person, these contractions are smooth and rhythmic.

When IBS occurs, the colon seems to contract in a disorganized, at times violent, manner. These abnormal contractions result in changing the bowel patterns.

The localized areas of the colon may remain contracted for a prolonged time or intestines may move very slowly. When this occurs, stools are retained for prolonged period in the intestines and become dry. The cumulative effect is that the person suffers from constipation.

Also, air may accumulate behind these localized contractions, causing the bowel to swell. So bloating and abdominal distress may occur.

In others, these contractions take place in so rapid succession and move the contents of intestine so fast, that the bowel does not get enough time to absorb the water from the digested matter, resulting in watery diarrhea.

A second major feature of IBS is the abdominal discomfort or pain. These strong, sharp contractions cause excruciating pain. Moreover, the intestines in people with IBS often send heightened pain signals to the brain, so people with IBS can feel extreme pain after a normal meal, during a normal bowel movement, or even with a little bit of gas.

Mucous is a normal secretion of the bowel, although most of the time it cannot be seen. IBS patients sometimes produce large amounts of mucous, but this is not a serious problem.

HISTOPATHOLOGY OF IBS

Irritable bowel syndrome is a common disorder defined by a symptom complex including abdominal pain and altered bowel habit. The etiopathogenesis appears to be multifactorial and to involve altered gastrointestinal motor function, enhanced perception of visceral stimuli and psychosocial factors. More recently a role for mucosal immune activation has been suggested. Routine histologic examination reveals no mucosal abnormality in the majority of cases but quantitative histological, immunohistochemical and ultrastructural analyses reveal subtle morphologic changes involving lymphocytes, mast cells, enterochromaffin cells and enteric nerves. The recent appreciation of these changes has led to new hypotheses linking central and enteric nervous systems to immune processes. This review highlights the spectrum of morphologic changes that occur in irritable bowel syndrome, examines their relationship to the pathophysiology of irritable bowel syndrome and considers their relevance to daily pathology practice.

Keywords:

Irritable bowel syndrome, pathology, chronic inflammation, mast cell, enterochromaffin cell, enteric nerve. Irritable bowel syndrome (IBS) is the most common gastrointestinal disorder encountered in general and gastroenterology practice.[1], [2] It affects 10–20% of adolescents and adults in western societies[3] and is the commonest cause of recurrent abdominal pain in children.[4] IBS is defined by a symptom complex which includes abdominal pain and altered bowel function in the form of diarrhea, constipation, a sensation of fullness following evacuation, bloating or the passage of mucus per rectum. There are no physical or laboratory findings which are specific for IBS and the diagnosis is therefore based

on symptomatology. To standardize the diagnosis of IBS, several symptom-based diagnostic criteria have been established over the last two decades including the Manning, Rome I, Rome II and, most recently, Rome III criteria.[5] The Rome criteria have shown a reasonable sensitivity and specificity for IBS. In patients without atypical symptoms (such as loss of weight, fever, rectal bleeding and nocturnal awakening due to pain) the Rome criteria have a positive predictive value of approximately 98% for IBS, that is additional investigations will yield an alternative diagnosis in only 2% of cases.[1, 6] IBS has been subclassified into diarrhea predominant, constipation predominant and mixed subtypes. In addition, a subset of patients have associated extraintestinal symptoms including fatigue, fibromyalgia, urinary frequency and headache.[6] A small but significant proportion of IBS of patients report onset of IBS symptoms following an episode of acute gastroenteritis (post-infectious IBS, PI-IBS).[7, 8, 9] PI-IBS has been reported following Shigella,[8] Salmonella,[9, 10] and Campylobacter jejuni[7, 11] infection.

A unifying hypothesis to explain the pathogenesis of IBS remains elusive. Alterations in gastrointestinal motor function, enhanced visceral perception of painful stimuli and psychosocial factors are considered key contributors to symptom generation in IBS.[12, 13] Alterations in gastrointestinal motor function, enhanced visceral perception of painful stimuli and psychosocial factors are considered key contributors to symptom generation in IBS.[12, 13] More recently recognized factors include reduced ability to expel intestinal gas, altered central processing of afferent signals and intestinal inflammation.[13] While routine histologic examination reveals no significant colonic mucosal abnormality in the majority of these patients, recent quantitative histological, immunohistochemical and ultrastructural analyses provide

evidence of subtle morphologic changes in these patients. The recognition of these changes has led to new hypotheses linking central and enteric nervous systems to immune processes. This review highlights the spectrum of histologic changes that occur in IBS, examines their relationship to the pathophysiology of IBS and considers their relevance, if any, to daily pathology practice.

Colonoscopy in IBS

The American Gastroenterological Association recommends colonoscopy only in those patients with presumed IBS who are over 50 years of age or who have symptoms raising the possibility of another disease, in particular diarrhea predominance and/or weight loss.14 Therefore, in practice, only a small minority of patients with IBS will undergo colonoscopy and biopsy. Owing of its high prevalence, however, IBS still accounts for the majority of colonoscopic biopsies seen by many gastrointestinal pathologists.15 Most of these biopsies will be either normal or near to normal on routine histological examination. From a clinical standpoint, a normal pathology result therefore provides valuable information to the physician who is suspecting a diagnosis of IBS. It is thus important for pathologists to be aware of variations of normal as well as of artifacts that may result from bowel preparations or the biopsy procedure, and not to report these as abnormal. These changes will therefore be highlighted prior to reviewing the subtle morphologic changes recently reported in IBS.

Chronic Inflammatory Cells

Several investigators have demonstrated increased numbers of chronic inflammatory cells in the colonic mucosa of patients with IBS.[11], [12], [23], [24], [25], [26], [27] In most studies, quantitative immunohistochemical analyses have been required to unmask these increases[11], [23], [24], [25], [26], [27] which are not usually apparent on routine histological evaluation. Both the lamina propria[23], [24], [25] and surface and crypt epithelium[11], [23], [27] have been shown to contain increased numbers of T-lymphocytes in IBS. Such increases have been reported to occur in both PI-IBS[11], [12], [24], [25] and non-PI-IBS.[23], [25] The diarrhea predominant form IBS is reported to be associated with a greater increase in mucosal T-lymphocytes than the constipation predominant form.[23] Reported increases in mucosal lymphocytes range from 20 to 100% and 80 to 250%, for lamina propria and epithelial lymphocytes, respectively. Such variations are likely to reflect differences in subpopulations of IBS patients studied and differences in the sites of biopsy. A marked increase in lamina propria inflammatory cells expressing CD25, a component the interleukin 2 receptor and a marker of immune activation, has recently been reported in colonic biopsies from patients with IBS.[23] This was present in almost 90% of patients and was not dependent on the dominant symptom profile of IBS patients or a preceding episode of gastroenteritis.

The histologic changes of PI-IBS following C. jejuni gastroenteritis have been well described.[11] At 2 weeks postinfection, the mucosa in most cases has returned to normal by both macroscopic and conventional histologic assessment. However, quantitative histology reveals evidence of ongoing inflammation, which gradually decreases over the following 3 months. Inflammatory changes persist at 1 year in a small subgroup of

these patients who also have clinical features fulfilling the Rome II criteria for IBS. These patients exhibit greater IL-1β mRNA expression, both during and after the infection, compared with individuals who do not develop IBS after an episode of gastroenteritis.[12] In addition, patients with PI-IBS have recently been shown to have greater IL-1β mRNA expression than patients with non-PI-IBS,[8] consistent with immune activation in this subset of patients.

