



# Feasibility and Complexity of Conversion Surgery After Chemoimmunotherapy in Unresectable Stage III NSCLC in PANDA-1 Trial

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## BACKGROUND

- Induction immunochemotherapy has expanded opportunities for conversion surgery in patients with initially unresectable stage III non-small cell lung cancer (NSCLC).
- However, how to perform post-induction resectability reassessment and surgical decision-making remain poorly defined.
- The PANDA-1 study (ChiCTR2400086532) evaluated the conversion potential of tislelizumab plus chemotherapy and explored an MDT-guided tri-modal reassessment framework integrating imaging, bronchoscopy, and intraoperative exploration to support conversion surgery decision-making.



## METHODS

- PANDA-1 is an open-label, single-arm, phase II study enrolling patients with MDT-defined initially unresectable stage III NSCLC, including T4 tumors invading vital structures and precluding R0 resection, multistation or bulky N2 disease, or N3 disease.
- Patients received 2-4 cycles of tislelizumab plus chemotherapy. Following induction therapy, MDT assessment was performed using a tri-modal framework integrating:
  - Imaging assessment** of primary tumor and nodal downstaging;
  - Bronchoscopic assessment** of endobronchial tumor regression;
  - Intraoperative exploration** to distinguish residual tumor from treatment-induced fibrosis and to evaluate the grade of perivascular fibrosis.
- This framework was first used to reassess post-induction resectability and guide selection between conversion surgery and definitive radiotherapy. For patients deemed eligible for conversion surgery, the framework was further applied to optimize individualized surgical planning.
- In this surgical related analyses, the conversion surgery outcomes and perioperative safety profiles were reported.



## RESULTS

### Patients and treatment

- Between July 2024 and November 2025, 55 patients were enrolled and received induction tislelizumab plus chemotherapy (median age, 62 years; stage IIIA/B/C, 34.5%/49.1%/16.4%).
- After induction therapy, 48 patients proceeded to MDT reassessment to determine the definitive local treatment strategy; the remaining 7 patients did not proceed to local therapy because of patient refusal (n=5) or disease progression (n=2).

### Tri-Modal reassessment for post-induction resectability

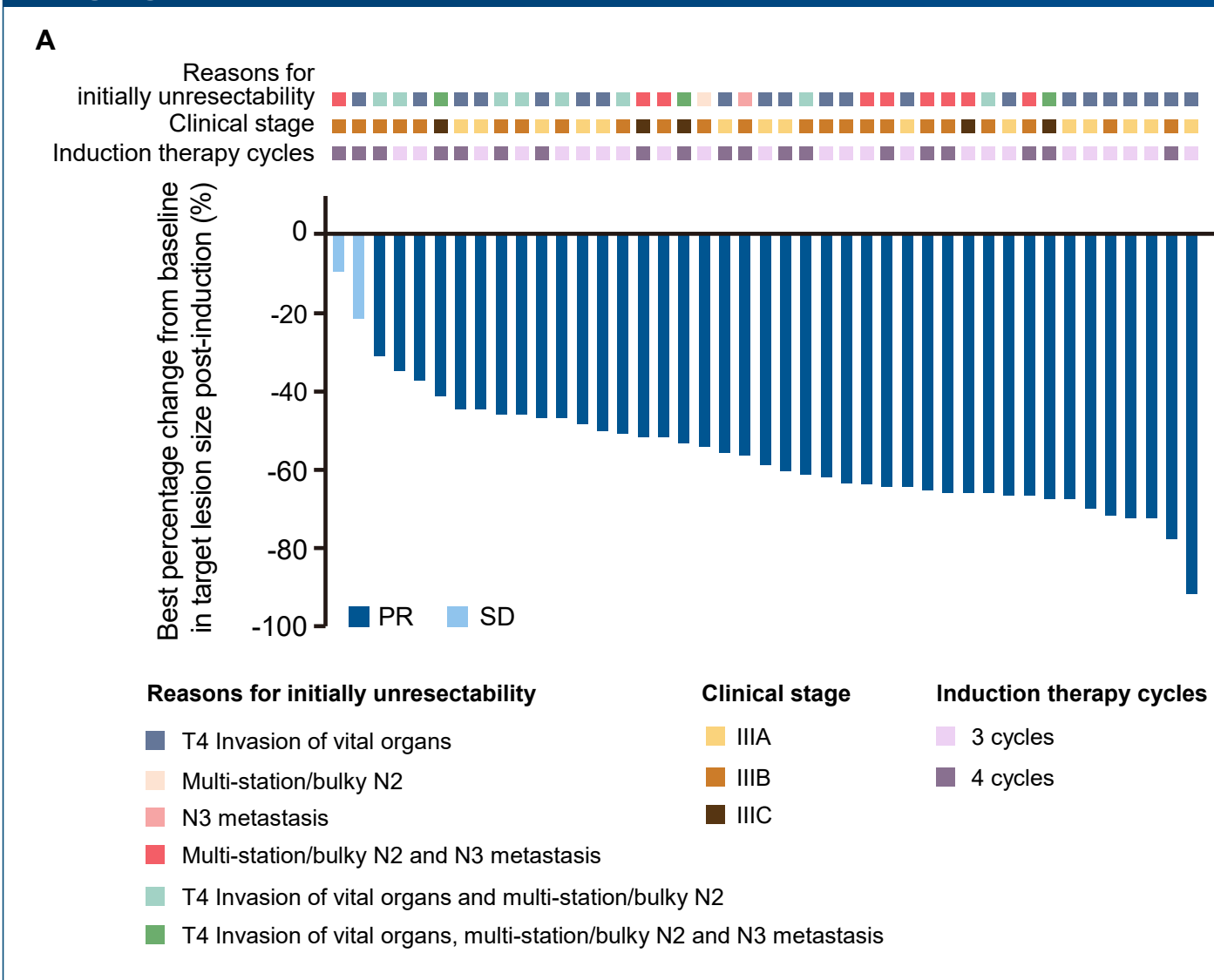
- Post-induction therapy, the resectability was re-assessed by imaging and bronchoscopy-based Tri-modal framework in 48 patients. Among them, 43 patients were considered suitable for conversion surgery, whereas 5 ultimately received definitive radiotherapy because of persistent N3 involvement (n=3) or residual T4 invasion of vital structures that would require pneumonectomy to achieve R0 resection (n=2).
- The conversion surgery rate was 78.2% (43/55).

