NCCN Guidelines: Where Does IO Stand in the NCCN Guidelines – Lung and Metastases to the Lung

Alda Tam, MD

Professor, Interventional Radiology

MD Anderson Cancer Center

Faculty Disclosures

Research Funding — Boston Scientific, Johnson & Johnson; Consulting — Cello Therapeutics, Boston Scientific, AstraZeneca, Endocare

Brand names are included in this presentation for participant clarification purposes only. No product promotion should be inferred.

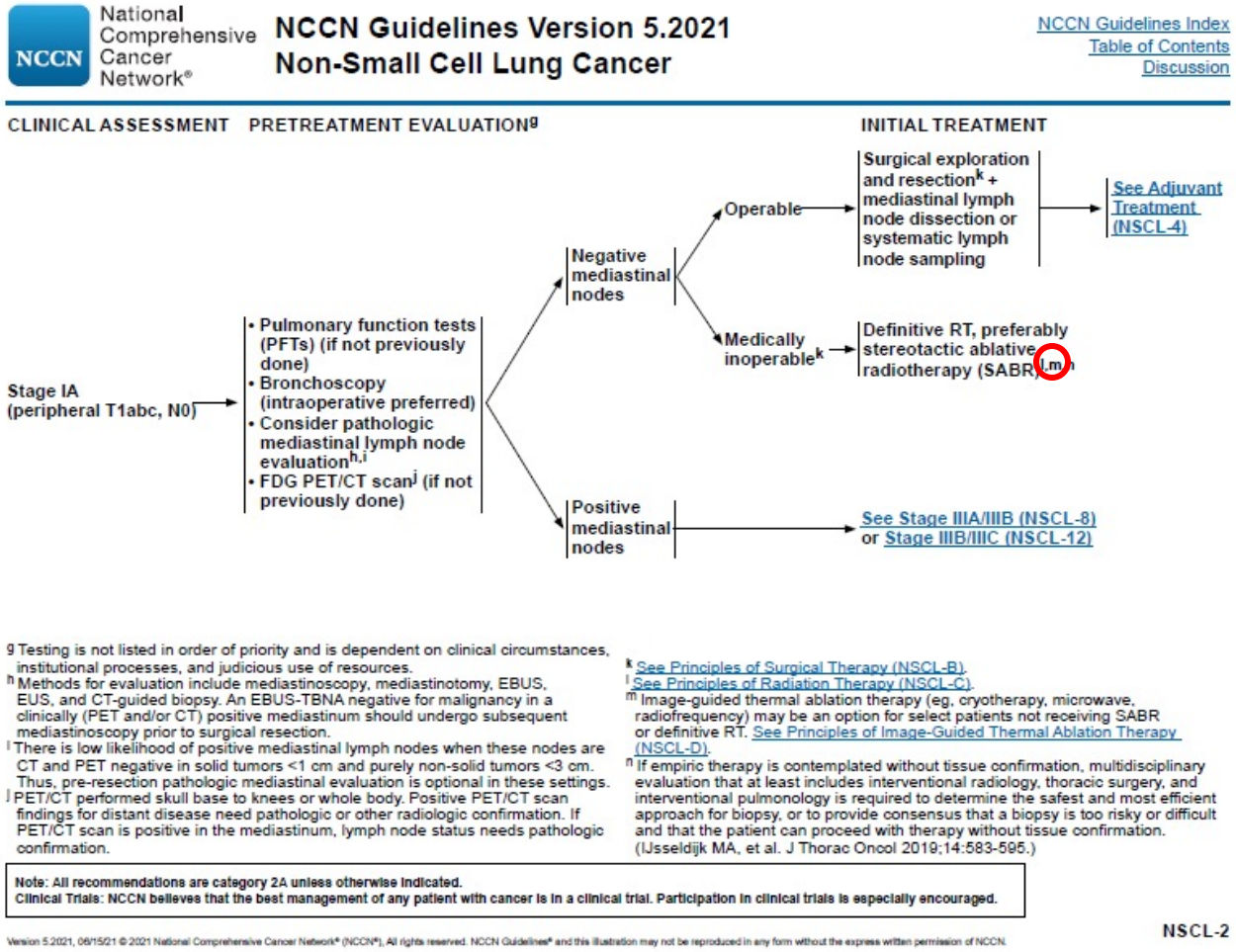
Ablation

- Ablation for many cancer types, including NSCLC and common cancers that metastasize to the lungs, is supported
- NCCN guidelines can be used to support approval and reimbursement processes
- Essential to continue to populate IR representation across panels
- Panels meet annually, but updates may occur more frequently

