Accuray

https://www.accuray.com/

- Ureter tolerance in patients treated with SBRT on abdominopelvic lymph nodes: analysis on dose-related late toxicity
- The Early Experience of Synchrony in Ultra-Hypofractionation for Prostate Cancer: A Case Series
- Prognostic Impact of Tumor Solid Components in Stereotactic Body Radiotherapy for Clinical Stage Tis-1N0M0 Lung Cancer
- CyberKnife radiation therapy for malignant myopericytoma in a pediatric patient: a case report and review of the literature
- Recursive partitioning for radionecrosis: filling the gaps in post-SRS risk prediction
- Intensity-modulated moderately hypofractionated radiotherapy versus stereotactic body radiotherapy for prostate cancer (PACE-C): early toxicity results from a randomised, open-label, phase 3, non-inferiority trial
- Hypofractionation/Ultra-hypofractionation for Prostate Cancer Radiotherapy
- Correlation Between Neurocognitive Outcomes and Neuroaxonal Connectome Alterations After Whole Brain Radiotherapy: A Proof-of-Concept Study

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Accuray Products for Neurosurgery

Accuray develops radiosurgery systems applicable to **intracranial lesions**, **brain tumors**, and **functional disorders** through the following platforms:

CyberKnife® System

Non-invasive, robotic stereotactic radiosurgery (SRS) system designed for:

- **Benign and malignant brain tumors** (e.g. meningiomas, metastases, acoustic neuromas)
- **Arteriovenous malformations (AVMs)**
- **Trigeminal neuralgia**
- **Functional targets** (e.g. thalamotomy)

Key Features:

- Sub-millimetric accuracy with image-guided robotics
- Frameless, non-isocentric delivery
- Adaptive capabilities (real-time motion tracking)
- No need for rigid immobilization frames (unlike Gamma Knife)

Limitations:

- Slower treatment times compared to single-isocenter systems
- Limited adoption in high-volume cranial-only centers

Radixact® System

Primarily used for body indications, but applicable to certain neuro-oncological cases:

- **Spinal tumors (primary or metastatic)**
- **Postoperative stereotactic radiotherapy**
- **Extended craniospinal axis coverage**

Technology Base:

- Helical IMRT (intensity-modulated radiotherapy)
- Tomographic delivery
- Compatible with Accuray's Synchrony® real-time tracking system

In Development: Neuro Package (Unreleased)

Announced features include:

- **High-fidelity imaging**
- **Neurosurgical workflow optimization**
- **Enhanced cranial targeting tools**

> *Status: Under development — not FDA-cleared or CE-marked at this time*

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1)

Official source: https://www.accuray.com/

Critical Review: The Future of Accuray in Neurosurgery

Caution: This is a ruthless, evidence-based critique. Not suitable for readers allergic to hard truths.

1. Weak Pipeline and Vaporware

Accuray itself acknowledges that its **CyberKnife Neuro Package** and "High-Fidelity Imaging" are *under development* and may *never reach the market*.

> **Red Flag:** In neurosurgical tech, vaporware isn't innovation—it's delay disguised as strategy.

2. Fierce Competition: Gamma Knife and Others

Elekta's **Gamma Knife** continues to dominate intracranial stereotactic radiosurgery. Despite CyberKnife's flexibility, it lacks the targeted precision and robust evidence to displace it.

- No demonstrated superiority in cranial indications
- Underrepresented in comparative academic studies
- Limited adoption for single-lesion brain SRS

> CyberKnife is a generalist tool in a field that rewards specialization.

3. Sparse and Non-Disruptive Clinical Evidence

Accuray promotes its technology at congresses like ESTRO, but fails to produce **landmark trials** proving clinical superiority in neurosurgical applications.

> Repetition isn’t validation. Without rigorous multicenter data, the claims remain unconvincing.

4. “Integration” ≠ Innovation

The partnership with Brainlab is primarily about **compatibility**, not **technological leadership**.

- No AI-powered planning tools
- No adaptive or real-time MR-guided workflows
- Just basic system interoperability—expected in 2025

> “It integrates” is not a breakthrough; it’s the bare minimum.

5. Regulatory ≠ Revolutionary

Recent approvals (e.g. Radixact SynC in China) show **geographic expansion**, but not **technical advancement**.

> Compliance is not innovation. There’s no paradigm shift—just market access.

Strategic Risk Table

Challenge	Risk
Tech stagnation	Falls behind AI/MR-based competitors
Weak evidence base	Reduced trust from neurosurgical community
Lack of clinical USP	Increased pricing pressure
Overpromising roadmap	Credibility erosion

Final Verdict: Overmarketed, Underwhelming

Accuray's current neurosurgical strategy lacks:

- Clear clinical leadership
- Outcome-driven superiority
- Advanced neuroimaging or AI integration

> Without urgent action, **CyberKnife risks becoming a legacy system** in a fast-evolving, precision-first landscape.

Accuray must deliver disruptive, peer-reviewed neuro-oncological tools—or face obsolescence.

1)

Adler JR Jr. Accuray, incorporated: a neurosurgical business case study. Clin Neurosurg. 2005;52:87-96. PMID: 16626058