Mast Cells

In 1962, Hiatt and Katz[28] reported increased numbers of mast cells in the muscularis propria of four patients with 'spastic colitis'. These findings were not pursued by other investigators, perhaps due to the unavailability of full thickness colonic specimens in IBS patients. It is only the last decade that has seen a renewed interest in the association of mast cells in IBS.[8, 25, 29, 30, 31, 32] In 1993, Weston et al[32] demonstrated a marked increase in mast cell density in terminal ileum biopsies from patients with IBS compared to controls, a finding later confirmed by others.[8] This increase was most marked in the diarrhea predominant subgroup[32] but was present both in PI- and non-PI-IBS.[8] Subsequent studies have demonstrated increased mast cell density in the cecal mucosa of IBS patients.[29, 31] While several investigators have failed to demonstrate increased numbers of mast cells in colorectal biopsies from patients with IBS,[8, 24, 31, 33, 34] recent studies using sensitive techniques, such as electron microscopy and/or immunohistochemistry combined with computer assisted morphometry, have demonstrated an increased mast cell density in the descending colon,[30] caecum and rectum.[29] Immunoenzymatic studies have demonstrated increased mucosal mast cell tryptase content as well as

increased spontaneous release of tryptase and histamine in IBS patients compared to controls.30 Ultrastructural studies have shown increased numbers of degranulating mast cells in IBS patients compared to controls29, 30 as well as increased numbers of mast cells in proximity to enteric nerves in the rectum,29 descending colon,30 caecum29 and terminal ileum.8

Mast cells may be central in the strong association between interstitial cystitis (IC) and IBS, both of which are exacerbated by stress. Bladder and colon biopsies from a patient with both IC and IBS were showed an increase in both bladder and colonic mast cells, the latter mostly close to substance P-positive nerves.35

Enterochromaffin Cells

Increased numbers of enterochromaffin cells (EC) have been reported in rectal biopsies from patients with PI-IBS11, 24, 25 but not in non-PI-IBS.25 A fivefold increase in synaptophysin positive EC cells has been reported in rectal biopsies 2 weeks following C. jejuni infection.11 In these patients, EC numbers decreased gradually in biopsies taken at 6 and 12 weeks.11 However, in a small subset of patients who remained symptomatic at 1 year postinfection, rectal biopsies showed persistently elevated EC levels in the range seen at 2 weeks postinfection.7, 11 These levels were similar to those seen in a group of PI-IBS patients recruited from an outpatient clinic.11 The profile of secretory granules also changed significantly postinfection, being 5-hydroxytryptamine (5-HT, serotonin) predominant 3 months following Campylobacter infection compared to peptide YY (PYY) predominant in normal controls.7

However, EC cells from patients who developed PI-IBS showed similar 5-HT/PYY ratios to those of non-PI-IBS patients and normal controls.

Enteric Nerves

Increased numbers of nerve fibres staining positively for neurone specific enolase, substance P and 5-HT (but not calcitonin gene-related peptide) have been demonstrated in biopsies from the terminal ileum and rectosigmoid in patients with both PI- and non-PI-IBS.[8] In addition, positively stained nerve fibres around mast cells are reported to be significantly increased in density in IBS patients compared to controls.[8] The distance between axonal fibres of the enteric nervous system and inflammatory cells, including mast cells[8, 29, 30] and lymphocytes,[36, 37] is reported to be decreased in patients with IBS compared to controls. A study in evaluating full thickness jejunal biopsy specimens in 10 patients with severe IBS, reported striking neuronal changes including lymphocytic infiltration of the myenteric plexus (9/10 patients) and neuronal degeneration (7/10 patients).[27] Mast cells were not identified in the vicinity of the myenteric plexus. An editorial expressed caution in the interpretation of these findings due to the small patient numbers, inclusion of only severe cases of IBS, suboptimal controls and the use of a scoring system for myenteric plexus associated lymphocytes that might exaggerate any differences present.[38]

Morphologic changes in IBS

The recently documented low-grade inflammatory changes outlined above suggest that immune activation may, at least in part, play a role in the pathogenesis of IBS. The reported increases in inflammatory

cells, although modest, could potentially be of pathophysiological significance if accompanied by similar increases in cytokine production. The recent documentation of increased numbers of immune cells expressing CD25, a marker of immune cell activation,[23] provides functional evidence of immune activation in IBS. CD25+ cells are considered important regulators of intestinal inflammation, and it has been speculated that they may play a role in downregulating the inflammatory process in IBS.[39] Further evidence for immune cell activation in IBS includes upregulation of IL-1-β mRNA which has been documented in patients with PI-IBS[8, 40] but not in non-PI-IBS.[8] This may reflect different pathogenetic mechanisms in these two subsets of patients.

The role of psychological stress is well recognized in the etiopathogenesis of IBS and there is growing evidence of interplay between immune and central nervous systems. Animal studies suggest that stress may enhance responsiveness to inflammatory stimuli in the gut, while inflammatory processes in the gut may influence behavior and brain function.[41, 42, 43, 44] The close proximity of chronic inflammatory cells to enteric nerves in the mucosa[36, 37] and muscularis externa[27] of patients with IBS, provides an interface for direct interaction between cells and the enteric nervous system. Potential mechanisms of immune activation in IBS that have been suggested include a previous episode of gastroenteritis, alterations in intestinal microflora, undiagnosed food allergies and genetic factors.[45]

Reports of increased mast cells numbers,[8, 25, 29, 30, 31, 32] increased mast cell degranulation,[29, 30] increased spontaneous release of mast cell tryptase and histamine[30] and increased proximity of MC to

enteric nerves[8], [29], [30] in IBS suggest a role for mast cells in the disturbed sensorimotor function characteristic of this condition. The proximity of mast cells to enteric nerves suggests that mast cell mediators have increased potential to activate enteric neurons. Indeed, the latter has been reported to correlate with the severity or frequency of abdominal pain or discomfort in patients with IBS.[30] Mast cell mediators such as tryptase and histamine are known to activate enteric neurons leading to abnormal secretomotor function and visceral hypersensitivity.[46], [47] Conversely, substance P in low concentrations has been shown to alter mast cell excitability and can directly modulate mast cell function following release from nerves.[48] The cause of mast cell infiltration and degranulation in IBS remains uncertain, but past episodes of infectious enteritis,[7], [11] undiagnosed food allergies[49] and stress[50] may contribute.

The modest increase in EC cell numbers reported in PI-IBS[7], [11], [24], [25] may have pathophysiologic significance. EC cells constitute the bulk of the body's 5-HT stores[13] and there is evidence of increased 5-HT release in patients with IBS.[51], [52] Enteric nerves and sensory afferents contain a number of receptors for 5HT[53], [54] and the prokinetic and secretory effects of 5HT may underlie the diarrhea and loose stools in IBS.[25], [54] In addition to its prokinetic effects, 5-HT may exert pro-inflammatory effects via 5-HT(2) receptors on vascular endothelial cells facilitating recruitment of additional T-lymphocytes.[25] The mechanism underlying the increase in EC cells in IBS has not been elucidated although lymphocyte-derived cytokines or prostaglandins have been shown to induce increased EC numbers in animals.[54] A decrease in serotonin transporter has been reported in association with EC hyperplasia in a mouse model of PI-IBS and this may serve to further enhance mucosal 5-HT availability.[55] Anti5-HT(3) receptor antagonists

have proved useful in the treatment of diarrhea predominant IBS, while the constipation predominant form may respond to 5-HT(4) receptor agonists.[56], [57] In rare cases 5-HT(3) receptor antagonist has been associated with colon ischemia.[58] Interestingly, the rate of colon ischemia among patients carrying a diagnosis of IBS is over three times higher than that of the general population.[59] This raises the question of whether 5-HT(3) receptor antagonists may really potentiate pre-existing ischemia or cause it de novo.

