Contact x-ray brachytherapy for rectal cancer (Papillon)
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Your doctor will have already informed you that all the tests carried out so far have shown no signs that the cancer has spread. Therefore, your cancer is still at an early stage and there is a very good chance of curing it. Your doctor/surgeon has informed us that you fully understand that the standard treatment is major surgery.

**However:**
- He/she feels that you are not quite fit enough for the standard treatment due to your medical problems which puts you at a very high anaesthetic risk
- **Or**
  - You do not want any surgery that involves either a permanent or a temporary stoma (bag)

We also understand that you/your doctor have requested information about treatment which gives you an alternative treatment option. Your doctor has asked us to explain and discuss these treatment options with you and your family (if you wish).
It is important you understand that:

1) Not all rectal cancers are suitable for local treatment and therefore it may not be possible to offer you this treatment.

2) There is a higher risk of local recurrence following local treatment (approximately 10%) compared to the standard treatment (1-4% patients).

3) Should the cancer recur (usually in the first 2-3 years), you will need to consider the standard surgery that may involve a permanent or a temporary stoma (bag) (1-2 in every 10 patients).

Investigation at the start of treatment
You will have an MRI and a CT scan to stage and exclude spread of cancer.
You may also have an intra-anal ultra sound scan (probe inserted into your back passage) to find out the depth of invasion of your tumour. Blood tests will be carried out.

Local treatment options
Some patients will need to start their treatment with local surgery to be followed by radiotherapy.

1) Surgery
If your rectal cancer is small (less than three centimetres) then it may be possible to remove this through your back passage without major surgery.
This can be done by:

1.1) Transanal Endoscopic Micro Surgery (TEMS)

This procedure usually requires a general anaesthesia. Your surgeon will insert a small operating instrument into your rectum so that he/she can see the cancer (tumour) more clearly and remove it with a clear margin around it.

The area where the cancer was removed is repaired in some cases using stitches.

An experienced pathologist will then examine the removed tissue and also the cut ends (margins) of the bowel wall under a microscope to establish what kind of cancer you have. If the cancer is very close to the cut ends, there is a possibility that not all the cancer cells were removed. You will then be offered standard surgery to remove any remaining cancer together with the surrounding lymph nodes. If you are not fit for major surgery, or you refuse major surgery, then post-operative radiotherapy including contact radiotherapy (Papillon) can be considered. It is important to understand that your chance of cure is higher with major surgery. If the cut ends show no sign of cancer, then no further treatment is necessary other than regular follow up.

1.2) Trans Anal Resection (TAR)

This procedure also requires a general anaesthesia and is used when the tumour is situated very low in the rectum where it is not possible to use the TEMS method mentioned above.

This procedure is not suitable if the tumour is situated high in the rectum. TEMS is the preferred option for local resection but TAR can be used if TEMS facility is not available in your local surgical colorectal unit.
2) Radiotherapy using the Papillon technique (contact x-ray brachytherapy)

Contact x-ray brachytherapy (low energy x-rays treatment) also known as contact radiotherapy (Papillon) is recommended for patients who are not fit enough for general anaesthesia or who do not want major surgery and formation of a stoma. If your cancer is small (less than three centimetres) with no evidence of lymph node spread, then local contact x-ray brachytherapy using the Papillon technique can be considered as an alternative treatment option. Papillon is the name of the French professor from Lyon who popularised this technique. Unlike the surgical options described above, this treatment does not involve general anaesthesia and may be more suitable for you. However, not all rectal cancers treated with the Papillon method respond to treatment. You may need to go on and have external beam radiotherapy with or without chemotherapy (drug treatment). If there is still some cancer left
following radiotherapy you may need local surgical resection (TEMS or TAR) to remove the residual cancer. A small number of patients who do not respond to radiotherapy will need immediate salvage surgery and your doctor will discuss this with you.

You can receive your Papillon treatment as a day patient if you live near The Clatterbridge Cancer Centre. However, you can stay (overnight) in the hospital or a hotel (nearby) if you live a long way away from the centre. You will be advised to follow a low fibre diet for 3 days before your treatment (see Papillon dietary advice sheet).

