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## **Fox Chase Cancer Center Researchers Show Newer Radiation Technique Reduces Side Effects While Maintaining Effectiveness**

- *Unlike conventional radiation, which delivers dosage all at once, the newer technique breaks the dose into short pulses spaced a few minutes apart.*
- *This cuts the incidence of side effects nearly in half.*
- *Patients treated with the newer technique had tumor response rates comparable to those treated with conventional radiation.*

**PHILADELPHIA (September 25, 2025)** — Researchers at **Fox Chase Cancer Center** have demonstrated that **pulsed low dose rate (PLDR) chemoradiation therapy** can significantly reduce side effects while maintaining treatment effectiveness for patients with **esophageal cancer** and **non-small cell lung cancer**.

The results, presented today at the **American Society for Radiation Oncology (ASTRO) 2025 Annual Meeting**, mark an important step toward validating PLDR as a first-line treatment option before surgery.

“Historically, we’ve been limited in how much radiation we could safely deliver to these patients because of severe side effects, particularly painful swallowing problems,” said [Joshua Meyer, MD, FASTRO](#), Vice Chair of Translational Research and Professor in the [Department of Radiation Oncology](#) at Fox Chase, and lead investigator of the study.

“The beauty of this technique is that we’re not compromising on cancer treatment. We’re delivering the same effective dose, just in a smarter way that minimizes damage to healthy tissue.”

### **Key Findings**

- **Reduced Side Effects:** Severe esophagitis — inflammation which causes pain and difficulty swallowing significant enough that feeding tubes or IV hydration are sometimes required — dropped from the typical 40% rate seen with standard chemoradiation to **just 26%**.

- **Strong Survival Outcomes:** Patients achieved a **median overall survival of 45 months**.
- **Comparable Response Rates:** Among esophageal cancer patients who later had surgery, 19% achieved a **complete pathologic response** and another 23% had **near-complete responses**.

### How PLDR Works

Unlike conventional radiation, which delivers the dose all at once, PLDR breaks the dose into **short pulses spaced a few minutes apart**. This slower delivery allows **healthy cells** nearby to better repair DNA damage from radiation. **Cancer cells**, which are not as capable of repairing DNA damage, cannot take advantage of this repair window as effectively.

### About the Study

- The **phase I trial** enrolled 39 patients with locally advanced disease (35 esophageal, 4 non-small cell lung cancer).
- All patients received **standard chemotherapy (carboplatin + paclitaxel)** with PLDR radiation over 5.5-6 weeks.
- Results showed that toxicity was reduced while therapy effectiveness was maintained.

“We were very pleased to see that not only did we cut severe esophagitis roughly in half, but we also preserved the treatment effectiveness we expect,” said Meyer, who conducted the research with other colleagues at Fox Chase.

### A Legacy of Innovation at Fox Chase

PLDR radiation was **pioneered at Fox Chase** by [Chang-Ming Charlie Ma, PhD, FASTRO](#), Vice Chair of Radiation Oncology and Director of Radiation Physics. He developed much of the methodology for ensuring optimal delivery.

This marks the **first time PLDR has been systematically tested as an initial treatment approach** at Fox Chase, building on earlier success with recurrent cancers requiring retreatment.

The study, “PLDR Chemoradiation for Esophageal and Lung Cancer Is Associated With Low Rates of Severe Esophagitis,” was presented at the **ASTRO 2025 Annual Meeting**, held September 27 through October 1 in San Francisco.

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Fox Chase Cancer Center (Fox Chase), which includes the Institute for Cancer Research and the American Oncologic Hospital and is a part of Temple Health, is one of the leading comprehensive cancer centers in the United States. Founded in 1904 in Philadelphia as one of the nation's first cancer hospitals, Fox Chase was also among the first institutions to be designated a National Cancer Institute Comprehensive Cancer Center in 1974. Fox Chase is also one of just 10 members of the Alliance of Dedicated Cancer Centers. Fox Chase researchers have won the highest awards in their fields, including two Nobel Prizes. Fox Chase physicians are also routinely recognized in national rankings, and the Center's nursing program has received the Magnet recognition for excellence six consecutive times. Today, Fox Chase conducts a broad array of nationally competitive basic, translational, and clinical research, with special programs in cancer prevention, detection, survivorship, and community outreach. It is the policy of Fox Chase Cancer Center that there shall be no exclusion from, or participation in, and no one denied the benefits of, the delivery of quality medical care on the basis of race, ethnicity, religion, sexual orientation, gender, gender identity/expression, disability, age, ancestry, color, national origin, physical ability, level of education, or source of payment. For more information, call 888-369-2427.