The reported increase in mucosal nerve fibres,[8] increased proximity between nerve fibres and mast cells[8], [13], [29] and lymphocytes[36], [37] and lymphocytic infiltration and neuronal degeneration of the myenteric plexus[27] in IBS provide a morphologic basis for a neuro-immune interaction. This close association between inflammatory cells and nerves may, at least in part, reflect plasticity of intestinal mucosal nerves[60] as regenerating nerves are reported to contact mast cells more frequently.[61] Such nerve plasticity is well documented in the setting of intestinal inflammation.[60] The ability of mucosal inflammation to alter enteric nerve and smooth muscle function is well established.[62] The potential mechanisms facilitating these neuro-immune interactions, including both inflammatory and neural mediators have been discussed.

Finally, it should be emphasized that the precise relationship between the reported histopathologic changes in IBS and its pathogenesis remains to be defined. While a number of hypotheses link reported histologic changes to the pathogenesis of IBS, it remains possible that many such changes are unrelated to the pathogenesis of IBS and could be

due to other factors such as associated motility disturbances (which may be particularly relevant in the constipation predominant form of IBS).

INFECTION AND INFLAMMATION IN IBS

From clinical studies showing the development of IBS symptoms following acute gastroenteritis (i.e., postinfectious [PI] IBS) and a higher than expected prevalence of IBS symptoms among patients with inflammatory bowel disease that was in remission.

Finally, some recent studies have shown proximity between nerve trunks and the inflammatory cells, suggesting a local neuroimmune interaction that may contribute to the pathogenesis of IBS. With respect to the latter, several key studies presented during these meeting proceedings provided some supportive evidence relating the role of infection and inflammation to IBS.

Research has shown a significant increase in serotonin-containing entero-endocrine cells (EC) following Trichinella spiralis infection in mice. This finding suggests that the increased EC numbers that have previously been reported in humans after Campylobacter enteritis are likely not specific to bacterial infections. These events may also occur after protozoan and other parasitic infections, and thus may contribute to postinfectious bowel dysfunction.

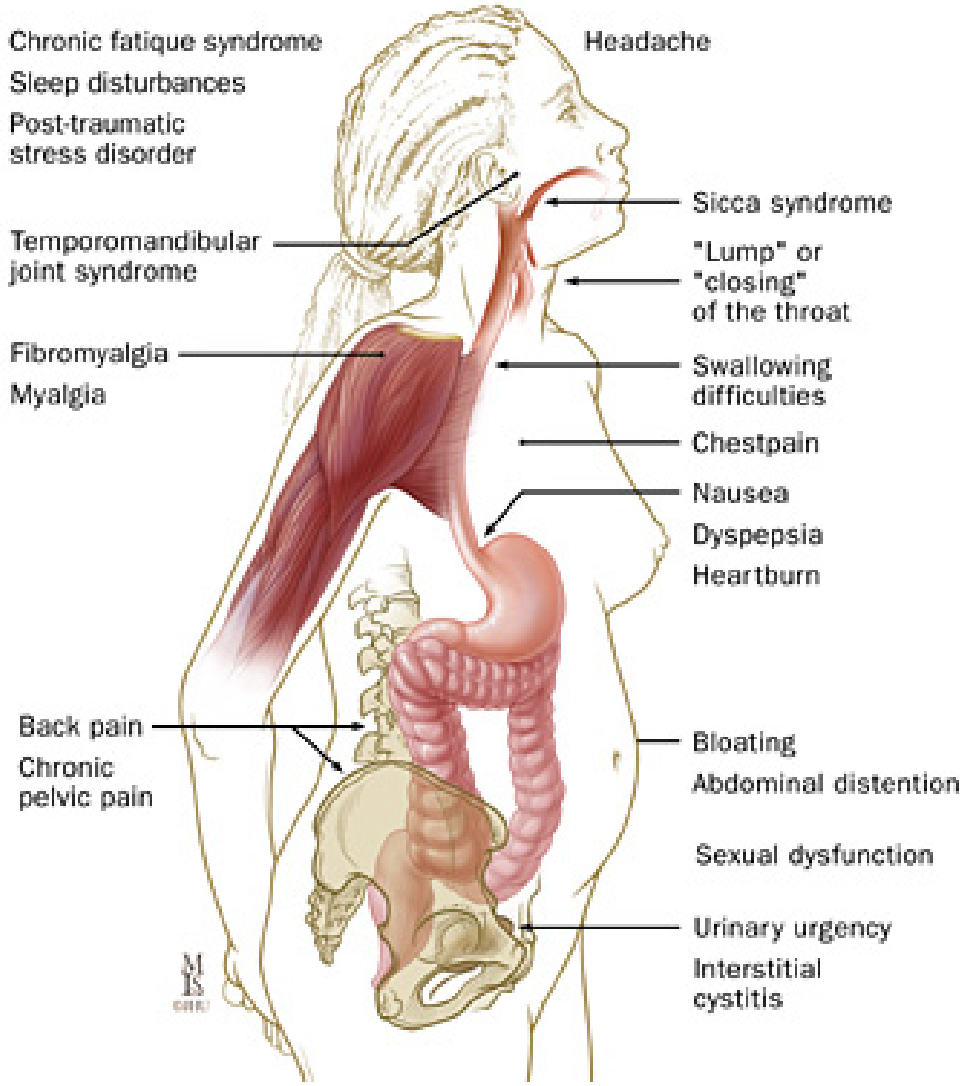
Modern studies has compared the numbers of rectal mucosal lymphocytes, EC, and mast cells from IBS patients (n = 76) and healthy controls (n = 40). Although all biopsies were normal using conventional histology, immunohistochemical studies showed differences in patterns of mucosal pathology between several distinct subgroups of IBS. Patients

with PI-IBS showed increased EC and CD3+ lamina propria lymphocytes (LPL),confirming previous findings.

However, patients with constipation-predominant IBS were not significantly different from controls, and nonconstipated, non-PI-IBS patients showed increased CD3+, LPLs, and mast cells. These findings suggest that within the broad clinical grouping of IBS, there may be several distinct groups with different patterns of mucosal pathology.

SIGNS AND SYMPTOMS OF IBS

Disorder of young people before age 45



Abdominal pain:

- variable in intensity & location
- episodic and crampy
- location – 25% hypogastrum
- 20% right side
- 20% left side
-10% epigastrium
- < eating, emotional stress
- > passage of flatus or stool.

Altered bowel habits:

- most consistent feature of IBS
- constipation or diarrhea or alternate diarrhea & constipation

The most common pattern is constipation alternating with diarrhea. Usually with one of these symptoms predominating

Constipation:

- 1st episodic gradually becomes continuous & intractable to treatment of laxative.
- Stool hard with narrow caliber.
- Sense of incomplete evacuation.

Diarrhea:

- Loose stool, volume < 200ml.
- No nocturnal diarrhea
- < emotional stress, eating
- May accompanied by passage of mucous.

