

**BOWEL CANCER** - a patient's guide

Dr Ross Roberts - Surgeon

**Overview**

Cancer of the colon (large bowel) or rectum usually begins as a small non-cancerous growth called a polyp. This polyp may then undergo changes in its gene make-up which result in uncontrolled growth and spread - at this stage it is called cancer.

This disorder is most common in areas such as North America, New Zealand and Australia where lifestyles and diets are similar. Approximately 6% of Americans develop cancer of either the rectum or the colon.

Throughout the world it is the 3rd most common cancer in males and the 4th most common female cancer.

Regions such as South America and sub-Saharan Africa have a low incidence.

There is a lot of evidence suggesting a link between diet and the risk of developing colorectal cancer.

**Risk factors for developing colon and rectal cancer**

Diet (see below)

Age > 40 years

Previous colon or rectal cancer or adenoma (polyp)

Family history of colorectal cancer or polyps

Inflammatory bowel disease (ulcerative colitis or Crohn's disease)

**Dietary factors potentially related to the incidence of colorectal cancer**

**Probably related:**

High fat and low fiber consumption\*

**Possibly related:**

- Environmental cancer forming substances from bowel bacteria or from charbroiled meat and fish

- Beer and ale intake

- Low dietary selenium

**Possibly protective:**

- Yellow-green vegetables

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- Calcium
- Carotene (vitamin A) rich foods
- Vitamins C and E
- Aspirin and nonsteroidal anti-inflammatory medications

\*Dietary fat and fibre vary and not all types may be important in causing or preventing colorectal cancer.

### **Inherited colorectal cancers:**

In all cancers there are abnormalities of the genes in the cells of the tumour. These abnormalities can either be inherited from a parent or acquired during a person's lifetime. A person with a gene that causes colorectal cancer can pass the gene to either a son or a daughter even though that person never actually developed cancer. This is because some genes are not always "expressed".

The strongest identified inherited risk for colorectal cancer is known as Familial Adenomatous Polyposis (FAP) where multiple polyps develop in the colon and rectum. Cancer develops at an early stage in this condition so family members must be tested while still young. The responsible gene (APC gene) has now been identified and can be found on a blood test which is available in many countries.

### **Polyps:**

Polyps are protrusions arising from the lining of the bowel or rectum. These could be due to inflammation or due to an overgrowth of abnormal cells called an adenoma. Adenomas have a risk of becoming cancerous especially if large, multiple or dysplastic (abnormal cells). If these adenomas are identified before they become too large they can be removed by means of colonoscopy which prevents a cancer from forming. Larger polyps require surgery for removal.

### **Previous cancer:**

Between 2 and 6 % of people with colorectal cancer will have another colorectal cancer either at the same time or later in life. This fact makes it important that the entire bowel is completely examined when a cancer is diagnosed.

### **Family history:**

The risk of developing colorectal cancer is 2 or 3 times higher in siblings or children of people with colorectal cancer when compared to the general population. Certain families have several affected members and, particularly if these cancers develop at a young age, this means an even higher level of risk. It is advisable that these relatives are screened by colonoscopy to detect any cancers or polyps at an early stage.

### **Inflammatory bowel disease:**

The risk of developing colorectal cancer associated with either ulcerative colitis or Crohn's disease depends on the duration of the disease and the extent of the inflammation. Regular surveillance colonoscopy is recommended for people with extensive disease of long standing to detect any pre-cancerous (dysplastic) changes.

### **Diagnosis**

Alarm symptoms that can be associated with colorectal carcinoma include bleeding from the rectum, a change in bowel function such as diarrhoea or constipation, abdominal pain or distention, vomiting, weight loss and a feeling of incomplete rectal emptying after passing a bowel motion. If any of these symptoms persist then medical investigation is advised.

The diagnosis of colorectal cancer includes a physical examination, testing the bowel motion for blood and blood tests to check for anaemia or disturbed liver function. The most accurate method of confirming the diagnosis is colonoscopy where a flexible video camera is guided around the colon and samples are taken for laboratory testing. Other techniques include a barium enema, which is a form of X-ray, taken after air and liquid barium are passed around the colon. Having confirmed the diagnosis it is important to determine how advanced the cancer is. This is known as "staging" and usually requires tests such as liver scans and chest X-rays.