NSCLC

- Very active panel with multiple updates throughout the year
- Lack of prospective and/or randomized data makes it difficult to compete in this space with SBRT
- Until 2020, lack of radiology or interventional radiology representation on panel

NCCN NSCLC – New in 2020-2021



National Comprehensive Cancer Network®

NCCN Guidelines Version 5.2021
Non-Small Cell Lung Cancer

NCCN Guidelines Index
Table of Contents
Discussion

CLINICAL ASSESSMENT | PRETREATMENT EVALUATION[g] | INITIAL TREATMENT

Stage IA (peripheral T1abc, N0)

- Pulmonary function tests (PFTs) (if not previously done)
- Bronchoscopy (intraoperative preferred)
- Consider pathologic mediastinal lymph node evaluation[h,i]
- FDG PET/CT scan[j] (if not previously done)

Negative mediastinal nodes
- Operable → Surgical exploration and resection[k] + mediastinal lymph node dissection or systematic lymph node sampling → See Adjuvant Treatment (NSCL-4)
- Medically inoperable[k] → Definitive RT, preferably stereotactic ablative radiotherapy (SABR)[l,m]

Positive mediastinal nodes → See Stage IIIA/IIIB (NSCL-8) or Stage IIIB/IIIC (NSCL-12)

[g] Testing is not listed in order of priority and is dependent on clinical circumstances, institutional processes, and judicious use of resources.
[h] Methods for evaluation include mediastinoscopy, mediastinotomy, EBUS, EUS, and CT-guided biopsy. An EBUS-TBNA negative for malignancy in a clinically (PET and/or CT) positive mediastinum should undergo subsequent mediastinoscopy prior to surgical resection.
[i] There is low likelihood of positive mediastinal lymph nodes when these nodes are CT and PET negative in solid tumors <1 cm and purely non-solid tumors <3 cm. Thus, pre-resection pathologic mediastinal evaluation is optional in these settings.
[j] PET/CT performed skull base to knees or whole body. Positive PET/CT scan findings for distant disease need pathologic or other radiologic confirmation. If PET/CT scan is positive in the mediastinum, lymph node status needs pathologic confirmation.
[k] See Principles of Surgical Therapy (NSCL-B).
[l] See Principles of Radiation Therapy (NSCL-C).
[m] Image-guided thermal ablation therapy (eg, cryotherapy, microwave, radiofrequency) may be an option for select patients not receiving SABR or definitive RT. See Principles of Image-Guided Thermal Ablation Therapy (NSCL-D).
[n] If empiric therapy is contemplated without tissue confirmation, multidisciplinary evaluation that at least includes interventional radiology, thoracic surgery, and interventional pulmonology is required to determine the safest and most efficient approach for biopsy, or to provide consensus that a biopsy is too risky or difficult and that the patient can proceed with therapy without tissue confirmation. (IJsseldijk MA, et al. J Thorac Oncol 2019;14:583-595.)