### Tri-Modal reassessment for surgical approach

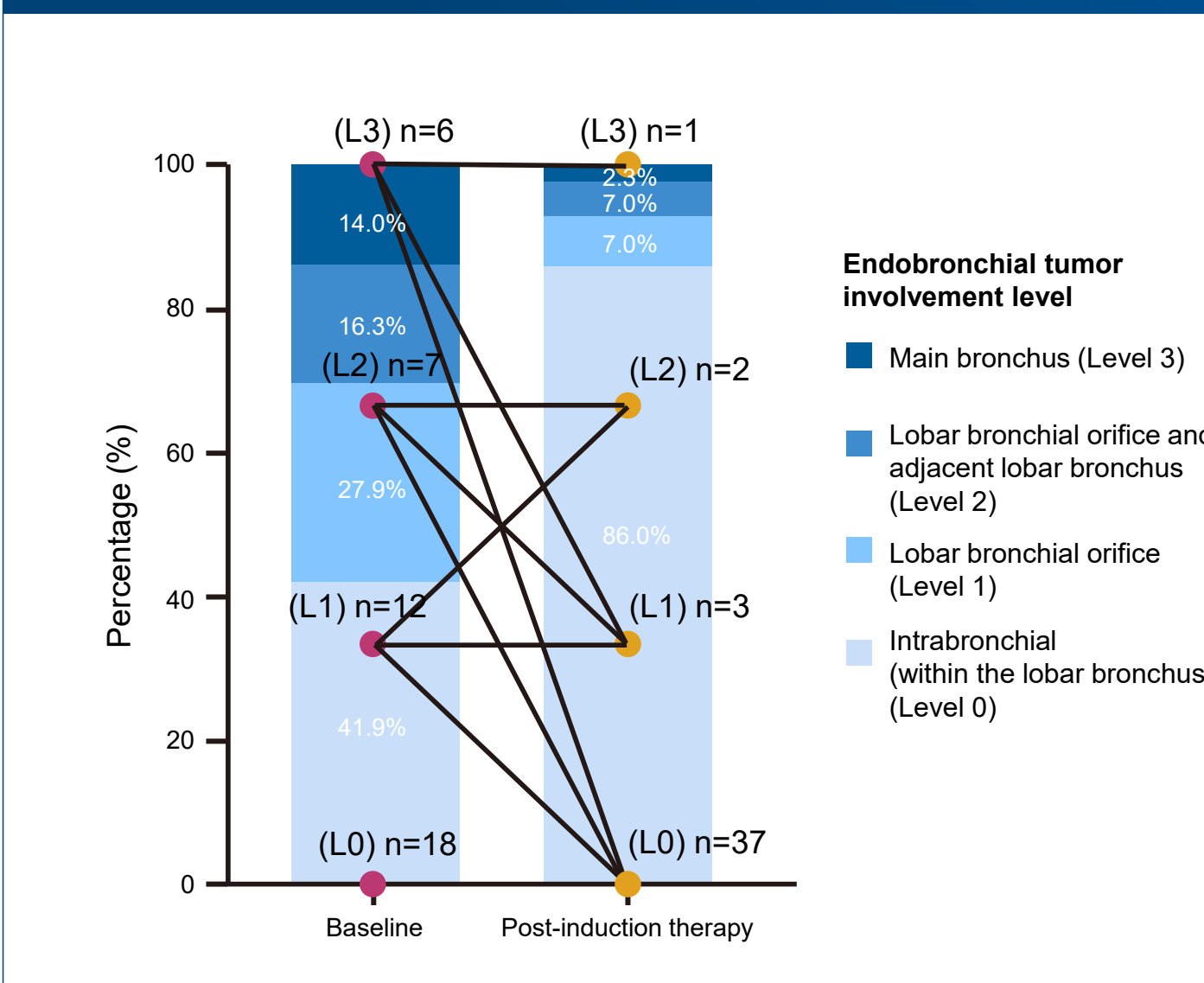
- Among patients deemed operable, the surgical approach was further determined through the tri-modal MDT assessment framework:
  - Radiological assessment demonstrated T/N downstaging in 90.7% (39/43) patients, ORR was 95.3% (**Fig 1**).

