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## ANTERIOR RESECTION FOR RECTAL CANCER.

This general guide is designed to provide background information to the operation that you will shortly undergo. It aims to supplement verbal discussion, to answer common questions and to be readily available as an *aide memoir*. It cannot cover in detail every aspect of your individual operation and may not deal with some areas that are of particular concern to you. These can be dealt with individually.

You should feel free to ask about any aspect of your care. All your questions will be answered fully, honestly and in as much detail as you wish. In the heat of the moment it is easy for questions that you intended to ask to slip from your mind. You should note on paper any questions that you may have.

Further information is available at the web site above. This site also provides links to other sites that may provide additional information.

### **The principals of rectal cancer surgery.**

Rectal cancer occurs because some cells lining the rectum undergo a genetic change. The reasons for these changes are not fully understood, but are likely to be a combination of individual genetic predisposition and environmental influence. The body normally destroys abnormal cells, but cancer cells are not recognised by the body and are able to grow. Rectal cancer initially grows in the lining of the bowel and grows through its wall and then spreads locally to the regional lymph nodes. At this point surgery for rectal cancer is still potentially curative. From here the cancer may spread to other sites in the body, notably the liver and lungs. At the point curative surgery is only possible in a small number of highly selected patients.

### **What is involved?**

The aim of the operation is to remove the rectum that contains the cancer. At the same time the blood vessels and tissues supporting the rectum (the mesentery) are also removed. This is called an anterior resection. The incision will either be a low transverse incision or an 'up and down' incision in the middle of the abdomen. A general examination will then be performed to determine the exact extent of the cancer and to ensure there are no other abnormalities in the abdomen. The rectum will then be resected and the two ends joined together. The wound is then closed. There may or may not be skin sutures that have to be removed some 8-10 day later.

### **Laparoscopic (keyhole) surgery.**

Large bowel surgery has traditionally been by open surgery. It is now possible to offer selected patients laparoscopic (key hole) surgery. Laparoscopic surgery means the incisions are small, but once inside the abdomen a laparoscopic operation is almost identical to open surgery. That is why it is often called 'minimal access surgery'. The advantage of laparoscopic surgery is that the post-operative recovery is quicker.

The role of laparoscopic surgery for rectal cancer is much debated. Although there are surgeons who do offer laparoscopic surgery for rectal cancer the patients are highly selected. At the present time I do not offer laparoscopic surgery for rectal cancer.

For the sake of simplicity the remainder of this document is written as for open surgery.

### **Before the operation.**

The cancer needs to be fully staged. This is to determine the exact local extent of the tumour itself, and whether there has been any distant spread. This will require a CT scan of the chest, abdomen and pelvis, and a MRI scan of the rectum. You will have a number of routine blood tests and a heart trace (ECG).

The anaesthetist will assess you and will discuss the various ways of controlling post-operative pain (see below). Prior to the operation you may be given a bowel preparation to empty and clean the bowel.

It is important that we know every medical issue that might affect you. What may appear unimportant to you may be essential for us to know. In particular, we need to know all the drugs you are taking. You should bring them to the hospital in their original packet. Unless advised specifically to the contrary you should take all your drugs up to and including the morning of surgery. The exceptions to this are blood thinning agents, such as aspirin, plavix or warfarin, and diabetic drugs. These require special arrangements and must be discussed on an individual basis.

Once you are asleep various tubes and lines will be inserted into your veins, the bladder and through your nose into your stomach. These will be removed during the first 2-4 days following surgery.

### **Will a colostomy be required?**

A stoma (colostomy or ileostomy) is when part of the bowel is brought up onto the abdominal wall and a bag has to be worn. A stoma may be required as part of this operation. Sometimes it is clear prior to surgery that a stoma may be required and you will be so advised. On other occasions it may be deemed prudent to raise a temporary stoma, usually an ileostomy. This does not necessarily mean there has been a problem and is undertaken as a precaution. Ileostomies are normally closed ten weeks later with a second, smaller operation.

It is important that any stoma is placed in the correct position. For that reason it is likely that you will be seen by the stoma nurse before the operation and the abdomen marked. This does not mean you will have a stoma, merely that it will be positioned correctly if required.

