

# Emerging Role of Transarterial Chemoembolization in Lung Cancer: Feasibility, Integration, and Future Directions

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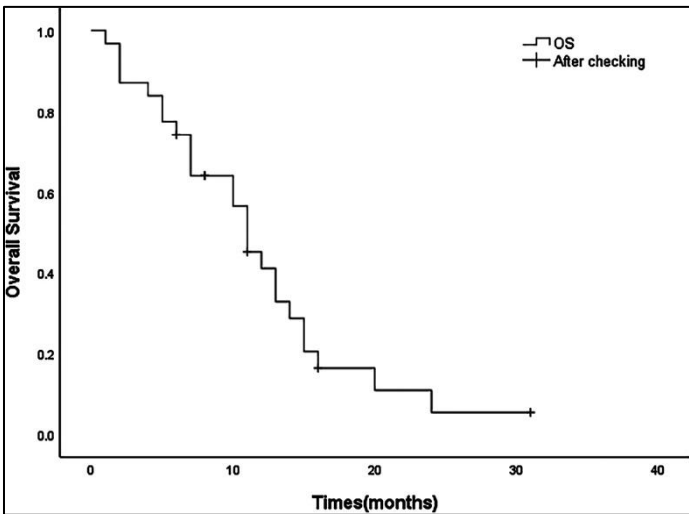
## Purpose

- Transarterial chemoembolization (TACE) has shown promising effectiveness in treating primary and metastatic lung cancers, particularly when surgical resection or systemic therapy is contraindicated.
- Explored the evolving role of TACE in the management of lung cancer.
- Evaluated TACE’s technical feasibility, therapeutic outcomes, and integration with multimodal oncologic strategies.

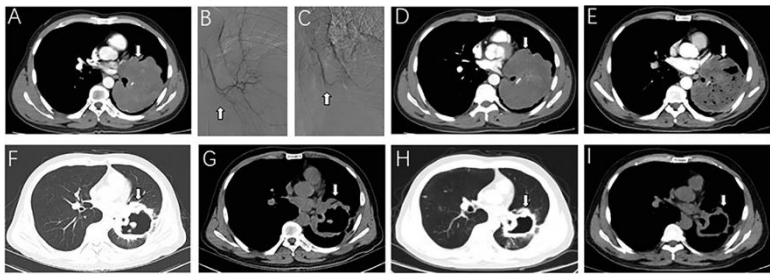
## Materials & Methods

- A review of PubMed was conducted, focusing on clinical trials, retrospective series, and interventional oncology reports evaluating TACE in primary non-small cell lung cancer (NSCLC), lung metastases, and oligometastatic disease.
- Studies that reported on objective response rates (ORR), progression free survival (PFS), toxicity profiles, and procedural characteristics were included, with emphasis on procedural planning and complications such as non-target embolization.

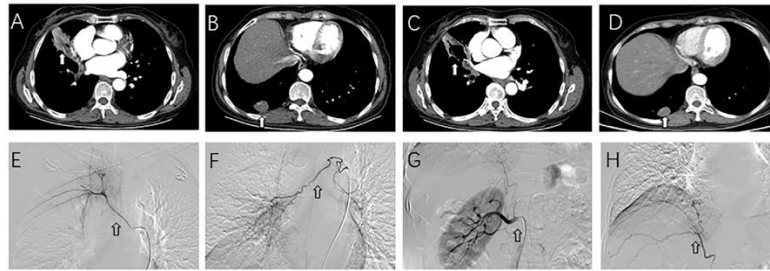
## Results



**Figure 1:** Kaplan–Meier survival analysis of OS rates. The median OS was 11 months (95%CI: 8.62-13.38 months)



**Figure 2:** A 55-year-old male with advanced lung squamous cell carcinoma



**Figure 3:** A 64-year-old female with advanced lung adenocarcinoma

- TACE is feasible and safe in patients with primary NSCLC or lung metastases, particularly in the setting of refractory disease or contraindications to surgery or radiotherapy.
- Partial response rates ranging from 30-60%, with some series noting improved local control when TACE is combined with systemic therapies or stereotactic radiotherapy.<sup>1-5</sup>
- ORR of 43.2% using oxaliplatin-loaded DEB-TACE in advanced NSCLC patients.<sup>5</sup> DEB-TACE showed prolonged drug retention and reduced systemic toxicity.<sup>5</sup>
- Procedural success is enhanced by pre-treatment vascular mapping and cone-beam CT, allowing precise targeting of bronchial tumor feeders.<sup>6,7</sup>
- TACE used in the neoadjuvant setting demonstrated tumor downstaging in 28% of cases, while consolidation TACE following chemoradiation showed a 4-month extension in median PFS compared to historical controls.<sup>6,7</sup>

## Conclusions

- TACE represents a promising adjunctive therapy for select lung cancer patients, offering targeted cytotoxicity with the potential for synergistic benefit when combined with systemic and local therapies.
- Advances in imaging, embolic platforms, and technique optimization have enhanced safety and efficacy, making TACE a viable option in multidisciplinary thoracic oncology.
- Ongoing clinical trials and prospective registries are needed to define ideal patient selection, procedural protocols, and long-term outcomes.

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