- Bronchoscopic reassessment showed regression of endobronchial involvement in 84.0% (21/25) of patients with baseline airway invasion (**Fig 2**).
- In 16 patients with radiologically suspected residual disease that could potentially affect surgical planning, intraoperative exploration confirmed viable tumor in only 6 cases (37.5%), whereas the remaining 10 cases (62.5%) represented treatment-related fibrotic scarring changes.
- The degree of perivascular fibrosis was further assessed by intraoperative exploration in the 43 surgical patients. Mild, moderate, and severe perivascular fibrosis were observed in 13 (30.2%), 13 (30.2%), and 17 (39.5%) of 43 surgical patients, respectively.
- Grade 3 fibrosis concentrated in baseline T4 (47.6%) and T+N (54.5%) subgroups versus the N subgroup (9.1%) and was associated with increased median intraoperative blood loss (150 vs. 50 mL) (**Fig 3**).
- In these patients, proactive vascular clamping was implemented to prevent intraoperative bleeding, and no major intraoperative hemorrhage occurred.

**Figure 1. Tumor regression after induction therapy assessed by imaging**



**Figure 2. Bronchoscopic assessment of endobronchial tumor regression**



### Pathological response and concordance with Tri-Modal reassessment

- Among all surgical patients, MPR and pCR were observed in 79.1% (34/43) and 48.8% (21/43), respectively.
- Exploratory analyses suggested that radiological downstaging, bronchoscopic tumor regression, and fibrotic scarring changes confirmed at intraoperative exploration were highly consistent with higher pathological response rates, supporting the clinical feasibility of this framework (**Fig 4**).