### **Pain relief.**

Proper pain relief is very important for both holistic and physiological reasons. Your post-operative recovery will be slower if you do not have adequate pain relief. Patients often have an understandable reluctance to take pain relieving drugs. This is a mistake and may increase post-operative complications. The principle that underlies all methods of pain relief is that the drugs work best if you anticipate the pain. A small quantity of the drug taken regularly (even if pain free at that time) will work better than waiting for the pain to occur and then taking a larger dose.

Before the operation the anaesthetist will offer you two types of pain relief. The first is an epidural anaesthetic. This requires a needle to be inserted into your back and drugs are given through a fine catheter. The alternative is 'Patient Control Analgesia (PCA). With this technique you press a button as and when you feel the pain and a small dose of the pain relieving drug is administered. The advantage of these techniques is that a small

quality of the pain relieving drug can be administered on an on-going or regular basis and prevent the pain rather than treat it after it occurs. This is by far the most effective form of pain relief. Alternatively, regular injections can be administered. This is not as effective as they are usually administered after the pain has occurred.

After a couple of days adequate pain relief can normally be achieved by oral medication. Regular panadol, regardless of whether you have pain or not, is the foundation drug. If panadol alone is not adequate, additional, stronger painkillers and/or anti-inflammatory drugs can be taken on top of the panadol for break through pain. You should use panadol for background pain relief for a week after your operation. Many strong painkilling medications contain morphine, codeine or a derivative of these drugs. One of the side effects of these drugs is constipation.

### **The second 24 hours.**

You may be nursed in a High Dependence Unit (HDU) where you are kept under constant observation. You may be attached to various monitors and numerous observations will be performed. The physiotherapist will visit you and will ensure your lungs are clear and free of secretions and exercise your legs. You will be sat in a chair during part of the day.

### **Days three to five.**

Some of the tubes may be removed. You may be permitted some fluid by mouth and you may pass some flatus (wind) through the anus.

### **Days five to ten.**

You will start eating, moving around the ward, have a bath and generally return to normal, but limited, activities. Your bowel will start to work but maybe a little erratic and you may have some diarrhea. You may have an episode of incontinence. Patients recover at different speeds and you should not be concerned if your progress appears slower than you anticipated.

### **Going home.**

You will normally return home 10-16 days after your surgery, but this will vary with your progress and home circumstances. You will obviously be tired and you should plan to rest during each day. You should avoid domestic activities for at least the first three weeks. Sitting in a high backed chair can reduce the strain on your abdominal wound as it is easier to get up out of.

### **Recovery over the first six months.**

Over the first six weeks you should gradually increase the exercise you take. At six weeks you will be about 80% recovered. To fully recover to the point that you feel you have not had an operation will take three to six months, depending on your age and pre-operative fitness.

You should avoid strenuous exercise for four weeks. 'Little but often' should be your aim and a short walk two or three times a day is better than one long walk. Gradually increase the distance you walk over the next few weeks. The surgical wound has almost returned to full strength at ten days so it is almost impossible to 'over exercise' yourself to the extent that you damage the surgical area. If you feel comfortable doing a particular activity then it is very unlikely you will do yourself any harm. In general it is sudden, unplanned movements that cause problems.

As you start to feel better the likelihood is that you will overdo it and at this stage a couple of days of feeling well (and overdoing it) will be followed by a bad day as your body compensates. You have been warned! In general you should stop if you feel tired or if you feel pain.

For medico-legal reasons you must not drive for four weeks.

### **Bathing and showering.**

It is quite safe to get your wound wet with a shower or quick bath two or three days after your operation. However, long soaking baths with a Jeffery Archer novel should be avoided for at least three weeks as the wound will become soft and the scab may become infected. Adding salt to the bath will not help heal the wound and may make your skin dry and tight. After washing, pat the wound dry with a clean towel. A bath mat helps prevent slipping and a towel hooked around the bath taps can be a helpful lever when you try to get out. It can also be reassuring to have someone else in the house the first time you have a bath, even if you do not need help.

### **Sleep.**

Changes in your routine, restricted movement, lack of exercise and wound discomfort will interrupt your normal sleep pattern or wake you during the night. Uninterrupted sleep is more valuable than 'cat-napping' so you may find it helpful to take a pain killer before you go to bed. You can resume sexual activity when this feels comfortable.

### **Appetite.**

Your appetite will not be good for some weeks after surgery and you may feel aches, bloating and indigestion after meals. These symptoms usually disappear as you become more active. You should take small, frequent meals with a good intake of protein (lean meat, dairy produce, fish *etc.*). A small amount of alcohol can improve your appetite and is not usually harmful.