### **Screening**

Screening for a disease means testing people who have no symptoms or signs of the disorder in the hope that if the disease is present it will be diagnosed at a stage which is curable. Techniques for screening for colorectal carcinoma include testing the bowel motion for traces of blood (faecal occult blood), examination of the rectum and the lower end of the large bowel (colon) using a flexible instrument (sigmoidoscope), complete colon and rectum examination (colonoscopy) and genetic testing.

Screening can be offered to the general population or focused only on those with an increased risk of the disease. Colorectal screening in the general population is usually only advocated in areas with a high incidence of the disease. The American Cancer Society currently recommends testing for faecal occult blood (see above) on an annual basis along with sigmoidoscopy every 3 to 5 years.

From April 2006, bowel cancer screening will be offered nationally in the UK. People in their sixties will be invited to have a faecal occult blood (FOB) test. The FOB test looks for the presence of blood in the faeces -- if FOB positive, the patient will be offered colonoscopy to identify the cause of the blood in the faeces; if FOB negative, repeat tests will be offered at 2 yearly intervals.

Screening by means of colonoscopy is widely recommended for people who have either two close relatives (sibling or parent) with colorectal cancer or have one close relative who developed colorectal carcinoma before the age of 50 years. These people should be screened when they are 10 years younger than the age of the youngest affected relative. It is also recommended that even people, with a single close relative who developed cancer

over the age of 50 years, should be screened from the age of 40 years. Because polyps take some years to develop into cancer, intervals of up to 5 years between screening are possible in most cases. This interval should be discussed on an individual basis. "Virtual colonoscopy" is now being developed that will allow examination of the colon by scanning and reconstruction of the images. Any detected polyps would require removal by colonoscopy.

### **Treatment options**

Untreated colorectal cancer usually continues to grow and eventually spreads to the liver and other organs, which is fatal. If detected at an early stage the disease can be cured by removal either during colonoscopy (if small) or surgery. Before surgery or examination of the bowel a preparation is given on the preceding day to clear out all bowel motion. Sometimes, even if limited spread has occurred to the liver or lungs cure can be achieved but this is very much less likely. In the majority of colorectal cases treated by surgical excision it is possible to rejoin the ends avoiding a permanent colostomy (stoma bag). A temporary stoma is occasionally needed to allow healing of the join (anastomosis) and this is then closed at a later date. If a rectal cancer is very close to the anal area this has to be removed as well during surgery. In this situation a permanent colostomy is needed.

#### **Chemotherapy:**

For early cancers, which have not yet spread beyond the bowel, chemotherapy is not required. For those cancers, which have spread to the glands (lymph nodes), chemotherapy can significantly improve the outlook from approximately a 58% 5-year survival rate to a 70% 5-year survival rate.

#### **Radiation therapy:**

Radiation treatment is not normally used for colon cancer but may be needed either before or after surgery for advanced cancer of the rectum.

#### **Laparoscopic surgery:**

At present a number of trials are underway around the world to determine if laparoscopic ("keyhole") surgery is appropriate for colorectal cancer. The potential advantages include a quicker recovery and less pain than after conventional surgery.

### **Prevention**

Colorectal carcinoma is a preventable disease. It is now known that most cancers develop from non-cancerous growths (polyps) which are present for some years before becoming cancerous. If these growths are removed cancer can be prevented and regular colonoscopy and polyp removal has been shown to reduce the number of bowel cancers in scientific studies.

### **Prognosis**

The duration of survival after developing colon or rectal cancer is determined predominantly by two factors, the stage (how advanced it is) of the disease and the treatment given. Early tumours confined to the bowel are cured by surgery in about 90% of cases. Tumours that have spread to the liver are seldom curable.

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### **Future trends**

The future will see greater emphasis placed on the prevention of colorectal cancer. It is important that changes in diet and lifestyle occur in areas of high risk for colorectal cancer. Identification of those at increased risk of the disease will allow for more accurate screening techniques and genetic testing will become more available. Surgical techniques are being refined and hopefully minimally invasive techniques will be widely adopted reducing the suffering from this disease.