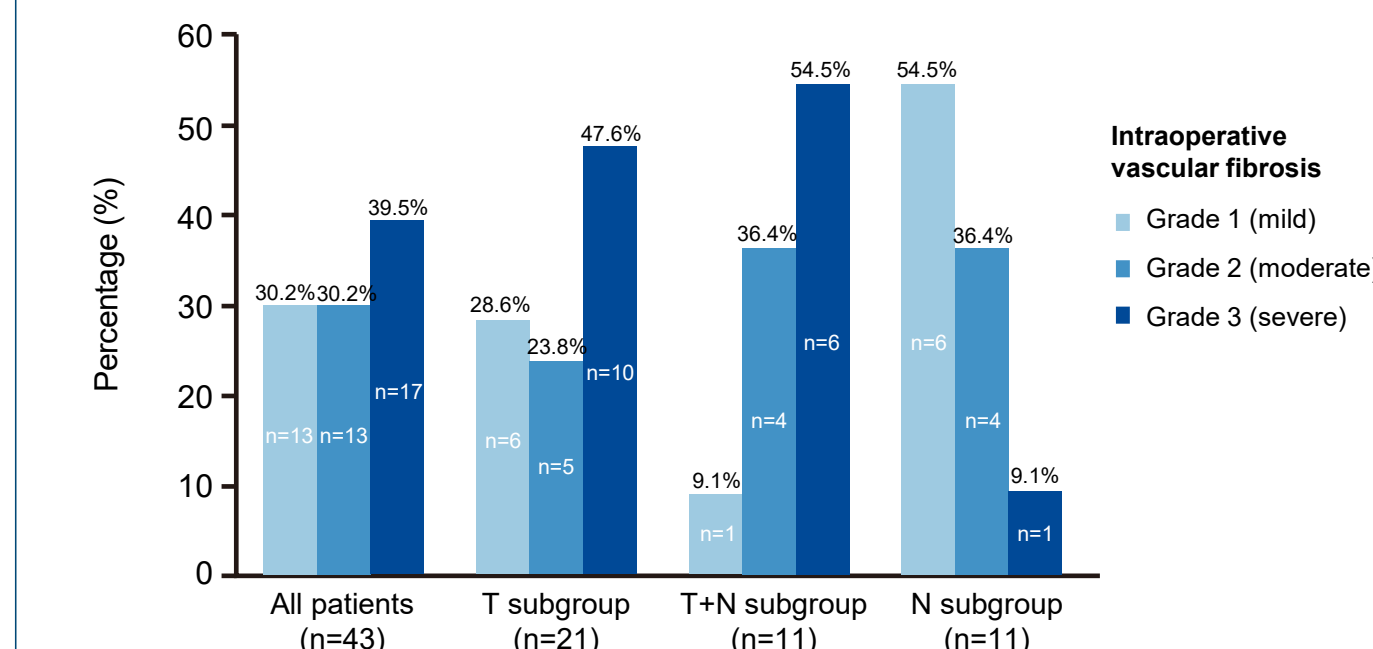
**Table 1. Conversion surgery outcomes**

| Patients who underwent conversion surgery                                       | All surgery patients (n=43) |
|---------------------------------------------------------------------------------|-----------------------------|
| R0 resection*                                                                   | 41 (95.3)                   |
| pCR rate, % (95% CI)                                                            | 48.8 (33.3-64.5)            |
| MPR rate, % (95% CI)                                                            | 79.1 (64.0-90.0)            |
| <b>Surgical approach</b>                                                        |                             |
| Minimally invasive                                                              | 34 (79.1)                   |
| Thoracotomy                                                                     | 7 (16.3)                    |
| Minimally invasive to thoracotomy                                               | 2 (4.7)                     |
| <b>Type of surgery</b>                                                          |                             |
| Lobectomy                                                                       | 36 (83.7)                   |
| Bilobectomy                                                                     | 3 (7.0)                     |
| Sleeve lobectomy                                                                | 4 (9.3)                     |
| Median length of hospital stay, day (range)                                     | 7 (3-21)                    |
| Duration of surgery, min, median (range)                                        | 215 (83-699)                |
| Intraoperative blood loss, ml, median (range)                                   | 100 (10-600)                |
| Postoperative ICU stay, %                                                       | 6 (14.0)                    |
| Median time from last neoadjuvant dose to surgery, days, median (range)         | 42 (29-83)                  |
| Median time from surgery to initiation of adjuvant therapy, day, median (range) | 49 (35-123)                 |
| Grade 3 or higher surgical complications                                        | 4 (9.3)                     |
| Death within 30 days after surgery                                              | 0                           |

\*R0 resection rate was defined as the proportion of patients with margin-negative resection.

