Masterclasses

M12.3 Management of Patients with Brain Metastases – A Paradigm Shift from Whole Brain Radiotherapy to Stereotactic Radiosurgery

10:45 Room 423 & 424

Pros and Cons of the New Treatment Paradigm and Its Impact on Future Service Model Yam KY

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Stereotactic radiosurgery was introduced to Hong Kong in the mid-1990s. The adoption of this technology in Hospital Authority for the management of brain metastasis was not promising. The early radiosurgery systems were mainly adaptive devices like the cone arc or multi micro-leaves system; they worked as the second collimator of the linear accelerator. Physicists had to perform complicated quality assurance procedures after mounting the devices. The work was tedious and consumed loads of linear accelerator machine time. At the same time, radiosurgery had to be conducted as a frame base procedure. Patients were fixed by skull pins in a stereotactic frame before performing CT images. They had to bear the pain till the completion of imaging, radiosurgery planning and treatment, which might last for six to eight hours.

As more clinical evidence confirmed the safety and efficacy of radiosurgery on brain metastasis management, the demand increased and this triggered technological advancement.

Radiosurgery devices today are equipped with image guided radiation therapy (IGRT) capability. On board X-rays and/or cone beam CT of the linear accelerator provide confirmation of target localisation. The robotic couch allows fine adjustment and correction. Patients are immobilised by thermal plastic facemask and treatment becomes completely noninvasive. Latest planning software also allows simultaneously treatment of up to 10 metastases in a single radiosurgery session. Patients with multiple metastases can be managed by new technologies. The deleterious effect of whole brain radiation therapy can then be avoided.

We anticipate a significant increase in patient load in the near future as cancer incidence and cancer survivors are escalating. We shall discuss how our multidisciplinary team adopt and utilise modern technologies to provide a fast, safe, efficient and effective treatment paradigm for patients suffering from brain metastasis.