

Awareness of free access to radiotherapy: cyberknife stereotactic radiosurgery, in Pakistan

Ali Nasir¹, Misbah Kaleem²

Madam,

Globally, brain tumour has an annual incidence of 3.5 cases and an annual mortality of 2.8 cases per population of 100,000, indicating high mortality among those diagnosed.¹ Although there is no such data available to provide the prevalence of brain tumours in Pakistan, according to an article, it is mentioned that a total of 2750 brain tumour cases were recorded in a year, out of which 1897 (69%) were diagnosed in the public sector.³ Resection of tumours surgically as extensive as safely possible is the traditional approach for treatment, along with a combination of radiotherapy and chemotherapy.⁴ Stereotactic radiosurgery (SRS) can be used as a monotherapy or adjunct to surgery for residual disease and in cases of recurrence. It is the treatment of choice for patients with a limited number of cerebral metastases that are inoperable.²

Stereotactic radiosurgery (SRS) is a type of radiotherapy that targets tumour cells by high doses of radiation in the form of small gamma rays while avoiding healthy tissues. This treatment is worth mentioning because it is non-invasive and performed as an outpatient procedure in which general anaesthesia is not required. The Cyberknife System is used to deliver SRS treatments to address tumours, vascular lesions, and functional disorders, such as trigeminal neuralgia or Arteriovenous malformations (AVM). The treatments are designed to treat inoperable or recurrent brain tumours and can be used for patients who are not the best candidates to endure the risks of surgery.²

¹Department of Surgery, Integrated Medical Care Hospital, Lahore, Pakistan;

²Department of Obstetrics and Gynaecology, Aga Khan University Hospital, Karachi, Pakistan.

Correspondence: Misbah Kaleem. **Email:** dr.misbah.kaleem@gmail.com

ORCID ID: 0009-0005-5185-1854

Submission complete: 12-09-2024 **First Revision received:** 21-10-2024

Acceptance: 16-11-2024

Last Revision received: 15-11-2024

In total there are less than 400 Cyberknife machines in the world and it cost more than £20,000 for a course of treatment. The number of treatment sessions required is typically one to five, but it depends upon multiple factors, including the site and size of the tumour. This is worth highlighting that only Cyberknife Robotic Radiosurgery Centre in Pakistan offers this treatment free of cost, irrespective of religion or nationality. Cyberknife not only provides treatment for brain tumours and metastasis but also for cancer of the lungs, prostate, liver, spine and pancreas. People should be educated about its free and easy accessibility. We cannot ignore its major advantages over surgery as it is minimally invasive, does not require general anaesthesia, shows promising results, and provides a short recovery time. Considering all this, it also opens a window for clinical trials and more research work to show its efficacy.

DOI: <https://doi.org/10.47391/JPMA.21973>

Disclaimer: None.

Conflict of Interest: None.

Funding disclosure: None.

References

1. Shah NZ, Masroor T, Zahid N, Zahid W, Hassan A, Azam I, et al. Factors affecting well-being in brain tumor patients: An LMIC perspective. *Front Psychol* 2023;14:1117967. doi: 10.3389/fpsyg.2023.1117967
2. Hynes PR, Das JM. Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiotherapy (SBRT). Treasure Island, FL: StatPearls Publishing; 2025.
3. Enam SA, Shah MM, Bajwa MH, Khalid MU, Bakhshi SK, Baig E, et al. The Pakistan Brain Tumour Epidemiology Study. *J Pak Med Assoc* 2022;72(Suppl 4):s4-11. doi: 10.47391/JPMA.11-S4-AKUB01
4. van den Bent MJ, Geurts M, French PJ, Smits M, Capper D, Bromberg JEC, et al. Primary brain tumours in adults. *Lancet* 2023;402:1564-79. doi: 10.1016/S0140-6736(23)01054-1 [https://doi.org/10.1016/s0140-6736\(23\)01054-1](https://doi.org/10.1016/s0140-6736(23)01054-1)

AUTHORS' CONTRIBUTIONS:

AN: Literature search and writing.

MK: Writing and review.