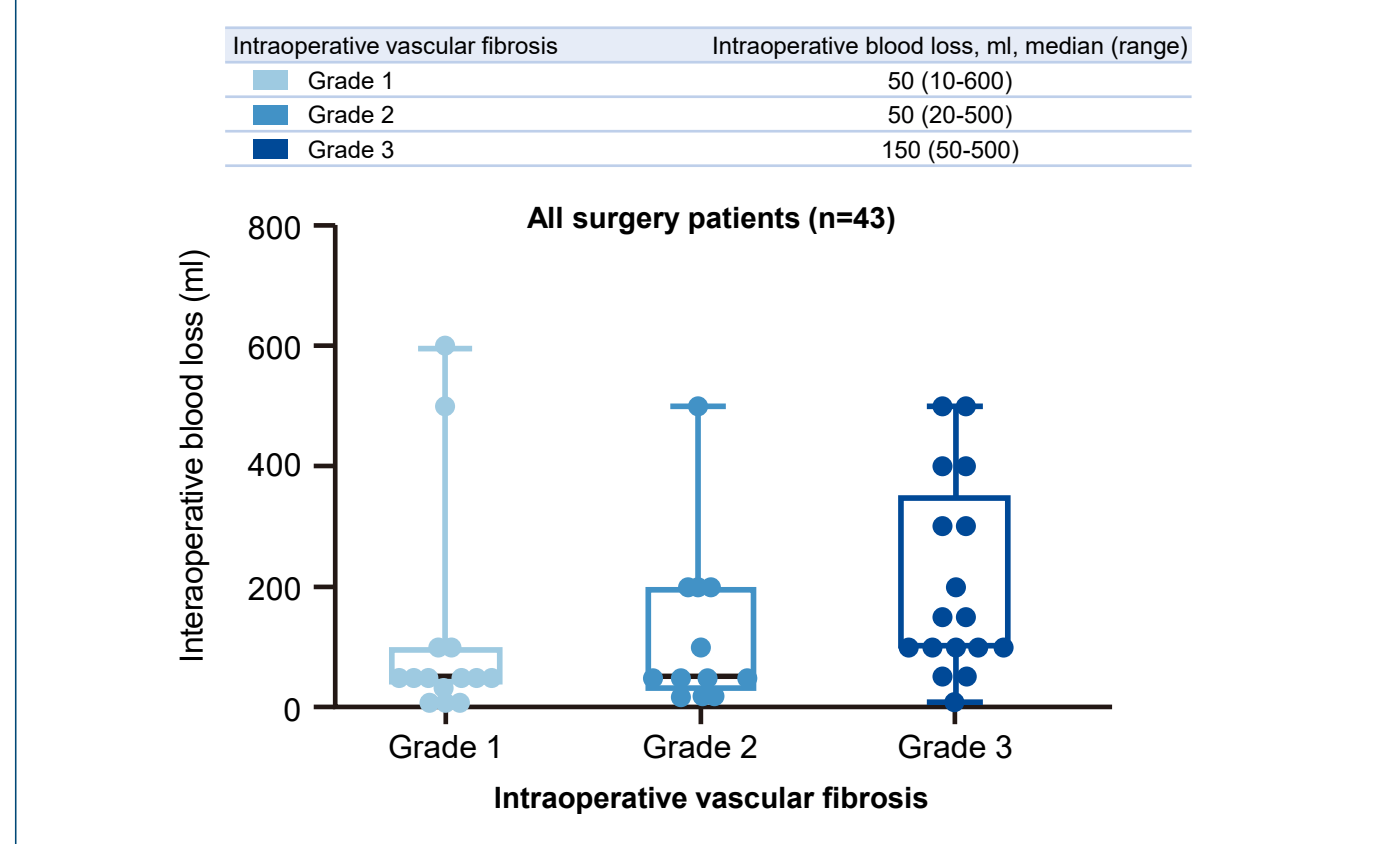
**Figure 3. Intraoperative vascular fibrosis and risk of intraoperative blood loss**

### A Distribution of the intraoperative vascular fibrosis grade



\*Patients were classified into 3 subgroups based on the unresectable reasons (① T4 tumors invading vital structures and precluding R0 resection ②, multistation or bulky N2 disease, or ③ N3 disease): T subgroup (①); N subgroup (②+③, ②, ③), and T+N (①+②, ①+②+③) subgroup.