### **The wound.**

A major concern to patients is that they will strain the wound and that it will rupture. With today's suture materials this is very unlikely. On the very few occasions that a wound does rupture it will occur before you leave hospital. This would require an operation to repair the rupture. Once you have gone home a rupture is most unlikely. If you 'over do it' the worse that will happen is that wound will be very sore.

Wounds progress through several stages of healing. You may experience:-

- unusual tingling, numbness or itching sensations.
- a slightly hard or 'lumpy' feeling as new tissues form.
- pulling around the stitches or staples as the wound heals.

This is normal. Do not pull at any scabs as they act as a natural dressing and protect the new skin underneath. They will fall off when no longer required. You should seek help if any of the following occur:-

- the wound pain increases
- the wound becomes more reddened or swollen
- there is any discharge from the wound.

### **Work.**

Your return to work depends on many factors, including your occupation, age and general health. You will definitely require one month off work, but many will require up to two months and some may require a third month. It is better to feel completely well before you return to work rather than have to take more time off a few weeks or days later because you have returned to work too early.

### **Your post-operative bowel habit.**

This operation removes the rectum and replaces it with a segment of colon. The colon does not have some of the important characteristics of the rectum, such as the ability to store faeces (compliance). It is inevitable that your bowel habit will be disrupted in the post-

operative period and this may include increased frequency (up to six times per day and again at night), urgency and occasional episodes of incontinence of either flatus (wind) or faeces. Understandably patients find these problems distressing, but they do improve enormously over the first three months and even further over the next six months. Some patients notice an ongoing improvement for up to two years. Depending on your individual circumstances it may be necessary to prescribe some tablets.

In the past many patients with a low cancer (less than 8 cm from the anus) would have a permanent colostomy. Modern surgical techniques now permit the bowel to be rejoined and a permanent colostomy is avoided. In patients with a very low cancer the best way of managing these problems may be to create a small pouch from the colon. This technique requires a temporary ileostomy.

The functional results following resection of a very low cancer are not always perfect. Patients may experience urgency and there can be troublesome minor incontinence. There is a 'trade off' between avoiding a permanent stoma and the alternative of having the bowel rejoined, but then suffering imperfect bowel control.

Detailed information on how to improve your post-operative bowel habit is available on a separate advice sheet.

### **Surgical trainees.**

Some patients may have part of their anterior resection undertaken by a surgical trainee. A trainee performing an anterior resection is normally, but not always, under the direct supervision of the consultant. It is important that, as part of their training, trainees gain independent experience whilst consultant cover is still immediately available. There is a substantial body of surgical literature that shows the outcome of operations undertaken by properly supervised trainees is no worse than those performed by the consultant. This literature specifically includes anterior resections.

### **Any further treatment?**

The aim of the operation is to remove the cancer. Naturally you will wish to know how successful the operation has been and what the future holds for you. Immediately after the operation it will be possible to tell you how the surgery went and whether all the obvious cancer was removed. The bowel that is removed will be sent to the pathologists for detailed examination. A full report may not be available for seven days. You will be advised of the results as soon as they are available. However, these cannot be anticipated and patients often find waiting for the results a stressful period.

Experience has shown that even if there is no obvious cancer left at the end of the operation some patients will later develop further disease (a recurrence). This recurrence may either be local (at the site of the original cancer and the operation) or distal (elsewhere), usually the liver or lungs.

Local recurrence is best prevented by adequate local surgery at the first operation. The only additional treatment possible is radiotherapy. This can be delivered before or after the surgery. If it is likely that radiotherapy will be required it is best given before any surgery. On some occasions it is not clear until after the surgery that radiotherapy is required and it will be delivered then. There are advantages and disadvantages to both options and patients have to be considered individually. The radiotherapy may or may not be given with chemotherapy. Radiotherapy has complications of its own. If it is likely that radiotherapy may be of benefit to you arrangements will be made for you to discuss this with the Radiation Oncologists. This discussion does not commit you to undergo radiotherapy, but does allow you to make an informed decision.