Your treatment is usually in the afternoon. The treatment procedure is explained to you again in more detail. A small enema will be given to clear your bowels. The radiographer will explain and show you the position that you need to be in for the treatment. The actual treatment usually takes just over a minute but you will be in the treatment room for about half an hour.

You will be asked to kneel and bend over on the treatment couch. Local anaesthetic gel will be applied around your anus to numb the area and ease any discomfort. You will also have a cream to relax the muscles around your anus. Your doctor will then examine your back passage to locate the cancer. He/she will then insert a small instrument (sigmoidoscope) to examine the cancer carefully. Your doctor will then remove the instrument and insert an applicator into your rectum placing it over the tumour. Then the treatment tube is inserted through the rectal applicator to deliver contact radiation directly onto the tumour. There is a camera within the treatment tube to check the position of your
tumour. When the applicator and the treatment tube is in the correct position, the staff will leave the treatment area and the radiographer will commence the treatment with low energy x-rays. During the treatment, you will be watched carefully and your treatment can be interrupted if necessary. The low energy (50 KV) x-rays can only penetrate a few millimetres and therefore the deeper normal tissues are not damaged. Therefore, there are very few side effects from this superficial x-rays treatment. The second treatment is given usually about 2 weeks after the first treatment and the same procedure is repeated.

Each treatment application kills the cancer cells, layer by layer, while the normal tissues recover during the break between each treatment. The tumour will reduce in size as the treatment progresses as shown in the diagram – See Fig. 1a), 1b), 1c).

The number of treatments needed depend on the response of your tumour and the type of previous treatment (local surgical excision or external beam radiotherapy) you have received. Papillon treatment is usually given fortnightly.

If the tumour does not respond to the first two treatments then external beam radiotherapy is often given with or without chemotherapy. The type of treatment depends on your general fitness and any other medical problems you may have. The doctor will discuss this with you.

3) Combination treatment
For larger cancers, (more than three centimetres) we need to try and shrink the cancer as much as possible before going on to
surgery. This involves a course of external beam radiotherapy (five treatments) or chemo-radiotherapy for five weeks (radiation and drug treatments together). This may be followed by a course of local contact x-ray brachytherapy boost using either the Papillon treatment or HDR (high dose rate) brachytherapy (insertion of a radioactive source into the rectum). Contact x-ray brachytherapy
will be offered to good responders to improve local control. Those patients with more infiltrative residual tumour will be offered HDR brachytherapy.

Following boost treatment, we would then check the response of your tumour to the boost treatment before deciding how to proceed.

**The options are as follows:**

(1) If there is still a small cancer left, this can be removed locally either by TEMS or TAR (please see page 3 for more details).

(2) If there is no response (no shrinkage of the tumour), then we would advise you to have the standard surgery, as any further attempt at local treatment is very unlikely to be successful.

(3) If there is good response, with no residual tumour, then no further treatment may be necessary other than a regular follow up.

**Possible complications and side effects**

1) **Surgery**

Any surgical procedure carries some risk of complications. The risk of death due to standard radical surgery is below 5% and the risk of death due to local surgical excision with either TEMS or TAR is much lower at less than 1%. 
Complications such as bleeding, pain, infections, delay in wound healing and fistulas (abnormal connection between front and back passage) are much lower (1 in 100 patients) with local surgery compared to the standard radical surgery (1 in 10 patients).

You may experience incontinence (loss of control) of your motions for a few weeks following local surgical treatment but this usually gets better in the majority of patients. We may advise you to do pelvic floor exercises to strengthen the muscles around the anus which may help to prevent further leakages. You will be in hospital around 3-5 days following local surgery compared to 1-2 weeks for the standard radical surgery.

2) Radiotherapy

There have been no deaths reported as a direct result of this treatment. Radiation can cause some discomfort in the rectum due to inflammation caused by radiation. This usually settles down 2-6 weeks after completion of treatment. We may give you steroid enemas to reduce the inflammation and you need to use them twice a day for few weeks.