Gas or flatulence:

-Although some patients with these symptoms actually may have a larger amount of gas, quantitative measurements reveal that most patients who complain of increased gas generate no more than a normal amount of intestinal gas.

Upper Gastrointestinal symptom:

Prevalent in 25%- 50% of cases

-Dyspepsia

-Heartburn

-Nausea & Vomiting

In people with IBS in hospital OPD.

25% have depression.

25% have anxiety.

Patients with IBS symptoms who do not consult doctors [population surveys] have identical psychological health to general population.

In one study 70% of women IBS sufferers have dyspareunia.

Stressful life events are associated.

Compared with controls people with IBS are less well educated and have poorer general health.

INVESTIGATION AND EXAMINATION OF IBS

Irritable bowel syndrome (IBS) can be diagnosed based on symptoms. In most cases, only minimal tests are needed. A health professional diagnoses IBS when a person has the typical symptoms of the disorder and, if needed, tests have ruled out other possible causes.

The amount of testing that may be done depends on several factors: your age, how your symptoms come on and how severe they are, and how you respond to the initial treatment. For example:

- For a 20-year-old woman who has all the typical symptoms of IBS, a routine blood test may be the only test needed. Irritable bowel

syndrome is more common in young women, and so if symptoms are typical of IBS, extensive testing is probably not needed.

- For a 55-year-old man whose symptoms started recently, more extensive testing is probably needed. People over age 50 are less likely than younger people to develop IBS symptoms for the first time, so it is more likely that symptoms may be caused by another problem.
- If you get better after some initial treatment for symptoms that the health professional suspects are caused by IBS, no further tests are needed.
- Depending on your symptoms, results of the initial tests, or your response to treatment, other tests may be done.
- Should I have testing done for irritable bowel syndrome?
- Tests may include:
- Medical history and physical examination.
- Complete blood count (CBC), which provides information about the kinds and numbers of red blood cells, white blood cells, and platelets in the blood; and sedimentation rate, which checks for inflammation in the body.
- Stool analysis, which may include testing for blood in the stool (fecal occult blood test), infection (stool culture), or parasites (ova and parasites test).
- Flexible sigmoidoscopy, which allows a health professional to look inside the lower part of the large intestine for abnormal growths (such as tumors or polyps), inflammation, bleeding, hemorrhoids, and other conditions (such as diverticulosis).

- ❖ Colonoscopy, which allows a doctor to look at the lining of the entire large intestine (rectum and colon) through a thin, flexible viewing instrument called a colonoscope. The colonoscope helps the doctor detect polyps, tumors, and areas of inflammation or bleeding.

Thyroid function tests are occasionally done.

In some cases, treatment with diet or medicines may not help. If diarrhea is the main symptom and it is not getting any better, a blood test for celiac disease may be done. Celiac disease is a lifelong (chronic) condition in which foods that contain gluten—a form of protein found in some grains, notably wheat, barley, and rye—damage the small intestine, making it unable to properly absorb nutrients. Celiac disease may cause symptoms similar to IBS symptoms.

If the diagnosis is unclear after routine tests and you have other symptoms or pain in an area of the abdomen that may indicate a different problem, further tests may be done to clarify the diagnosis. These tests may include:

- ✓ Upper endoscopy, which allows your doctor to look at the lining of your esophagus, stomach, and the first part of your small intestine (duodenum) through a thin, flexible viewing instrument called an endoscope. The endoscope helps your doctor look for ulcers, inflammation, tumors, infection, or bleeding.
- ✓ Upper gastrointestinal (UGI) series, which examines the upper and part of the middle portions of the digestive tract. After you swallow a "shake" made of barium and water, X-rays are taken to track the movement of the barium through the esophagus, stomach, and first

part of the small intestine (duodenum) using fluoroscopy connected to a video monitor.

- ✓ Gallbladder ultrasound, which can provide a picture of the gallbladder.
- ✓ Barium enema, an X-ray examination of the large intestine (colon and rectum) or small intestine.

If results of the above tests don't show any clear problem, further testing, such as an abdominal computed tomography (CT) scan may be needed to check for inflammatory bowel disease or other problems. These tests are not discussed here. For more information, see the topic Crohn's Disease or Ulcerative Colitis, two major types of inflammatory bowel disease.

DIAGNOSIS OF IBS

The diagnosis of IBS should be one that is based on positive findings rather than a diagnosis made after extensive investigation to exclude other disorders. Because there is no physiologic marker for the disease, symptom criteria have been developed to encourage diagnosis through history taking and to standardize patients entered into clinical trials.

The first symptom criteria developed were the Manning criteria. These 6 criteria have been widely used in epidemiological, clinical and psychological studies and have been validated through factor analysis, a

statistical technique that identifies clustering.For diagnostic purposes, the 3 pain criteria and that of abdominal distention are more consistent than the symptoms of mucus in stools and the feeling of incomplete evacuation. Abdominal distention is less common in men. The greater the number of symptoms, the more likely the diagnosis of IBS. The presence of 3 or more criteria discriminates IBS from organic gastrointestinal disease, with a sensitivity of 58%-81% and a specificity of 67%-87%.These data apply only to the symptom criteria per se and do not consider commonly used "red flags" in excluding organic disease. The addition of red flags . to symptom criteria seems to enhance diagnostic accuracy. More recently the Rome criteria were developed, but to date they have been validated by only one study. The consensus group preferred the Manning criteria because they are the most extensively used and are the easiest to remember and apply.

Other helpful clues to the diagnosis of IBS are that the symptoms are chronic or recurrent, the pain is variable in location and timing, diarrhea and constipation may alternate, the onset sometimes follows infectious gastroenteritis, and the symptoms may be related to stress. Findings on physical examination are usually normal, although nonspecific abdominal tenderness or a palpable, tender colon may be present.

Patients less than 50 years of age with symptoms that meet the Manning criteria and who have no red-flag symptoms require no investigations, especially if the symptoms have occurred before and are related to stress. A complete blood count is reassuring if the hemoglobin concentration and leukocyte count are normal. Patients should be reevaluated after a brief interval if the symptoms do not improve. If there

are red-flag symptoms or atypical features, investigations should be directed appropriately. Patients 50 years of age or older with IBS symptoms of recent onset should have a colon examination. This cutoff age was chosen because of the abrupt rise in the incidence of colon cancer among patients over 50 and not because colon cancer causes IBS symptoms. Colonoscopy is the most sensitive test, but air-contrast barium enema combined with sigmoidoscopy may be cheaper and more accessible.

Although many patients with IBS believe that they are lactose intolerant, intestinal lactase deficiency is uncommon in white people, and even those with the deficiency can tolerate small amounts of milk. In some cases a negative result of a lactose tolerance test may be necessary to avoid unnecessary exclusion of dairy products that risks calcium depletion. Other tests are sometimes appropriate, such as those for giardiasis when patients from endemic areas complain of bloating and loose stools. Radiography of the small bowel may also be indicated in young people with atypical symptoms or a family history of inflammatory bowel disease. No test should be ordered without a clear indication. The patient must be told the likely result so that a negative result will not dash their hopes but rather be useful as confirmation that the diagnosis of IBS is correct. Repeated testing can undermine the patient's confidence in the diagnosis.