Distal recurrence is believed to occur because some cancer cells, too few to be detected by either tests or the surgeon, have already spread beyond the operation area and with time these grow, usually in the liver or lungs, just like the original cancer. To reduce the

chances of this occurring it is sometimes appropriate to offer further treatment to kill these cells while they are very few in number. This is called chemotherapy. Pre-operative chemotherapy is normally only given with pre-operative radiotherapy. A decision about post-operative chemotherapy can only be made after the cancer has undergone histopathological examination. Exactly who will benefit from what chemotherapy is a complex decision and has to be individualised for each patient. If it is likely that chemotherapy may be of benefit to you arrangements will be made for you to discuss this with the Medical Oncologists (cancer specialists). This discussion does not commit you to undergo chemotherapy, but does allow you to make an informed decision.

If you do require chemotherapy you may require long term venous access and this can best be achieved with an infusaport. This is normally done four to six weeks latter requires a brief general anaesthetic as a day case. A separate advice sheet is available.

### **Follow-up.**

You will be reviewed about six weeks after your surgery. Further follow up will depends on many factors and is individualised for each patient. Further colonoscopies may be performed. The aim of these visits is to ensure that you remain well and to detect, at the earliest possible moment, any recurrent disease should the cancer recur.

If you have any concerns between routine follow-up visits do not delay until your next scheduled appointment. Make an earlier appointment.

### **How long have I got, doc?**

This is likely to be the most important question you will wish to have answered. It is also the hardest to answer accurately. It is impossible to even begin to answer this question until the operation has been completed and the pathology reported. You will then wish to know what the future holds for you, as an individual. We cannot answer this precisely for you as an individual, but we can tell you about the average outcome for a group of 100 patients presenting with the same type of cancer. These average outcome statistics are taken from the many previous studies that have been reported from hospitals and countries around the world.

### **What can go wrong?**

You will be undergoing a major operation. Major operations are sometimes complicated by adverse events. That said, the surgeons, anaesthetists and nurses caring for you have an extensive experience in what is, to them, a routinely performed operation.

However, it is important that you appreciate that major surgery does carry risk and complications can and do occur. The table below summarises the potential risks and complications. This table is not exhaustive and if you have any concerns you should ask before you sign the consent form. It is not intended to alarm as most patients will not have a serious complication. However, one third of patients having an anterior resection will have an event that delays their recovery. Although everything possible will be done to prevent the development of any complication, it is only possible to reduce, not eliminate, these events.

Approximately 2-5% of patients undergoing an anterior resection will die as a result of their operation. This is usually, but not always, a consequence of pre-existing medical problems rather than a new event that occurs as a result of the surgery itself. Rarely, previously fit patients may develop heart problems or blood clots in the legs as a direct consequence of the operation.

The majority of complications tend to occur in two groups. The first group are a direct effect of that particular operation. There are two potential major problems specific to anterior resection. The first is a leak where the bowel was joined (the anastomosis). This

is a serious complication (3 - 8% chance) and usually requires a second operation as an emergency. Normally this second operation will require a stoma. It may be possible to close this stoma at a second operation some months later. Up to one third of those developing an anastomotic leak will die as result of the leak.

The second potential problem is damage to the nerves in the pelvis that supply the bladder and genitals. The whereabouts of these nerves is known and every effort is made to avoid them. However, sometimes they are intimately involved with the cancer and may have to be sacrificed in order to obtain a complete cancer clearance (the prime objective of the operation). On other occasions their post-operative function appears compromised even though there was no evidence that they were damaged during the operation.

If the nerves are damaged there may be problems with micturition and, in men, impotence. The available data regarding the risk of nerve damage is not of high quality. The best available information suggests that in men under 50 years the risk of partial or complete impotence is probably less than 10%. For those aged 50-60 years the risk of partial impotence is 40% and total impotence is 10%. For men aged over 60 years the risk of partial impotence is 10% and total impotence is 40%. These figures are over and above the pre-existing incidence of impotence in the general population. They will be further increased in men with specific risk factors such as vascular diseases, smoking, diabetes *etc.* Studies have shown that even if the nerves are shown to be working at the end of the operation, patients may still be impotent.

The equivalent problem in women is vaginal dryness. Women may also find they have discomfort or pain with intercourse, particularly during the first few months. This occurs because the dissection separates the back of the vagina from the front of the rectum. This causes scarring which matures and softens with time.

Less commonly, damage to these nerves can lead to problems emptying the bladder.

The second group are general complications that can occur after any operation. The risk of these complications is greatly influenced by pre-existing medical conditions such as a previous heart attack, chronic illnesses such as diabetes, and smoking.

