

## **CERTIFIED COLON HEALTH ONLINE COURSE - SESSION 3:**

### **• DISEASES OF THE COLON**

The intestine is subject to various structural abnormalities and to the effects of many infective organisms and parasites. It may also be affected by tumors, impaired blood supply and other disorders.

#### **Cancer**

Cancerous tumors in the small intestine are extremely rare, but the large intestine is overall the second most common cancer site (after the lung). Colorectal cancer accounts for about 20 percent of all cancer deaths in the US.

Types found in both the small and large intestine include carcinoid tumors and lymphomas. Carcinoid tumors are very slow growing and usually symptomless (however, they may spread to the liver, leading to carcinoid syndrome). Lymphomas, which damage the wall of the intestine and nearby lymph nodes, cause malabsorption of food.

#### **Causes**

Although there is no single cause of intestinal cancer, there are a number of possible contributory factors.

The higher incidence of cancer of the colon (by far the most common type of intestinal cancer) in Western countries suggests an environmental, probably dietary, factor. It is believed that a high-meat, high-fat, and low-fiber diet encourages the production and concentration of carcinogens.

There is also thought to be a genetic factor. Brothers, sisters, and children of people suffering from cancer of the colon are more likely than average to acquire the disease later in life.

Cancer of the colon frequently occurs in association with other diseases of the colon, such as ulcerative colitis and familial polyposis.

#### **Symptoms**

An inexplicable change in bowel movements (either constipation or diarrhea) lasting for 10 days or so may be one of the first symptoms of cancer of the large intestine.

Blood mixed in the feces (as opposed to the blood from hemorrhoids, which usually coats the feces) is another important warning signal, although, if the growth is high up in the colon, the blood can be detected only by chemical tests.

There may be pain and tenderness in the lower abdomen. Sometimes, however, there are no symptoms at all until the tumor grows so big that it causes an obstruction in the intestine or causes the intestine to rupture.

#### **Colitis**

Colitis is inflammation of the colon (the large intestine) causing diarrhea, usually with blood and mucus. Other symptoms may include abdominal pain and fever.

#### **Causes**

Colitis may be due to infection by a virus, an amoeba, or a bacterium such as campylobacter that produces toxins that irritate the lining of the intestine. Other bacteria may directly infect the colon lining, causing colitis.

Antibiotics, especially if taken for a period of more than two weeks, may provoke a form of colitis. Antibiotics kill the bacteria that normally live in the intestine and may allow another type of bacterium, clostridium difficile, to proliferate and produce an irritating toxin. Very commonly, prolonged use of antibiotics is associated with diarrhea that may be a direct irritative effect of the drug itself (antibiotic-associated diarrhea).

Ischemia, or impairment of the blood supply to the intestinal wall, which is usually due to atherosclerosis (narrowing of blood vessels), is a very rare cause in the elderly.

Ulcerative colitis and Crohn's disease is two serious intestinal disorders of unknown origin that usually start in young adulthood.

Other disorders that can cause symptoms similar to those of colitis include proctitis (inflammation of the rectum), which may be due to a form of ulcerative colitis or to gonorrhea or another sexually transmitted disease; inflammation of an area of colon affected by diverticular disease; or an intestinal cancer.

## **Congenital Defects**

Babies are sometimes born with an obstruction to the flow of the intestinal contents. This may be due to atresia (congenital closure), stenosis (narrowing), volvulus (twisting of loops of bowel), or blockage by meconium (fetal intestinal contents). Early surgery may be required.

## **Crohn's Disease**

Crohn's disease is a chronic inflammatory disease that can affect any part of the gastrointestinal tract from the mouth to the anus. Crohn's disease may cause pain, fever, diarrhea, and loss of weight.

The most common site of inflammation is the terminal ileum (the end of the small intestine where it joins the large intestine). The intestinal wall becomes extremely thick due to continued chronic inflammation, and deep, penetrating ulcers may form. The disease tends to be patchy; areas of the intestine that lie between diseased areas may appear to be normal, but are usually mildly affected.

### **Causes and Incidence**

The cause is unknown. It may represent an abnormal allergic reaction or may be an exaggerated response to an infectious agent, such as a bacterium or a virus. There is a slight genetic predisposition (inherited tendency to develop the disease).

The incidence of Crohn's disease varies between three and six new cases per year per 100,000 population in most developed countries, including the US; the incidence seems to have increased over the last 30 years. A person may be affected at any age, but the peak ages are in adolescence and early adulthood and after 60.

