

Radiotherapy in Brain tumors



Treatment Overview

Brain tumors, including meningioma, glioblastoma, brain metastasis and arteriovenous malformation, can be treated with Volumetric Modulated Arc Therapy (VMAT), which precisely targets the tumor with radiation to relieve symptoms like headaches, vision and neurological problems, improving quality of life, typically consisting of 10 to 35 sessions. For smaller tumors, Stereotactic Radiosurgery or Radiation Therapy (SRS/SRT) delivers high-dose radiation directly to the tumor, reducing side effects, typically consisting of 1 to 10 sessions. Treatment plans are individualized according to tumor characteristics and patient-specific needs.



St. Teresa's Hospital
Oncology Centre

RT Techniques

Volumetric Modulated Arc Therapy (VMAT)

- Volumetric Modulated Arc Therapy (VMAT), also known as RapidArc, represents an advanced radiotherapy technique
- During VMAT treatment, the machine rotates 360 degrees while simultaneously adjusting the intensity, shape and dose rate. This allows for precise targeting of irregularly shaped tumors and sparing surrounding healthy tissues, minimizing impact on nearby brain nerves, such as the optic nerve
- Compared with conventional radiotherapy, VMAT offers the distinct advantage of significantly reduced treatment time, often just a few minutes. Patients are spared from prolonged immobilization on the treatment couch, reducing discomfort during treatment

Stereotactic Radiosurgery / Radiation Therapy (SRS/SRT)

- Stereotactic Radiosurgery (SRS) involves one treatment session, while Stereotactic Radiation Therapy (SRT) requires 2 to 10 sessions. This technique is non-invasive but achieves surgical-level precision in targeting smaller brain tumors with sub-millimeter accuracy, delivering high dose directly to the tumor while rapidly decreasing the dose to surrounding tissues, maximizing protection for nearby brain tissue and nerves. This method is particularly suitable for tumors with high surgical risk or those located deeper in the brain

Image-Guided Radiation Therapy (IGRT)

- Image-Guided Radiation Therapy (IGRT) is fully utilized in our centre. Image verification is conducted before each treatment, with a six-dimensional treatment couch to adjust patient positioning, ensuring precise tumor localization and minimizing displacement errors

Features

Artificial Intelligence (AI)

- By incorporating the latest medical technologies, artificial intelligence is integrated into dosimetry procedures to enhance both efficiency and safety

Tattooless Skinmark

- Delivers precise treatment using the IGRT technique without permanent tattoos
- Eliminates pain and invasive piercing from tattoo marking procedure
- Eliminates cosmetic concerns

Professional & Efficient

- Surface-guided and IGRT techniques reproduce simulation position accurately
- Employs computerized automatic tracking and verification technology, imaging localization can be completed quickly before each treatment
- With the VMAT technique, treatment duration is reduced (substantially from 30 minutes to less than 10 minutes), increasing treatment effectiveness and accuracy

Research Development & International Awards

We are dedicated to advancing and refining treatment technologies. Actively participating in international radiation dosimetry competitions, we have been recognized with multiple awards in various cancer contests. For more details, please refer to the "Radiotherapy Planning Awards" brochure.

RT Procedures & Notice

1) First Consultation

Our oncologists will listen and understand your situation carefully to tailor the most suitable radiation therapy scheme for you.

2) Simulation & Computed Tomography

A customized immobilization device will be created based on your body contour to ensure stable positioning, followed by a CT scan specifically for radiation dosimetry. This helps the oncologist to define treatment area and prescribe radiation dose accurately.

3) Treatment Plan Dosimetry

Our dosimetry team will compute a personalized treatment plan that precisely targets tumor cells while minimizing damage to surrounding healthy tissues.

4) Imaging Verification

Before each VMAT treatment, X-ray On-Board Images (OBI) or Cone-Beam CT scans (CBCT) will be used to verify target localization and positioning accuracy. SRS/SRT will utilize ExacTrac or HyperArc systems for precise alignment, ensuring accurate radiation delivery.

ExacTrac

- By combining infra-red marker tracking with a stereoscopic X-ray imaging system, we can track real-time treatment positions during, ensuring sub-millimeter precision.

HyperArc

- The automated high-precision treatment system, designed for stereotactic radiosurgery or therapy, optimizes treatment procedures, allowing for simultaneous treatment of multiple brain tumors.

5) Treatment Position Verification & Adjustment

After image verification, we utilize a Six-Degree-of-Freedom (6 DoF) couch to adjust positioning effectively, enhancing treatment precision.

6) Treatment Delivery

Radiotherapy will be delivered according to your individualized treatment plan. Each session for brain cancer treatment typically lasts about 10 minutes. For stereotactic radiosurgery or radiation therapy, each session typically lasts about 15 minutes.

7) Post-Treatment Care and Follow-Up

Throughout the treatment course and following completion, we closely monitor both therapeutic effectiveness and potential side effects.

Possible Side Effects & Management

Nausea & Headache

- Get plenty of rest
- Consult your oncologist for medication to relieve symptoms

Hair Loss

- Hair loss caused by radiation therapy is temporary and localized. You may wear a wig or headscarf temporarily

Fatigue

- Get plenty of rest, maintain a balanced diet, and ensure adequate nutritional intake

Service Commitment

Our team has extensive experience in dosimetry and commits to completing your treatment planning and starting treatment within one week.

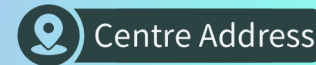
RT Charges

We commit to providing professional and high-quality medical services to patients from all backgrounds at reasonable fees. For details on charges, please refer to the "Radiation Therapy Charges" or call 2200 3493 for inquiries.

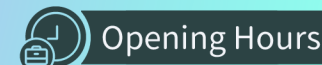


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Monday - Friday

09:00-18:00

Saturday

09:00-12:30

Sunday & Public Holiday

Closed



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