The key to diagnosis of IBS is effective history taking, which requires attention to directed, but not controlled, elaboration of the presenting symptoms, history of present illness, past medical history, family history, familial interrelationships, and drug and dietary histories. Equally important are the patient's interpretation of personal problems

and overall emotional state. The quality of patient-physician interaction is key to diagnostic and therapeutic efficacy. Patients with IBS generally appear to be healthy. Palpation of the abdomen may reveal tenderness, particularly in the left lower quadrant, (4)

Rome II Criteria for diagnosis of Irritable Bowel Syndrome

Abdominal discomfort or pain with two of the following three features for at least 12 weeks, not necessarily consecutive, during the previous 12 months:

- Relief with defecation
- Onset associated with change in stool frequency.
- Onset associated with change in stool formation.

Supportive Symptoms-

1. Fewer than three bowel movements per week.
2. More than three bowel movements per day.
3. Hard or lumpy stools.
4. Loose or watery stools.
5. Straining during bowel movements.
6. Fecal urgency.
7. Passage of mucus during bowel movement.
8. Sensation of abdominal fullness or bloating

Diarrhea-predominant irritable bowel syndrome = one or more of 2, 4, and 6 and none of 1, 3, and 5

Constipation-predominant irritable bowel syndrome = one or more of 1, 3, and 5 and none of 2, 4, and 6 (4)

MANAGEMENT OF IBS

Treatment for IBS may involve

a) diet changes
b) medicine
c) stress relief

You may have to try a combination of things to see which works best for you.

a) Diet Changes

Some foods make IBS worse.

Here are some foods that may cause symptoms:

- fatty foods like french fries
- milk products like cheese or ice cream
- chocolate
- alcohol
- caffeine (found in coffee and some sodas)
- carbonated drinks like soda

If certain foods cause symptoms, you should eat less of them or stop eating them.

Some foods make IBS better.

Fiber reduces IBS symptoms--especially constipation--because it makes stool soft, bulky, and easier to pass. Fiber is found in bran, bread, cereal, beans, fruit, and vegetables.

Add foods with fiber to your diet a little at a time to let your body get used to them. Too much fiber all at once might cause gas, which can trigger symptoms in a person with IBS.

How much you eat matters, too. Large meals can cause cramping and diarrhea in people with IBS. If this happens to you, try eating four or five small meals a day. Or, have your usual three meals, but eat less at each meal.

b) Medicine

If necessary, the doctor might give you medicine to help with symptoms:

- **laxatives:** to treat constipation
- **antispasmodics:** to slow contractions in the bowel, which helps with diarrhea and pain
- **antidepressants:** to help those who have severe pain

c) Stress Relief

Learning to reduce stress can help. With less stress, you may find that you have less cramping and pain. Also, you may find it easier to manage your symptoms. Meditation, exercise, and counseling are some things that might help.

HOMOEOPATHIC MANAGEMENT

Irritable bowel syndrome is a chronic problem with varying symptoms, including abdominal pain and bloating, alternating diarrhea and constipation, flatulence, back pain, and fatigue. The cause is not clearly understood; however, since no significant tissue changes in the bowel are evident on medical examination, some speculation indicates that allergies and emotional stress may contribute to this condition. Remedies listed here may help bring some relief in moderate situations. A constitutional remedy prescribed by an experienced professional is often the best approach to help the person's system regain its balance.

Argentum nitricum: Digestive upsets accompanied by nervousness and anxiety suggest the use of this remedy. Bloating, rumbling flatulence, nausea, and greenish diarrhea can be sudden and intense. Diarrhea may come on immediately after drinking water. Eating too much sweet or salty food (which the person often craves) may also lead to problems. A person who needs this remedy tends to be expressive, impulsive, and claustrophobic, and may have blood sugar problems.

Asafoetida: A feeling of constriction all along the digestive tract (especially if muscular contractions in the intestines and esophagus seem to be moving in the wrong direction) strongly indicates this remedy. The person may have a feeling that a bubble is stuck in the throat, or that a lump is moving up from the stomach. The abdomen feels inflated, but the person finds it hard to pass gas in either direction to get relief. Constipation brings on griping pains. Diarrhea can be explosive, and the person may even regurgitate food in small amounts. The person may exhibit a strong emotional or "hysterical" element when this remedy is needed.

Colocynthis: This remedy is indicated when cutting pains and cramping occur, making the person bend double or need to lie down and press on the abdomen. Cramps may be felt in the area of the pubic bone. Pain is likely to be worse just before the diarrhea passes, and after eating fruit or drinking water. Problems tend to be aggravated by emotions, especially if indignation or anger has been felt but not expressed. Back pain, leg pain, and gall bladder problems are sometimes seen when this remedy is needed.

Lilium tigrinum: When this remedy is indicated, the person may make frequent unsuccessful efforts to move the bowels all day and have sudden

diarrhea the following morning. A feeling of a lump in the rectum, worse when standing up, is common. Hemorrhoids may develop. Constricting feelings are often felt in the chest. The person is likely to be worse from excitement and strong emotions, and may tend toward irritability or even rage.

Lycopodium: This remedy is often indicated for people with chronic digestive discomforts and bowel problems. Bloating and a feeling of fullness come on early in a meal or shortly after, and a large amount of gas is usually produced. Heartburn and stomach pain are common, and the person may feel better from rubbing the abdomen. Things are typically worse between four and eight p.m. Despite so many digestive troubles, the person can have a ravenous appetite, and may even get up in the middle of the night to eat. Problems with self-confidence, a worried facial expression, a craving for sweets, and a preference for warm drinks are other indications for Lycopodium.

Natrum carbonicum: This remedy is often indicated for mild people who have trouble digesting and assimilating many foods and have to stay on restricted diets. Indigestion, heartburn, and even ulcers may occur if offending foods are eaten. The person often is intolerant of milk, and drinking it or eating dairy products can lead to gas and sputtery diarrhea with an empty feeling in the stomach. The person may have cravings for potatoes and for sweets (and sometimes also milk, but has learned to avoid it). A person who needs this remedy usually makes an effort to be cheerful and considerate, but, when feeling weak and sensitive wants to be alone to rest.

Nux vomica: Abdominal pains and bowel problems accompanied by tension, constricting sensations, chilliness, and irritability can indicate a need for this remedy. Soreness in the muscles of the abdominal wall, as well as painful gas and cramps are common. Firm pressure on the abdomen brings some relief. When constipated, the person has an urge to move the bowels, but only small amounts come out. The person may experience a constant feeling of uneasiness in the rectum. After diarrhea has passed, the pain may be eased for a little while. A person who needs this remedy often craves strong spicy foods, alcohol, tobacco, coffee, and other stimulants—and usually feels worse from having them.

Podophyllum: This remedy is indicated when abdominal pain and cramping with a gurgling, sinking, empty feeling are followed by watery, offensive-smelling diarrhea—alternating with constipation, or pasty yellow bowel movements containing mucus. Things tend to be worse in the very early morning, and the person may feel weak and faint or have a headache afterward. Rubbing the abdomen (especially on the right) may help relieve discomfort. A person who needs this remedy may also experience stiffness in the joints and muscles.

Sulphur: This remedy is often indicated when a sudden urge toward diarrhea wakes the person early in the morning (typically five a.m.) and makes them hurry to the bathroom. Diarrhea can come on several times a day. The person may, at other times, be constipated and have gas with an offensive and pervasive smell. Oozing around the rectum, as well as itching, burning, and red irritation may also be experienced. A person who needs this remedy may tend to have poor posture and back pain, and feel worse from standing up too long.

CARCINOCIN:

Family history of cancer, diabetes, tuberculosis.

Excessive parental control, prolonged fear or unhappiness.