### **Symptoms**

In young people the ileum (small intestine) is usually involved, and the disease causes spasms of pain in the abdomen, diarrhea, and chronic sickness due to loss of appetite, anemia, and weight loss. The ability of the small intestine to absorb food is reduced. In the elderly, it is more common for the disease to affect the rectum and cause rectal bleeding. In both groups of the disease may also affect the anus, cause chronic abscesses, deep fissures (cracks), and fistulas (passageways that create an abnormal link between organs of the body).

Crohn's disease can also affect the colon (large intestine), causing bloody diarrhea. It is rare in the mouth, esophagus, stomach, and duodenum (upper part of the small intestine).

Complications may affect the intestines or may develop elsewhere in the body. The thickening of the intestinal wall may narrow the inside diameter so much that an intestinal obstruction occurs.

About 30 percent of patients with Crohn's disease develop a fistula. Internal fistulas may form between loops of intestine. External fistulas to the skin of the abdomen or the skin surrounding the anus may follow a surgical operation (or rupture of an abscess) and may cause leakage of feces onto the skin.

Abscesses (pus-filled pockets of infection) form in about 20 percent of patients. Many of these abscesses occur around the anus, but some occur within the abdomen.

Complications in other parts of the body may include inflammation of various parts of the eye, severe arthritis affecting various joints of the body, ankylosing spondylitis (an inflammation of the spine), and skin disorders (including eczema).

## **Diverticular Disease**

Diverticula are small outpouchings from the inside of the bowel. They are usually harmless, but, in diverticular disease, become inflamed. Malabsorption and celiac sprue result from changes to the intestinal lining.

## **Infection and Inflammation**

The general term for inflammation of the stomach and intestines is gastroenteritis. This is caused most commonly by viral or bacterial infections, which can range from the trivial to the life threatening. They encompass many cases of food poisoning and travelers' diarrhea as well as serious diseases such as typhoid fever and cholera.

Protozoal infections (caused by simple, single-celled parasites) include giardiasis and amebiasis.

Intestinal worm infestations are exceedingly common worldwide although, in the US, only a few species of worms – including the pinworm – are prevalent.

Two important inflammatory conditions of the intestine, not caused by infection, are ulcerative colitis (mainly affecting the colon) and Crohn's disease (which may affect any part of the digestive tract but usually the small intestine).

Sometimes, inflammation is confined to the localized area, such as in appendicitis and diverticular disease.

### **Irritable Bowel Syndrome**

Irritable bowel syndrome is associated with persistent abdominal pain and either constipation or diarrhea (or both) and is the most common intestinal disorder in Western societies.

### **Leaky Gut Syndrome**

When toxic matter and undigested food, collected in the intestines as a result of bowel toxemia, are absorbed from the bowels into the bloodstream, the result is a recognized medical condition known as "leaky gut syndrome."

The undigested food molecules act as antigens, foreign substances that provoke an immune reaction. Many of these antigens are similar in structure to normal body components, and the antibodies produced to fight them can destroy healthy tissues. Recent studies suggest this immune reaction contributes to, or may cause, rheumatoid arthritis and other degenerative diseases.

Bacteria and their toxic by-products can also be absorbed from the bowels into the bloodstream. A deficiency of secretory IgA, an antibody in the colon that binds food and bacterial antigens, can cause an influx of antigens from the bowels into the bloodstream. These antigens can induce autoimmune diseases such as thyroid disease, myasthenia gravis (a disease characterized by great muscular weakness), and some forms of meningitis.

Toxins that enter the bloodstream from the colon also burden the liver, circulatory system, lymphatic system, and excretory organs such as the lungs and kidneys. Because the liver plays such a vital role in clearing the blood of toxins, any impairment of liver function may aggravate the damage already done by bowel toxemia. Foreign chemicals in the body, whether produced from ingestion or chemical interaction, chemical breakdown, or putrefaction of foodstuff in the fermentive processes, can alter RNA (ribonucleic acid) and DNA (deoxyribonucleic acid). RNA and DNA contain the blueprint for cellular manufacturing and, if tampered with, abnormal cell reproduction can occur. Many scientists believe this provokes cancer and other autoimmune diseases. All these factors make a properly functioning colon imperative to the maintenance of good health.

### **Obstruction**

A partial or complete blockage of the small or large intestine is called an obstruction. Without treatment, complete obstruction of the intestine is usually fatal.

#### **Causes**

The most common cause of intestinal obstruction is paralytic ileus, in which (for no medical reason) peristalsis (the rhythmic muscle contractions of the intestine) stops, the bowel dilates, and the intestinal contents are no longer moved along the digestive tract.