The best way to manage potential complications is to prevent them occurring in the first place. Hence the use of preventative, or prophylactic, treatment. It is important to correct any underlying medical conditions. For this reason it is essential you advise your doctors of all earlier operations and previous or ongoing medical illness. All your drugs should be brought to the hospital and shown to your doctors.

<b>Risk</b>	<b>What happens</b>	<b>What may be done (options)</b>
<i>General complications that may occur after any surgery</i>		
Clot in legs (DVT)	A clot forms in the legs. This may make the legs swell. The clot may break away into the lungs. This is a pulmonary embolus.	Blood thinning drugs (heparin) started at the time of surgery. TED stockings and calf pumps.
Post-operative bleeding	Blood leaks into the abdomen or out through a drain	1. blood transfusion 2. re-operation
Wound infection	An infection, including the development of pus, occurs in the wound	Antibiotics started at the time of surgery. Drainage of any pus is required, and this may require another operation or drainage under radiological guidance
Intra-abdominal abscess	A collection of pus or infection blood in the abdomen	Drainage, either by surgery or under radiological guidance
Chest infection	A pneumonia develops	Antibiotics are required. A few patients require ventilation (in ICU)
Wound dehiscence	The wound opens up	Surgical repair within a few hours.

Incisional hernias through the wound	A weakness develops in the wound. The bowel then slips through the abdominal wall and a bulge appears. This usually occurs more than six months after surgery. The overall life time risk is >15%. This risk is increased in patients who have either chemo-therapy or radiotherapy, a wound infection or a chronic illness like diabetes or obesity.	A surgical repair, usually with mesh, is required.
Urinary tract infection Bladder may not empty	Bacteria enter the bladder It is not possible to pass urine. As the bladder gets full, the patient gets uncomfortable.	Antibiotics The catheter is re-inserted and removed a few days later. Normally this solves the problem. Sometimes a catheter is required for 2-3 weeks. In men, prostate surgery may be required.
Vascular event	Stroke Heart attack	Each event managed on its own merits. Normally a period in ICU is required.
Death		In a fit person <2%. In other patients the risk is very dependent on pre-existing medical problems. A general estimate can be made by the use of risk prediction tables.

*Complications that may occur after bowel surgery*

Anastomotic leak	The join between the two ends of the bowel develops a leak. The risk for this operation is 3 - 8%.	<ol style="list-style-type: none"> <li>1. antibiotics alone</li> <li>2. drainage under radiological guidance</li> <li>3. further surgery, including an stoma if not already present</li> </ol>
Post operative ileus	The bowel remains paralyzed for longer than the usual 3-4 days	<ol style="list-style-type: none"> <li>1. a tube through the nose is inserted/ left in the stomach</li> <li>2. various drugs may be given</li> <li>3. although it normally resolves in 3-5 days an ileus can occasionally be so prolonged that intra-venous feeding (TPN) is required.</li> </ol>
Bowel blockage (adhesions)	Scar tissue in the abdomen blocks the bowel. This can occur within a few days of surgery, or many years later (or any time in between). The life time risk is 15-20%	A NGT and IVI settles most. Some patients require further surgery.

***What increases the risk of surgery***

	<i>Examples</i>	<i>Why is the risk increased</i>
Medical illness	Pre-existing general medical conditions such as endocrine disorders, heart attacks or strokes etc.	As far as possible pre-existing medical problems will be corrected prior to surgery
Previous surgery		Scarred tissue is normally of poor quality and does not heal well
Obesity	All risks increased	<ol style="list-style-type: none"> <li>1. poor quality tissue</li> <li>2. poor mobilisation leading to increased risk of DVT, chest infection</li> <li>3. poor blood supply so the risk of wound or anastomotic failure is much increased</li> <li>4. extra strain on the wound, heart etc</li> </ol>



Drugs	Examples include steroids, aspirin, blood thinning agents	Normally because they increase the risk of bleeding, infection or decrease the quality of wound healing
Diabetes		1. ability to combat infection reduced 2. poor blood supply 3. slow healing
Smoking		Increased risk of anastomotic leak, infection,, vascular events and thrombosis

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### Definitions

IVI	Intravenous infusion ('a drip')	
NGT	Nasogastric tube	A fine tube from through the nose into the stomach to drain the stomach and stop vomiting.
ICU	Intensive Care Unit	For very ill patients, or those requiring ventilation
Ventilation		Placing patients on a machine that does the breathing for them. A tube is placed through the mouth into the upper airway.

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