Is worse or better at the seaside

History of suppression and abuse in childhood.

Too much responsibility at a young age.

LILIUM TIGRINUM:

Person may make frequent unsuccessful efforts to move the bowels all day and have sudden diarrhea the following morning.

A feeling of a lump in the rectum, worse when standing up, is common.

Likely to be worse from excitement and strong emotions, and may tend toward irritability or even rage.

TROMBODIUM

Diarrhoea after eating and drinking; from fruit; from sugar. Stools only after eating; stools return after dinner and supper, but not after breakfast. Symptoms < eating or drinking; 9the grand keynote

GELSEMIUM

Diarrhoea from emotional excitement, fright, bad news [Ph-ac.]; disposition to go to stool whenever anything startles her.

Acts specifically on nerves and muscles of rectum.

General prostration. Dizziness, drowsiness, dullness, with trembling

DYSENTRICO

Anticipatory nervous tension

Hypersensitive to criticism

Selective action on the pylorus causing spasm & retention of digestive

content.

GAMBOGIA

Soon after eating irresistible desire to evacuate bowels, which continued as long as there was anything to pass.

Diarrhoea alternate with constipation.

Great relief after stool

MOMORDICA BALSAMINA

Griping, colic, pain in back and hypogastrium

Accumulation of flatus in splenic flexure of colon

GRATIOLA

Acts especially on gastrointestinal tract. Chronic catarrhal conditions.

Useful in mental troubles from overweening pride.

Especially useful in females. Nux vomica symptoms in females

Combination of sexual excesses and gastrointestinal problems.

EASY PRESCRIPTION:

H/o.Induced abortion or MTP --- Kali.carb

H/o.Septic fever after delivery --- Pyrogen

In drainage cleaners/ workers --- Pyrogen

Lactogen intolerance in childhood --- Aethusa

H/o. Artificial feeding --- Alumina

Staying in newly painted house --- Plumb.met

Use of Uterine devices(IUCD, etc) ---- Silicea

Turpentine oil (wood polishers) ---- Terebinth

H/o.Dog bite --- Ledum.pal

H/o. Anti-Rabies Vaccine --- Lyssin

Sand filling --- Silicea

H/o. Forceps Delivery --- Allium.cepa

Tailoring --- Actea Racemosa

Diggers, Cutters & Coblers --- Bovista

Brick & Pot Makers --- Alumina

Police, Army, Excise,Forest Dept. --- Lachesis

Use of Hair dyes --- Alumina

H/o. Dental Cleaning --- Staphysagria

OCCUPATION:

Anasthesia – Acetic acid.,Phos.,

Cosmetics- Bovista.

Fire works ,Match industry -- Phosphorus

Rubber tyres etc --Sulphur

Thermometer, barometer --Mercury

Stone cutter – Silicea.

Coal mines – Nat. c.

Welder – Glonoine.

Tobacco –Tabacum.

Painter/printing – Plumbum.Alumina

FAMILY HISTORY:

Cancer - Carcinosin

Tuberculosis - Tuberculinum

Eczema - Psorinum

Gonorrhoea - Medorrhinum

Patients suffering from IBS presents themselves with several psychosomatic symptoms and other constitutional disturbances apart from local symptoms of GIT.

We have to treat the patients with two groups of remedies the drugs which can relive the acute suffering & the group of remedies to eradicate the tendency of constitutional / psychosomatic symptoms.

Most of the patients of IBS are highly intellectual , either always brooding over the past or unusually suffer from anticipatory anxiety with fixed ideas.

Most of them are highly emotionally imbalanced , irritable, impulsive and conflicting in nature and suffer from bowel symptoms with very little variation in errors of diet.

CASE RECORDS

CASE STUDY

MATERIALS AND METHODS

SETTING: The data will be collected and processed in a definitive case format which used by RVSHMC & Hospital.

DURATION OF STUDY: 1 Yrs

SAMPLE SIZE: 5 Cases

SAMPLING TEACHNIQUE: Patients will be selected on the basis of clinical features, history & examination with adequate investigations by using interview method.

INCLUSION CRITERIA:

→ In Both Sexes

→ All ages

EXCLUSION CRITERIA

→ Complcated cases

→ Cases with other system symptoms

CASE FORMAT

Preliminary data :

Case No	:	Religion	:
Name of the patient	:	Occupation	:
Socio economic status	:	Age	:
Marital status	:	Sex	:
Address	:		

Chief complaints

H/O presenting complaints

H/O Past illness and treatment history

Family history

<u>Patient as a whole</u>
Mental general:

Physical general :

Diet	:	Disagree	:
Appetite	:	Perspiration	:
Thirst	:	Thermal relation	:
Bowel	:	Addiction / habit	:
Bladder	:	Sleep	:
Desire	:	Dreams	:
Aversion	:		

General physical examination

- Pallor -
- Cyanosis -

- Clubbing -
- Jaundice -
- oedema -
- Lymphadenopathy -

Vital signs

- Bp -
- RR -
- PR -
- Temp -

Systemic examination

Investigation

Diagnosis

Totality of the symptoms

Analysis and evaluation

Mental general

Physical general

Particulars

First prescription

Follow up:

CASE:1

Preliminary data

NAME : Mr.G. 35years.
Sex : Male
Religion : Hindu. Married.
Occupation : Works in a Private Bank
Date of first visit : 13.08.09
OP Register No :

Presenting complaints-

- Burning in throat since 3 years.
- Irregular bowel habits since 10 months.

History of presenting complaints-

Patient was well before 3-4 years; to start with he developed symptoms of pain in the right hypochondrium, burning pain in throat, sour eructations, regurgitation of food after eating. he was diagnosed as having cholelithiasis and he was operated for it. He was very well up to 5/6 months of operation, but gradually he developed following symptoms.
Burning in throat since 3 years < Afternoon 2-3 p.m., taking spicy food, excess quantity of food and after any anxiety or tension.
Regurgitation of food and water <Any anxiety, and tension.
Irregular bowel habit-morning at least gets 3 times urgency before 9 a.m. (before going to office, in holidays also he gets for 3 times.)

First –just after raising from bed.

2nd- mostly after breakfast.

3rd- commonly before starting for office.

Itching in scalp since 4-5years.

Past history-

Chickenpox in childhood.

Treatment history.

1.Allopathic

2.Homoeopathic-a) Ars.alb200.b) Arg.Nit 200.

Personal history-

Appetite-good, now taking food in small quanties.

Thirst- normal.

Desires –cold drinks.

Aversions-Sweets.

Bowels-3/4 times daily. (3times before 9 a.m.).

Sweat- on exertion, offensive odour.

Sleep –sound.

Dreams –not specific.

Thermal reactions- Likes open air. Likes winter.

Physical examination- Well nourished, moderate built.

No signs of pallor, icterus, cyanosis, clubbing and edema.

B.P-120/80 mm of Hg.

Pulse rate-75/min, regular, full, and no spl. character.

Heart rate –75/min regular, full, no spl. Character

Systemic examination-

GIT- No relevant sign found.

Investigations- Within the normal range.

Clinical diagnosis- Irritable bowel syndrome.

Repertorial totality.

Complete Repertory Selected

Mind- Anxiety.

Ailments from anxiety.

Confidence want of self.

Concentration difficult.

Male genital- Sexual; Desire increased

Generalities- Food and drinks sweets aversion.

Food and drinks, cold drinks water desires.

Perspiration- Odor- offensive.

