Radiotherapy to the Spine

I. Introduction

Radiotherapy involves the use of high-energy X-rays or electron beams to destroy the tumour while trying to preserve normal tissues as far as possible. Although X-rays also affect normal cells in the area treated, their ability to recover is usually better than that of tumour cells.

II. Procedure

- You will not experience any pain during the treatment procedure.
- Before each session, our staff will make sure that you are in the correct position for treatment. You will then stay in the treatment room alone for a few minutes while radiotherapy is being delivered.
- You will be closely monitored through a closed-circuit television system. You can speak to us using the intercom if necessary.

III. Risks and Side Effects

- Although radiotherapy is an effective treatment for your disease, it can cause short-term and long-term side effects. Our medical and nursing staff will offer appropriate treatment to help you complete the course of radiotherapy.
- Some of the common and potentially severe side effects are discussed below. Each patient reacts differently and may experience none, some, or all of the complications to a varying degree of severity. If other types of treatment such as chemotherapy are given in conjunction with radiotherapy, some of the side effects may be exacerbated. Complications are also more common in patients who have had previous surgery/ radiotherapy in the area being currently treated with radiotherapy.

A. Short-Term Side Effects

These may occur during radiotherapy, but usually disappear several weeks after the completion of treatment.

Common

1. Tiredness, nausea and decreased appetite.
2. Skin dryness, reddening, irritation or darkening in the area treated.
3. Temporary hair loss in the area treated.
4. Treatment of the cervical or thoracic spine: Sore throat and discomfort on swallowing, dry cough.

Uncommon

1. Increase in bone pain during the first few days of radiotherapy. This is transient and will usually improve with further treatment.
2. Skin blistering or peeling.
3. Drop in blood counts which increases the chance of infection and bleeding. This usually occurs only in patients where a large area is being treated, or when there is bone marrow failure due to the underlying tumour, and is more common in those who are also receiving chemotherapy.
4. Patients with spinal cord/ nerve root compression: Acute deterioration in limb power or neurological status. This may be caused by swelling of the tumour and neural tissue with radiotherapy and will usually improve with appropriate treatment. Some patients continue to deteriorate despite radiotherapy. This is mainly due to tumour progression and lack of response to radiation, rather than radiotherapy itself.
5. Treatment of the lower thoracic or lumber spine: Inflammation of the stomach causing vomiting, indigestion, heartburn or ulcer.
6. Treatment of the lumbosacral spine: Bowel inflammation resulting in cramps and diarrhea; bladder inflammation with frequency and pain on urination.
7. Treatment of the sacral spine in female: Disturbance in the menstrual cycle.
8. Treatment of the sacral spine in male: Reduction in sperm count.
9. Postoperative irradiation: Impaired wound healing.

B. Long-Term Side Effects

These may occur months or years after radiotherapy and may persist.

Common

1. Skin dryness, thickening and colour change.

Uncommon

1. Permanent hair loss in the area treated.
2. Scarring and stiffness of muscle and soft tissue in the area treated.
3. Treatment of the cervical spine: Injury to the thyroid gland may cause hormonal imbalance and some patients will require long-term medication treatment. Electric shock sensation on bending the neck (Lhermitte's Syndrome). This is usually self-limiting and generally does not progress to permanent neurological problems.
4. Treatment of the sacral spine in female: Damage to the ovaries resulting in early menopause and infertility.
5. Treatment of the sacral spine in male: Reduction in sperm count and infertility. Reduction in the production of male sex hormone testosterone which is important for potency.
6. Children or very young patients: Impaired growth.

Rare

1. Bone fracture in the area treated.
2. Severe radiation injury to bone or soft tissue in the treated area causing chronic pain, infection or ulceration. Surgery may be required.
3. Spinal cord or nerve damage causing pain, loss of strength or feeling in the arms and/or legs, and/or loss of bowel or bladder control.
4. Treatment of the cervical or thoracic spine: Narrowing of the oesophagus causing problems with swallowing.
5. Treatment of the thoracic spine: Heart problems such as irregular heartbeats, ischaemic heart disease, inflammation and impairment of heart function.
6. Treatment of the thoracic spine: Lung inflammation and scarring, which may cause

dry cough, shortness of breath and low grade fever.

7. Treatment of the lower thoracic or lumbar spine: Stomach injury with persistent indigestion, pain, ulceration and sometimes bleeding.
8. Treatment of the lumbar spine: Kidney damage resulting in impaired kidney function and/or high blood pressure.
9. Children or very young patients: Abnormal curvature of the spine (kyphoscoliosis).

Note:

- Radiation-induced tumours may occur, but this is rare.
- On rare occasions, patients may develop severe life-threatening complications due to radiotherapy and die.
- It is possible that the intended treatment outcome cannot be achieved, and the disease may not be alleviated or may recur/ progress in the future.
- Despite all precautions, unpredictable and unpreventable adverse outcomes may occur after treatment. Please kindly ensure that you understand the pros and cons of radiotherapy before deciding on undergoing the latter.

IV. Before the Treatment / Preparations Required

1. The treatment plan and radiotherapy schedule depend on the type and location of the tumour, as well as your health condition. Your doctor will discuss the details with you and explain how you can cope with the treatment side effects.
2. Sometimes skin tattooing or a special mould will be required for you to improve treatment accuracy.
3. Our staff will take written, photographic and radiographic records of your treatment for radiotherapy planning and future reference. These records may be used for research or scientific publications but your confidentiality will be maintained at all times.
4. Avoid applying ointment or cream on the area treated before attending your radiotherapy session. No other preparation is required unless specific instructions have been given by our staff.

Note:

- **Radiotherapy can cause teratogenicity (i.e. lead to abnormal fetal development). During radiotherapy, both male and female patients (if applicable) should use an effective method of contraception.**
- **Radiotherapy may affect the function of your pacemaker. Please let us know if you have a cardiac pacemaker.**

V. After the Treatment

1. You may feel tired or experience other side effects with radiotherapy. Please consider having a friend or relative accompanying you to the hospital if possible.
2. Our doctors will assess you on a regular basis and take appropriate measures to minimise your side effects.
3. If you feel unwell during the treatment period, please inform our staff.

VI. Follow-up

1. The time taken for recovery varies from person to person, some people can go back to work shortly after the completion of treatment.
2. After completing the whole course of radiotherapy, a follow-up appointment will be arranged to assess your response to treatment and to look out for complications. Please attend your appointment as scheduled.
3. Please ensure that you follow precisely the instructions given to you regarding medications (if applicable).

VII. Remarks

The list of complications is not exhaustive and other unforeseen complications may occasionally occur. The risk of some complications may actually be higher for certain patient groups. For further information, please contact your doctor.