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

NSCL-2

Added IR panel member

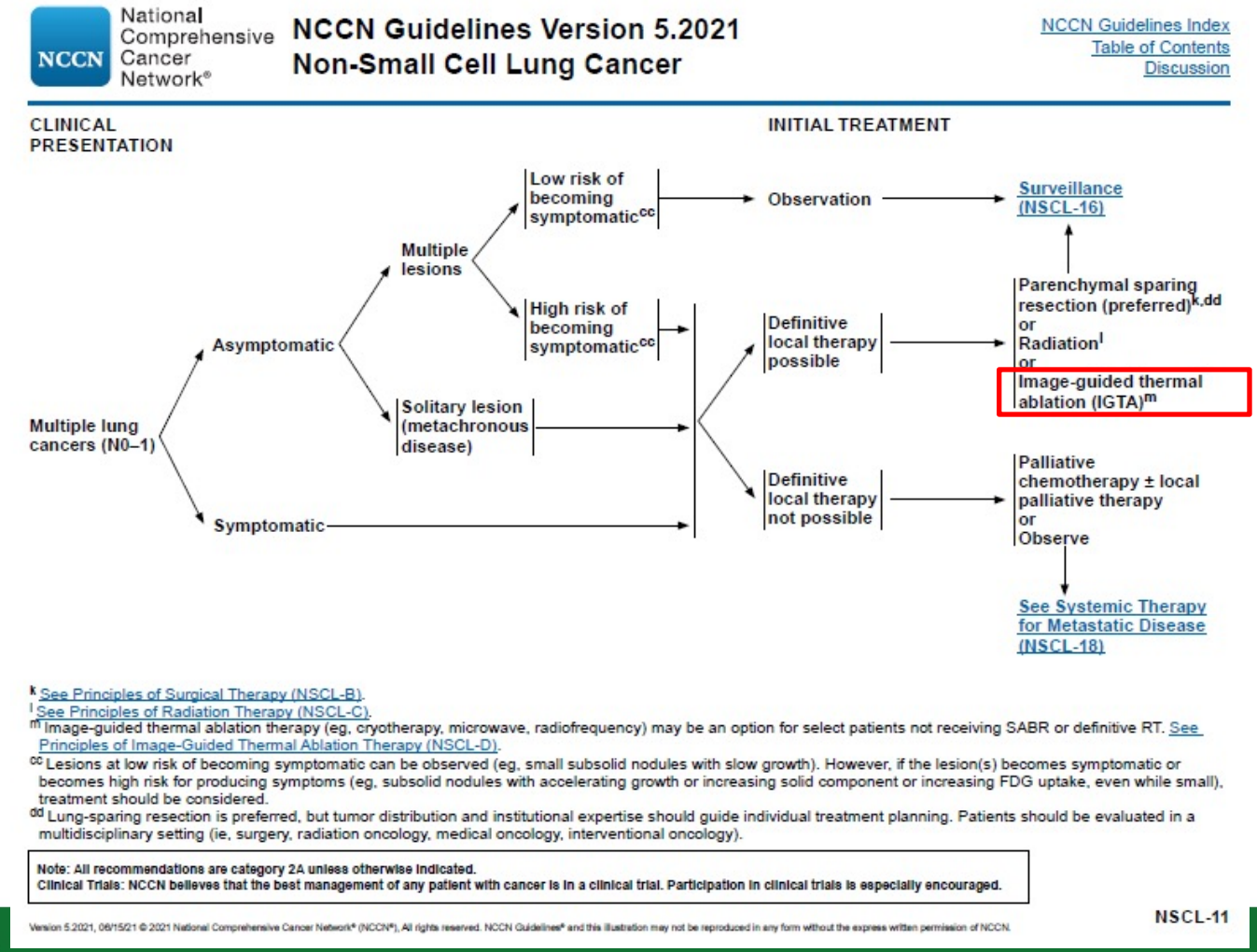
- For Stage IA, ablation remains a footnote
- For local recurrence (NSCL-11), ablation remains a footnote
- For multiple lung cancers, IGTA listed out as a therapy option

Move toward energy modality acceptance

- cryotherapy, MW, RFA all listed

Added new section of Principles of Image-Guided Thermal Ablation

NCCN NSCLC – New in 2020-2021



Many NCCN guidelines do not specify ablative technique, but this can be an approval criteria imposed by insurance companies depending on region.

NCCN NSCLC – New in 2020-2021

National Comprehensive Cancer Network®

NCCN Guidelines Version 5.2021
Non-Small Cell Lung Cancer

NCCN Guidelines Index
Table of Contents
Discussion

PRINCIPLES OF IMAGE-GUIDED THERMAL ABLATION THERAPY

General Principles

- **Interventional radiologists should actively participate in multidisciplinary discussions and meetings regarding patients with NSCLC (eg, multidisciplinary clinic and/or tumor board).**
- **Decisions about whether ablation is feasible should be performed by interventional radiologists who perform IGTA as a prominent part of their practice.**
- **IGTA includes radiofrequency ablation, microwave ablation, and cryoablation. IGTA is a form of "local therapy" or "local ablative therapy."[1]**
- **IGTA is a lung parenchymal sparing technique with at most a temporary decrement in FEV1 and DLCO, which is statistically indistinguishable from baseline after recovery.[2-6]**

