The Surgeon's Guide to Bowel Cancer: Diagnosis, Staging and Advanced Treatment

Bowel cancer (also known as **colorectal cancer**) is the collective term for cancer in the colon and rectum. The diagnosis is serious, but outcomes have improved markedly in recent years. Modern surgical techniques combined with precision medicine and new treatment strategies now give far better prognoses and quality of life than before.

With around 4,000 new cases each year in Denmark, prevention and early diagnosis are essential, and **colonoscopy** plays the most important role here.

Why does bowel cancer occur? From polyp to cancer

Almost every case of bowel cancer starts as **benign clusters of cells** (growths) in the bowel lining, called **polyps**.

Normally cells only divide when needed, but if the control mechanisms fail, the mucosal cells grow uncontrollably. Over time, some of these polyps (specifically adenomas) can become autonomous and develop into cancer. The process typically takes several years.

Early detection and removal of polyps through regular colonoscopy is the most effective prevention of bowel cancer.

Symptoms: When should you see a doctor?

The symptoms of colon and rectal cancer vary, but you should **always** see a doctor as soon as possible if you notice any of the following:

Bleeding and anaemia

- **Blood in the stool or on the toilet paper:** Bleeding is often mistaken for haemorrhoids but can be a sign of cancer. Read more about rectal bleeding.
- **Unexplained anaemia:** Prolonged, hidden bleeding from the bowel can lead to anaemia, which shows up as **fatigue** and pale skin. Minor bleeding can be detected by a stool test for blood.

Changes in bowel function

- **Changes in stool:** Altered frequency, consistency or noticeably thinner calibre of the stool over weeks.
- **A feeling of incomplete emptying** after passing stool (typical of rectal cancer).

Bowel obstruction

If the tumour grows large enough, it can fully or partially block the bowel (obstruction), which can cause:

- A distended, bloated abdomen.
- Unexplained weight loss, nausea and vomiting.
- Abdominal pain (rarely in early colon cancer).
- **Rectal pain** (seen mainly when rectal cancer grows into surrounding tissue).

Diagnosis: How is bowel cancer diagnosed?

To diagnose bowel cancer and plan the right treatment, you go through a series of specialised examinations:

1. **Initial examination:** The doctor inserts a finger into the rectum (digital rectal exam) to feel for lumps in the lower part.
2. **Endoscopy (colonoscopy):** The gold standard for examining the bowel. A flexible tube is passed through the anus. Colonoscopy makes it possible to visualise the entire colon and rectum, take tissue samples (biopsies) and remove polyps. See the other endoscopic examinations offered at the clinic.
3. **Microscopy of tissue samples:** If cancer is suspected during colonoscopy, tissue samples will be taken for microscopic examination. The samples are examined for cell changes and various markers, including MMR status (Mismatch Repair). This maps the tumour's biology early on and is important for choosing the right medical treatment or immunotherapy.
4. **CT colonography ("virtual colonoscopy"):** If a colonoscopy cannot be completed (for example if the bowel is too narrow), a CT scan of the colon and rectum is used as a quick and equally valid diagnostic alternative.
5. **Staging (scans):** If cancer is found, it is investigated for possible spread using:
    - CT scan of the chest and abdomen.
    - MRI and/or ultrasound through the rectum (specifically for rectal cancer, to assess local extent).

Disease stages: TNM classification

To assess the best treatment and prognosis, bowel cancer is divided into stages using the international **TNM system**, which describes how far the disease has progressed:

- **T (Tumour):** Local growth of the tumour (T1-T2 are limited to the bowel wall; T3-T4 have grown deeper or through the bowel wall).
- **N (Node):** Whether the cancer has spread to nearby lymph nodes (N0 means no spread; N1-N2 means spread to lymph nodes).
- **M (Metastasis):** Whether there is spread to other organs, for example the liver or lungs (M0 means no distant spread; M1 means spread).

The four cancer stages

Stage	TNM criteria	Description and prognosis
Stage 1	T1-2, N0, M0	Small tumour, no spread to lymph nodes or other organs. Best prognosis.
Stage 2	T3-4, N0, M0	Larger tumour, but still no spread to lymph nodes or other organs.
Stage 3	T1-4, N1-2, M0	The cancer has spread to local lymph nodes, but there is no distant spread.
Stage 4	Any T, any N, M1	Spread to other organs in the body (metastases).

All stages can today be treated with the aim of cure, but the risk of recurrence depends on the stage and the tumour biology.

Treating bowel cancer: A tailored, multidisciplinary approach

Treatment is highly specialised and adapted to the individual patient in close cooperation between surgeons and oncologists.

Surgical treatment (operation)

Surgery remains the cornerstone of treatment. Most centres now offer keyhole surgery (laparoscopic or robot-assisted), where the surgeon operates through small incisions. This means less pain and faster recovery.

- **Surgery for colon cancer:** The cancer, a section of healthy bowel on either side and the surrounding fatty tissue with lymph nodes are removed. The bowel is usually joined back together immediately.
- **Surgery for rectal cancer:** All or large parts of the rectum are removed together with the surrounding fatty tissue (mesorectum) to reduce the risk of local recurrence.
  - **Temporary stoma:** Often created to protect the bowel join and let the bowel rest while it heals.
  - **Permanent stoma:** Necessary if the tumour sits so close to, or involves, the sphincter that the sphincter must be removed.

Medical and oncological treatment (before and after surgery)

Treatment is given either to support surgery, to shrink the tumour beforehand or as palliative care.

- **Treatment BEFORE surgery (neoadjuvant treatment):**
  - For *rectal cancer*, radiotherapy is used, often combined with chemotherapy, to shrink the tumour before surgery.
  - Following the latest guidelines, medical treatment (chemotherapy or targeted immunotherapy) is now also increasingly offered *before* surgery for *colon cancer* if the tumour is locally advanced or has specific genetic features (for example dMMR/MSI-high).
- **Treatment AFTER surgery (adjuvant treatment):** Chemotherapy is offered after surgery (especially for stage 3 and selected stage 2) to remove any microscopic cancer cells and reduce the risk of recurrence.

A modern option: "Watch and Wait" (organ-preserving strategy)

For a selected group of rectal cancer patients who receive intensive radio- and chemotherapy *before* the planned surgery, the tumour can sometimes disappear completely (complete clinical response). Following the latest guidelines, in these special cases, and under very close follow-up with scans, surgery can be postponed to preserve natural bowel function and avoid a stoma.

Prevention: Can I lower my risk?

Yes, there is a lot you can do yourself.

The best prevention is to take part in the national screening programme for colon and rectal cancer (ages 50-74) and to have a colonoscopy if there are signs of hidden blood in the stool or if symptoms appear.

Beyond that, lifestyle plays a significant role:

Factors that INCREASE risk	Factors that DECREASE risk
Overweight and a high calorie intake	Regular physical activity (exercise)
High intake of red and processed meat	Plenty of fruit, vegetables and berries
High alcohol consumption	A fibre-rich diet (whole grains)
Smoking	Intake of fish and low-fat dairy

The prognosis

Survival for patients with bowel cancer is improving steadily in Denmark thanks to earlier detection, better screening and more targeted medicine. Average 5-year survival rates are highest in the early stages, but the most important point is that treatment today is fully tailored to the individual patient and the specific biology of the tumour.

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