Stool- Frequent.

Morning.

Throat- Pain – Burning.

Stomach-Eructations-food of, regurgitation.

Result of repertorisation.

1. Lyco-26/11.
2. Phosp-25/10.
3. Merc-22/10.
4. Sil-22/10.
6. Ars.alb-20/10.
7. Caust-20/10.
8. Puls-20/10.
9. Sulph-20/10.

Remedy selected.

Lyco 200/ 1 dose

Follow up-

27/08/09	No change in symptoms.	Placebo- 1 dose
8/09/09	No change in symptoms. Along with previous mental symptoms patient now have a marked aversion to do the official work. As before he has a strong desire for cold drinks, Basing upon these symptoms and as before also Phos. was in the 2nd position in repertorization , Phos 200 planned to be prescribed.	Phosphorus 200C / 1 dose.
22/09/09	Feels better. Bowel habit reduced to 2 times in morning.	Placebo/1 dose.
29/09/09	Feels better. Bowel habit once in the morning. Burning pain and regurgitation reduced.	Placebo /1 dose

CASE:2

Preliminary data

Name : Mr. K

Age : 51yrs

Sex : Male, Hindu, Married, illiterate

Occupation : Agricultural laborer.

Date :15.07.2009

OP Register No :

Chief complaint

Pain abdomen since 6 months

History of presenting complaints

with the complaints of sensation of fullness of abdomen < after eating, stool >flatus; aching pain in the abdomen on and off with urging to stool < during urging to stool >flatus; constipation, frequent, ineffectual, urging and burning sensation in both soles <night for the last 6 months.

Past History

No significant past history. Took allopathic treatment for the presenting complaints for the last 6 months with only temporary relief.

Personal History:

Appetite: reduced Thirst: 5-6 glasses/day.

Desires: Sweets Aversions: sour things

Urine: (D/N): 6-7/0-1 Perspiration: only on exertion

Bowels: Constipated, frequent, ineffectual, urging.

Sleep: refreshed

Thermal state: Ambithermal

Mental generals:

Ailments from silent grief,

cannot bear contradiction.

Investigations: On 24/06/2004, CBP: Hb%- 13.5gm%, T.RBC-4.8 milli/ cu mm, T.WBC-8,000cells, ESR-5mm/1st hr, 9/2nd hr; DC-L.60%, L.33%, E.5%, M.2%: Stool analysis-No cyst, No ova, No occult blood, No parasite. FBS, LPT – with in normal limits

Diagnosis:

Irritable Bowel Syndrome.

Disease classification:

Dynamic chronic fully developed miasmatic disease

Miasmatic Diagnosis: Predominant Psora – Syphilis

Repertorial Totality:

[KT] [Stomach] Desire: Sweets:

[KT] [Stomach] Desire: Sour:

[KT][Abdomen] Fullness, sensation of: Eating: after:

[KT][Abdomen] Fullness, sensation of: Flatus, passing: amel:

[KT][Abdomen] Pain: Aching: Flatus, passing: amel:

[KT][Abdomen] Pain: Aching: Stool: Urging, during.

[KT][Abdomen] Pain: Aching: Stool: Before:

[KT][Rectum] Constipation: Ineffectual urging and straining

[KT][Extremities Pain] Pain: Burning: Hand: Palm: Night:

[KT][Extremities Pain] Pain: Burning: Foot: Sole: Night:

Repertorial Result:

Sulph [20/9], Lyc [17/7], Carb.veg [16/8], Sep [15/8], Calc.carb [12/6]

Previous Homoeopathic Treatment: Initially Nux vom 200C and Lyco 1M prescribed based upon the prominent physical generals and gastric symptoms but there has been no relief for 15 days, but after careful interrogoration about his life space investigation, he revealed the death of his son 6 months back, after that he was constantly brooding over that matter without expressing outwards and from then onwards started his complaints gradually and cannot bear contradiction

Follow Ups:

Date	Observation and progress	Treatment
26/07/2009	First prescription (Based on acute emotional causative modality)	Ign 200C/1D
01/08/2009	Complaints slightly reduced. General's normal.	S.L / 2 weeks
07/08/2009	Complaints completely reduced. Generals' normal. Patient was discharged and advised to attend OP every Thursday.	S.L/ 1 month
15/08/2009	Recurrence of complaints since 3 days. App- reduced, thirst- more, H/o of grief	Nat.m 1M/1D S.L / 2 weeks
19/09/2009	No recurrence of complaints. Burning pain in the soles reduced completely.	S.L/2 weeks
23/10/2009	No recurrence of complaints.	S.L / 2 weeks
28/11/2009	No recurrence of complaints. Patient feels better	S.L / 2 weeks
20/01/2010	No recurrence of complaints.	S.L/2 weeks

CASE:3

Preliminary data

Name : Mrs. A, 27years.

Sex : Female

Religion : Hindu. Married.

Occupation : Housewife.

Date of first visit :11.08.09

OP Register No :

Presenting complaints-

Loose stool on and off since 3 years and worse from yesterday

History of presenting complaints-

Patient complaining of loose stool on and off since 3 years and worse since yesterday. Stool is of slimy and offensive. Pain in abdomen also is there. Patient feels as if her abdomen got bloated. Patient often suffer from indigestive troubles. Pain abdomen better by passing stool and pain worse on taking highly spicy food.

Past history-

Nothing significant.

Treatment history.

Already tried with Allopathic medicines but not better.

Personal history-

Appetite : decreased, taking food in small quanties.

Thirst : Increased for cold water, 1-2 liter/day

Desires : Sweet

Bowels : 3/4 times daily. Offensive, slimy

Sweat : Only on exertion.

Sleep : Sound, 7-8 hours

Dreams : Not specific.

Menses : Regular, 28/4days

Physical examination:

Well nourished, moderate built.

First degree Pallor present, No signs of icterus, cyanosis, clubbing and edema.

B.P-120/80 mm of Hg.

Pulse rate-68/min, regular, full, and no spl. character.

Heart rate –78/min regular, full, no spl. Character

Systemic examination-

GIT- tenderness in the umbilical quadrent.

Investigations- Within the normal range.

Clinical diagnosis- Irritable bowel syndrome.

Repertorial totality.

Kent Repertory Selected

1. [C] [Stomach], Appetite , Diminished
2. [C] [Abdomen], Pain, General, Stool amel of
3. [C] [Abdomen], pain, sore, Umbilical region of
4. [C] [Stomach], desire, sweet

Result of repertorisation.

1. Lyco- 8/4
2. Ars alb- 7/3
3. Nux vom- 7/3
4. Carbo veg – 6/4

5. Kali carb – 6/4
6. colocynth – 6/4

Remedy selected.

Nux vomica 200/ 3 dose

Follow up-

27/08/09	No change in symptoms.	Repeat the same
4/09/09	Feels beeter but tenderness in abdomen still present. Generals good.	Placebo/1 dose.
19/09/09	Feels better. Bowel habit reduced to normal. Generals good	Placebo/1 dose.
4/10/09	Feels better. Bowel habit once in the morning. No c/o abdominal pain. Generals good	Placebo /1 dose

CASE:4

Preliminary data

Name : Mrs.S, 30years.

Sex : Female

Religion : Hindu. Married.

Occupation : Teacher.