Evaluation

- **IGTA may be considered for those patients who are deemed "high risk"—those with tumors that are for the most part surgically resectable but rendered medically inoperable due to comorbidities. In cases where IGTA is considered for high-risk or borderline operable patients, a multidisciplinary evaluation is recommended.**
- **IGTA has been successfully accomplished in patients considered "high risk," objectively defined with a single major and/or two or more minor criteria. Major criteria included an FEV1 or DCLO ≤50%, and minor criteria included a less depressed FEV1 or DLCO between 51%–60%, advanced age ≥75 years, pulmonary hypertension, LVEF ≤40%, resting or exercise PaO2 <55 mmHg, and pCO2 >45 mmHg.[4]**
- **If an interventional radiologist or center is uncertain about the feasibility or safety of IGTA, consider obtaining an additional interventional radiology opinion from a high-volume specialized center.**

Ablation

- **Each energy modality has advantages and disadvantages. Determination of energy modality to be used for ablation should take into consideration the size and location of the target tumor, risk of complication, as well as local expertise and/or operator familiarity.[7]**

Ablation for NSCLC

- **IGTA is an option for the management of NSCLC lesions <3 cm. Ablation for NSCLC lesions >3 cm may be associated with higher rates of local recurrence and complications.[8,9]**
- **There is evidence on the use of IGTA for selected patients with Stage 1A NSCLC, those who present with multiple lung cancers, or those who present with locoregional recurrence of symptomatic local thoracic disease.**

[1] Lam A, Yoshida EJ, Bui K, et al. Patient and facility demographics related outcomes in early-stage non-small cell lung cancer treated with radiofrequency ablation: a National Cancer Database analysis. J Vasc Interv Radiol 2018;29:1535-1541.
[2] Dupuy DE, DiPetrillo T, Gandhi S, et al. Radiofrequency ablation followed by conventional radiotherapy for medically inoperable stage I non-small cell lung cancer. Chest 2006;129:738-745.
[3] Lencioni R, Crocetti L, Cioni R, et al. Response to radiofrequency ablation of pulmonary tumours: a prospective, intention-to-treat, multicentre clinical trial (the RAPTURE study). Lancet Oncol 2008;9:621-628.
[4] Dupuy DE, Fernando HC, Hillman S, et al. Radiofrequency ablation of stage IA non-small cell lung cancer in medically inoperable patients: Results from the American College of Surgeons Oncology Group Z4033 (Alliance) trial. Cancer 2015;121:3491-3498.
[5] de Baere T, Tselikas L, Woodrum D, et al. Evaluating cryoablation of metastatic lung tumors in patients--safety and efficacy: The ECLIPSE Trial--interim analysis at 1 year. J Thorac Oncol 2015;10:1468-1474.
[6] Tada A, Hiraki T, Iguchi T, et al. Influence of radiofrequency ablation of lung cancer on pulmonary function. Cardiovasc Intervent Radiol 2012;35:860-867.
[7] Abtin F, De Baere T, Dupuy DE, et al. Updates on current role and practice of lung ablation. J Thorac Imaging 2019;34(4):266-277.
[8] Lee JM, Jin GY, Goldberg SN, et al. Percutaneous radiofrequency ablation for inoperable non-small cell lung cancer and metastases: preliminary report. Radiology 2004;230:125-134.
[9] Akeboshi M, Yamakado K, Nakatsuka A, et al. Percutaneous radiofrequency ablation of lung neoplasms: initial therapeutic response. J Vasc Interv Radiol 2004;15:463-470.