Other common causes, which have a mechanical basis, are strangulated hernia, atresia (congenital closure), stenosis (narrowing of the intestinal canal), adhesions (postoperative bands of scar tissue that bridge across the outer surface of segments of bowel, sometimes trapping another loop), volvulus (twisting or knotting of the bowel), and intussusception.

Intestinal obstruction also occurs in diseases (such as Crohn's disease, diverticular disease, and tumors) that affect the intestinal wall. Less commonly, internal blockage of the intestinal canal is caused by impacted food, feces, gallstones, or by some accidentally swallowed object.

#### **Symptoms**

The location and type of obstruction (partial or complete) dictate the symptoms. A blockage in the small intestine usually causes intermittent cramplike middle abdominal pain which tends to be more severe the higher the obstruction. This is accompanied by increasingly frequent bouts of vomiting and by failure to pass gas or stools.

The symptoms of obstruction in the large intestine, particularly the colon, are pain, distention (swelling) of the abdomen, and failure to pass stools; the blockage may be so complete that even gas cannot be passed. Partial obstruction may be accompanied by diarrhea when the obstruction is intermittent. There is temporary relief when the liquid stool is able to pass through the remaining gap and the symptoms abate for a while.

## Parasites

Any organism living in or on any other living creature and deriving advantage from doing so, while causing disadvantage to the host. The parasite satisfies its nutritional requirements from the host's blood or tissues or from the host's diet, which allows the parasite to reproduce and multiply.

Parasites may remain permanently with their host or may spend only part of their life cycles in association. Some cause few symptoms, other cause disease and even death of the host.

Animal parasites of humans include various protozoa (single-celled animals), worms, flukes, leeches, lice, ticks, and mites. Viruses and disease-causing fungi and bacteria are also essentially parasites. Some types of bacteria actually benefit their hosts (by helping to control the populations of more harmful organisms), so they are not strictly parasites.

### Ectoparasites (present in skin or on body surface)

Common examples	Activities	How acquired
Head lice Ticks Bedbugs Cat fleas Aquatic leeches	Suck host's blood	Through contact with other people (lice, scabies, mites, warts), animals (ringworm fungi, ticks), vegetarian (ticks, mites), water (aquatic leeches), or locker-room floors (some fungi). Bedbugs live in bedroom walls or mattresses and visit their host at night. Cat and dog fleas may visit humans when the pet is absent.
Scabies mites	Burrow in skin	
Ringworm fungi	Multiply in skin	
Wart viruses		

### Endoparasites (live within body)

Common examples	Activities	How acquired
Tapeworms Flukes Roundworms Pinworms Hookworms	Adults live in human gut, blood vessels, bile ducts, or elsewhere and produce eggs that are passed out of body.	By eating infected meat, swallowing eggs on food, contaminating fingers with fecal material, or contact with infected water.
Various disease-causing protozoa, fungi, bacteria, and viruses.	Organisms multiply locally or spread throughout the body, causing disease.	By inhalation, water – or food-borne transmission, sexual transmission, or blood-borne infection, among other mechanisms.

## Peptic Ulcer

Peptic ulcer of the duodenum is a very common disorder, thought to affect 10 percent of the population. Ulceration of the small intestine occurs in typhoid and Crohn's disease and may cause bleeding into the intestine or even perforation (hole formation). Ulceration of the large intestine occurs in amebiasis and in ulcerative colitis.

## Toxemia

When the colon becomes burdened with an accumulation of waste material – impacted feces, bacteria, fungi, viruses, parasites, and dead cellular material – the result is termed 'bowel toxemia'. This condition causes inflammation and swelling of the bowel surface, and can lead to a host of other health problems. Normal absorption of nutrients, secretory functions, and normal muscular function of the colon are disrupted. Irregular and inefficient bowel movement is the result, further suppressing recovery and encouraging other problems.

Bowel toxemia and improper digestion can cause a buildup in the intestines of pathological bacteria, viruses, and fermented and putrefactive gases that become dangerous to the body and can lead to other illnesses.

## **Tumors**

Tumors of the intestine may be cancerous or benign (noncancerous). Cancers of the intestine include carcinoid tumors, lymphomas, cancer of the colon, and cancer of the rectum.

Noncancerous tumors are rare, but polyps in the colon, and adenomas, leiomyomas, lipomas, and angiomas in the small intestine are occasionally found. These tumors are usually symptomless and are often discovered only accidentally when barium X-ray examinations are being carried out for some other reason.

Very occasionally polyps undergo transformation and become cancerous, which is why they are usually removed at an early stage.