Date of first visit : 09.07.09

OP Register No :

Presenting complaints-

Irregular bowel habits since 4 months and now c/o of loose stool since 2 days

History of presenting complaints-

Patient c/o Irregular bowel habits since 4 months and now c/o of loose stool since 2 days. Presently the complaints started after taking fruits.Stool is of watery, yellowish and offensive in nature. Worse after drinking or eating of anything. And frequency of stool more in the night. Patient feels more weakness after passage stool.

Past history-

Nothing significant.

Treatment history.

Patient had taken Allopathic medicines for the above said complaint but not better.

Personal history-

Appetite : Decreased, less quantity, easy satiety
Thirst : Normal.1-2 lit/day
Desires : Cold drinks.
Bowels : 5/7 times daily. Watery, offensive

Sweat : On exertion, more on face

Sleep : Disturbed due to complaints.

Thermal reactions : Ambithermal

Physical examination-

Well nourished, moderate built.

No signs of pallor, icterus, cyanosis, clubbing and edema.

B.P-120/80 mm of Hg.

Pulse rate-71/min, regular, full, and no spl. character.

Heart rate –70/min regular, full, no spl. Character

Systemic examination-

GIT- No relevant sign found.

Investigations- Within the normal range.

Clinical diagnosis- Irritable bowel syndrome.

Repertorial totality.

Complete Repertory Selected

1. [C] [Stomach] ,disordered, fruits after
2. [C] [Stool], watery, night
3. [C] [Stool], Colour, Offensive
4. [C] [Stool], Loose

5. [C] [Generalities], weakness, enervation, exhaustion, prostration, infirmity

Result of repertorisation

1. Ars alb 11/5
2. Chin 10/5
3. Graph 7/3
4. Nit acid 7/3
5. Phos 7/3
6. Sil 7/3
7. Bry 6/3

Remedy selected.

Ars.alb 200/ 3 dose

Follow up-

17/07/09	Complaints got better	Placebo- 1 dose
28/07/09	Complaints got better Frequency of stool reduced Generals good.	Ars.alb200/ 1 dose.
11/08/09	Feels better. Generals good	Placebo/1 dose.

CASE:5

Preliminary data

Name : Ms.R, 21years.

Sex : Female

Religion : Christian.

Occupation : student.

Date of first visit : 24.01.10

OP Register No :

Presenting complaints-

- Pain abdomen since 3 months on and off.
- Loose stool since 3 months on and off

History of presenting complaints-

Patient complaining of abdominal pain and loose stool since 3 month on and off. A/F after Anxiety or fear. Pain is of very sever and twist and bend to get relief. Also have nauseating feeling. Body is cold outside with internal heat. Patient is very anxious. Patient feel comfortable in open room and cold climate. Patient also suffer from running nose of yellowish discharge since 4 days.

Past history-

Chickenpox in childhood at the age of 11 years, took natural treatment and got cured.

Treatment history.

Already had taken allopathic medicine for menstrual irregularities and got better.

Personal history-

Appetite- no hunger, quantity less

Thirst- normal. 2 lit/day

Desires –cold drinks, cold foods

Bowels-3/6 times daily.

Sweat- on exertion, offensive odour.

Sleep –sound.

Dreams –not specific

Thermal reactions- hot

Physical examination-

Well nourished, moderate built.

First degree pallor present, No signs of icterus, cyanosis, clubbing and edema.

B.P-120/80 mm of Hg.

Pulse rate-67/min, regular, full, and no spl. character.

Heart rate –72/min regular, full, no spl. Character

Systemic examination-

GIT- No relevant sign found.

Investigations- Within the normal range.

Clinical diagnosis- Irritable bowel syndrome.

Repertorial totality.

Complete Repertory Selected

1. Rectum: Diarrhea from fear, with internal heat and external coldness of body
2. Mind: Anxiety, difficult respiration,
3. Mind: Desire for company, and aggravated while alone
4. Nausea: Pain in abdomen

5. Generals: Cold air ameliorates; must have windows open
6. Nose: Discharge of yellow/green mucus.

Result of repertorisation.

1. Puls-13/6
2. Phos-9/3
3. Hep-8/4
4. Merc.sol-7/4
5. Kali carb-8/4
6. Sulph-7/4
7. Ars.alb-7/3

Remedy selected.

Phos 200/ 1 dose

Follow up-

29/01/10	No change in symptoms.	Placebo- 1 dose
8/02/10	No change in symptoms. Remaining Generals is good	Phosphorus 200 / 1 dose.
22/02/10	Feels better. Generals are good.	Placebo/1 dose.
5/03/10	Feels better. Bowel habit Normal Generals are good	Placebo /1 dose

CASE SUMMARY

Mr. G, aged 35 years, developed Burning throat and irregular bowel habits. He was treated initially with Lyco 200/ 1 dose as per case required. In this case due importance was given to the mental symptoms of the patient and the case was marked improved after Phos 200 may be due to its highest similarity to the case and as it covering more prominent mental symptoms. This led to marked improvement as there was no recurrence of complaints and the patient is still under observation and further results awaited.

Mr. K, aged 51 years, developed fullness and aching pain in the abdomen after stool and burning sensation in the soles following his son's death. He was treated initially with Ign 200C/1D and later Natr.mur 1M/1D as per the case required.This led to marked improvement as there was no recurrence of complaints and the patient is still under observation and further results awaited.

Mrs. A, aged 27 years, developed the complaints of loose stool on and off since 3 years and worse from last day. She treated initially with the remedy Nux Vom 200/3 doses as per the case required. This led to marked improvement as there was no recurrence of complaints and the patient is still under observation and further results awaited.

Mrs. S, aged 30 years, developed irregular bowel habits since 4 months and loose stool since 2 days. She treated initially with Ars alb 200/ 3 doses. This led to marked improvement as there was no recurrence of complaints and the patient is still under observation and further results awaited.

Ms. R of age 21 years, came with complaints of pain abdomen and loose stool since 3 months. And also had the complaints of running nose with yellowish discharge. She was initially given by the medicine, Phos 200/ 1 dose as per the case required. . This led to marked improvement as there was no recurrence of complaints and the patient is still under observation and further results awaited.

CASE DISCUSSION

An approach to study the efficacy of Homoeopathic Therapeutics in **Irritable Bowel Syndrome (IBS)** has been undertaken on the RVS HOMOEOPATHIC MEDICAL COOLEGE and HOSPITAL, Sulur during study period from 11th May 2009 to 10 May 2010.

Total number of patients - 5

Total number of child patients - 0

Total number of female patients - 3

Total number of male patients - 2

The maximum age	- Above 21 years
Total number of cases where generals are prominent	- All the 5 cases
The common potency used in this study	- 200 (for all cases)
Total number of cases improved during study	- All the 5 cases
Total number of cases droped out during study	- none
Average time taken for improvement	- 1 month

In this case study with the help of 5 cases

1) Moderate potencies like 200c found to be well effective in all cases.
2) Symptomatic selection of remedies and on the basis of generals are proved to be efficient in all cases.

CONCLUSION

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Often become necessary, in course of treatment, to diagnose the miasmatic trait of the patient, particularly when the best selected remedies fail o produce favorable impact or the improvement ceases after a certain extent. Then a suitable anti-miasmatic can remove the blockage and accelerate cure to an incredible extent. Since Irritable Bowel Disease is an purely functional disease it has great to be done with Homoeopathy for it. Besides, while selectinog medicines miasmatic manifestation of the patient should be kept in mind and the selected medicine should be compatible with the miasmatic domain of the patient for long-term alleviation of sufferings. Otherwise improvement become short-lasting.

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