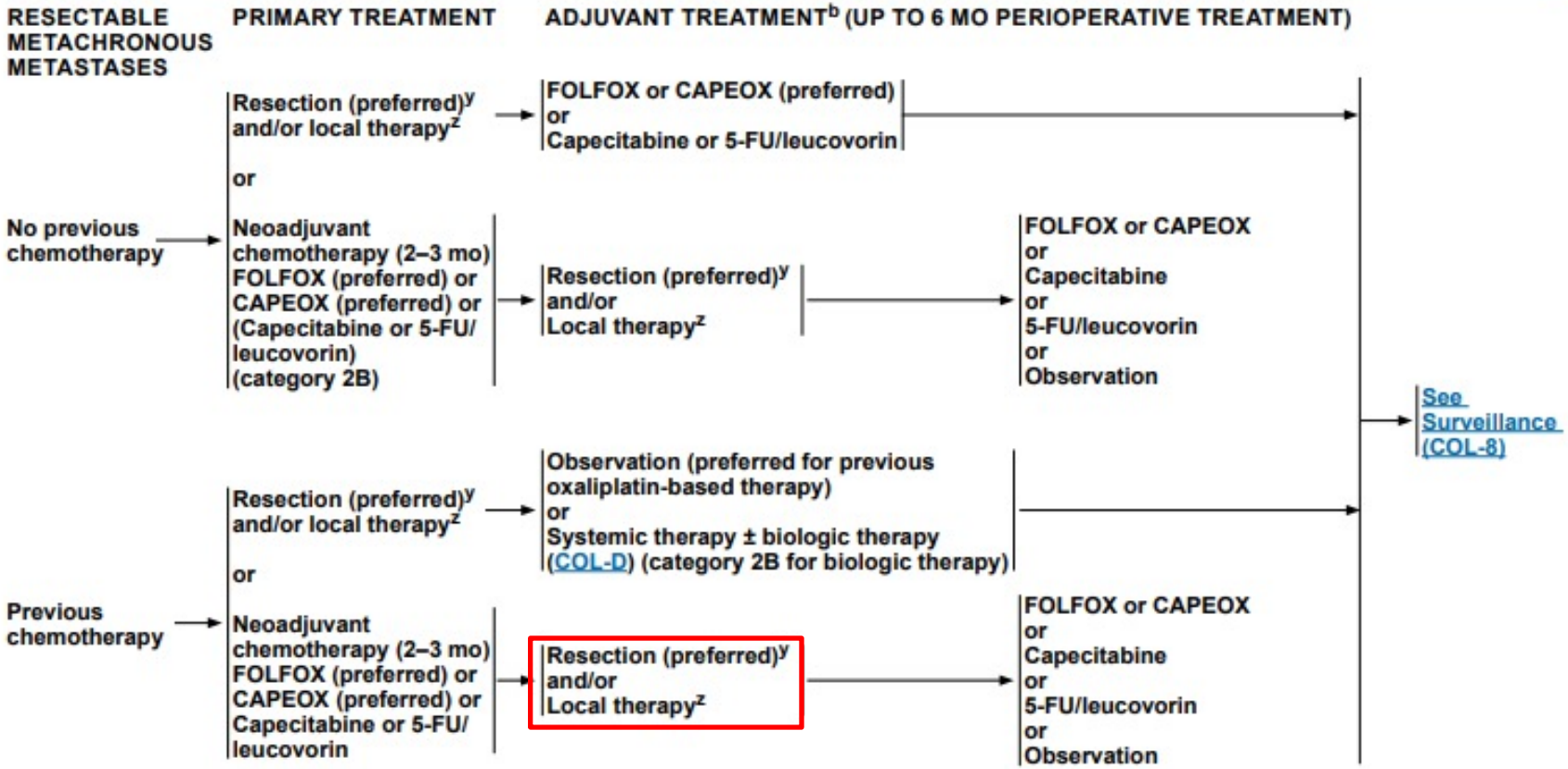
CIO

Lung Metastases – Not Footnotes!

- Colon/Rectal Cancer Guidelines have algorithms for the treatment of synchronous or metachronous lung metastases and list “local therapy” (ie, image-guided ablation) as an option
  - Unspecified energy modality facilitates approval for energy ablation modality of choice
- Sarcoma of the extremities/trunk/head and neck algorithms have a role for ablation of lung metastases both in primary treatment and treatment of metastatic lesions
- Osteosarcoma (OSTEO-3) lists ablation as treatment option for lung metastases
- Other guidelines, like kidney and thyroid, contain language that could be used to advocate for ablation of lung metastases

National Comprehensive Cancer Network®

NCCN Guidelines Version 2.2021
Colon Cancer



[b] See Principles of Imaging (COL-A).

[y] Hepatic artery infusion ± systemic 5-FU/leucovorin (category 2B) is also an option at institutions with experience in both the surgical and medical oncologic aspects of this procedure.

[z] Resection is preferred over locally ablative procedures (eg, image-guided ablation or SBRT). However, these local techniques can be considered for liver or lung oligometastases (COL-C and COL-E).

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

Conclusions

- Integration of interventional radiology techniques into local therapy options across applicable NCCN guidelines continues to be needed
- General theme – standardization of ablation language
  - Image-guided thermal ablation
  - Allows for flexibility for different types of energy modalities
- As more evidence accumulates, goal will be to move from footnote to listed therapy across histologies