26% of patients experience rectal bleeding but it usually settles down within 3-6 months. If it persists any longer, 5% of patients need treatment to control this.

You may experience pain/discomfort around the anus when the doctor inserts the rectal applicator. The local anaesthetic gel and the cream to relax the muscle will help to ease the discomfort. The pain/discomfort usually settles within a few minutes. If you can’t tolerate the pain/discomfort you can request for stronger
pain killers to be given prior to your next treatment. Please discuss this with your doctor or a radiographer before treatment.

Diarrhoea (loose motions) is not common after only contact x-ray brachytherapy, but can occur if you have external beam radiation especially when this is combined with chemotherapy. We will give you advice on what to eat and what type of foods to avoid. You may need some medication (e.g. Loperamide) to control the frequency of motions.

Late side effects of radiation include narrowing of the back passage. This can occur in about 1% of patients. Gentle stretching (dilatation) to widen the narrowing may be necessary. Your surgeon will arrange this for you. Persistent severe bleeding occurs in less than 5% of patients due to dilated blood vessels. This occurs more frequently in patients who are on anticoagulants, e.g. warfarin, clopidogrel or aspirin. Plasma Argon treatment may be necessary to control the bleeding.

Fistula is a rare radiation side effect that can occur in less than 1% of patients (usually in patients who had prior surgery). However, only a few patients need surgery to correct the fistula, as this heals naturally in most patients.

Intestinal obstruction (bowel blockage) occurs in less than 5% of patients and normally only if you have had surgery combined with external beam radiotherapy. This usually responds to conservative treatment but may require hospital admission to control the symptoms. Very occasionally, for less than 1% of patients, surgical correction is necessary. This can also occur in patients who have had standard surgery without radiotherapy.
Investigations after treatment
You will have a 6 monthly CT scan for 3 years. MRI scan will be repeated usually 3-6 monthly in the first 2 years or more frequently as necessary. You may have a PET/CT scan if there is any suspicion of recurrence. Examination under anaesthesia and biopsy may be necessary to exclude recurrence.

Further treatment
There is approximately a 10% risk of your cancer coming back in the same place (depending on the stage of your tumour) and less than a 5% chance of it spreading to other parts of your body. Depending on where the cancer has recurred, we may offer you further treatment, which could involve standard radical surgery and a temporary or permanent stoma (bag). Standard surgery may not be possible due to the nature of the recurrence in some patients.

Follow up
It is very important that you attend regular follow up appointments for a number of years after the treatment.
We will make an appointment to see you every 12 weeks in the first and second year. This will then be extended to every six months for the next three years, followed by yearly appointments for the next five years. These clinic appointments will alternate between us and your local referring clinicians.
During follow up, you will be asked if you are having any problems e.g. pain, bleeding and excessive bowel movements. The doctor will then examine you using a sigmoidoscope (an instrument for
viewing the inside of the rectum) followed by rectal digital (finger) examination. A biopsy is only carried out if there is a suspicion that the cancer has recurred. Flexible endoscopy will be carried out every six months in the first two years by your referring surgeon locally. Colonoscopy will be carried out five yearly.

**Please note:**

Whilst we do everything possible to cure your cancer, we cannot guarantee that local treatment will cure your cancer and therefore you may need to have further treatment.

It is important that you understand that this is not a standard treatment and should the tumour recur at a later date, you will usually be offered radical salvage surgery which may involve a permanent or a temporary stoma, provided you agree and are considered fit for general anaesthesia.

We make every effort to prevent immediate and long-term side effects, but we cannot guarantee that rare and unusual complications will not occur.

You have the right to refuse treatment or withdraw from the treatment offered at any time and this will not affect your future treatment in any way.
Additional resources
‘Papillon Dietary Advice Sheet’ CCC patient information sheet

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For more information please visit:
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How we produce our information

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We rely on a number of sources to gather evidence for our information. All of our information is in line with accepted national or international guidelines where possible. Where no guidelines exist, we rely on other reliable sources such as systematic reviews, published clinical trials data or a consensus review of experts. We also use medical textbooks, journals and government publications.

References for this leaflet can be obtained by telephoning 0151 482 7722.

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