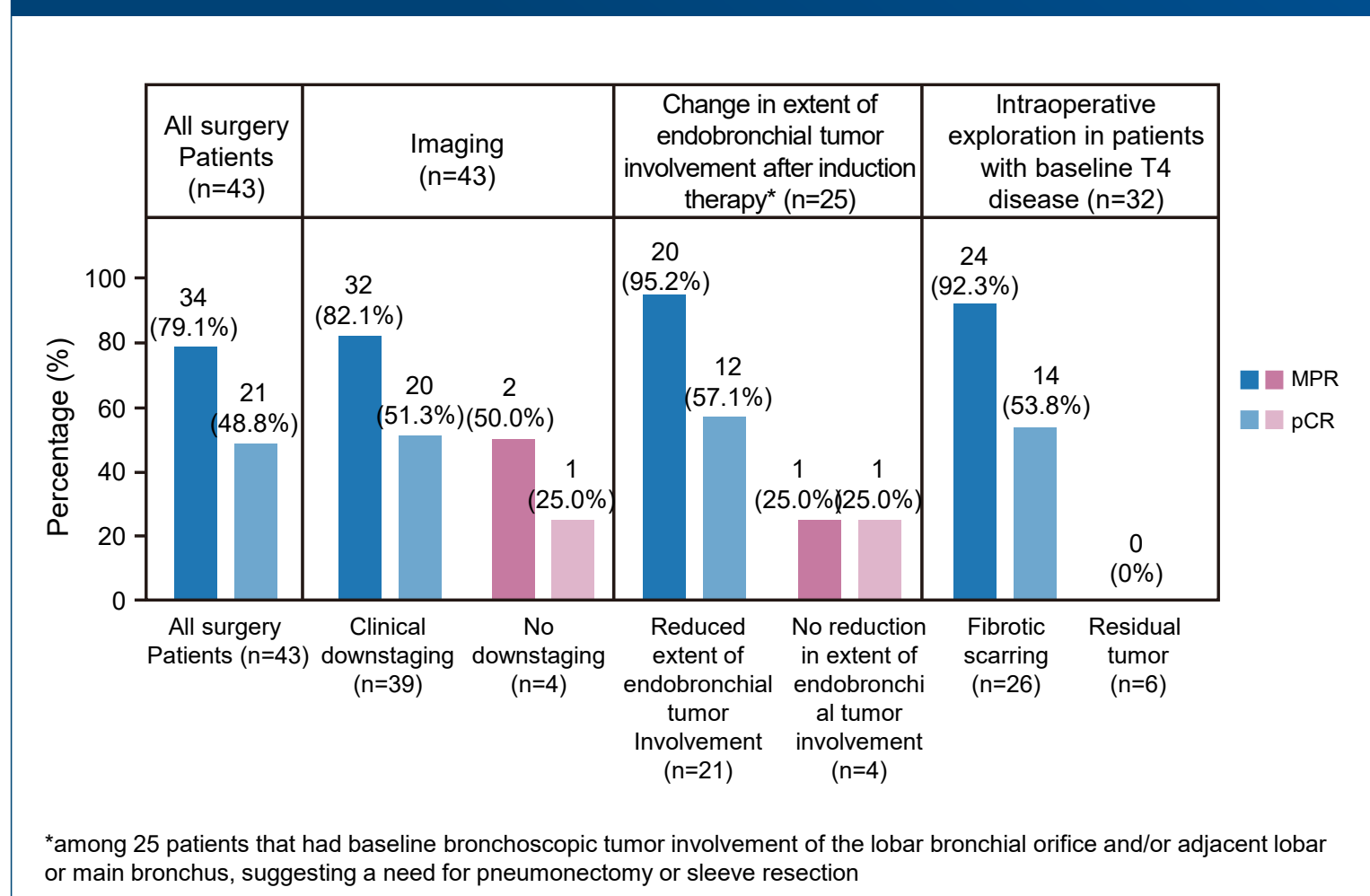
### B Relationship between Intraoperative vascular fibrosis and intraoperative blood loss



### Surgical outcome and Safety

- Guided by the tri-modal MDT framework, minimally invasive surgery was performed in 79.1% (34/43). R0 resection was achieved in 95.3% (41/43). 36 patients (83.7%) underwent lobectomy, 3 (7.0%) bilobectomy, and 4 (9.3%) sleeve lobectomy (**Table 1**).
- Surgical complication analysis showed that Clavien-Dindo grade  $\geq 3$  events occurred in only 9.3% (4/43), with no grade 4/5 complications or 30-day mortality.

**Figure 4. MPR and pCR rates according to radiological downstaging, bronchoscopic regression, and intraoperative assessment of fibrotic scarring versus true residual tumor**



\*among 25 patients that had baseline bronchoscopic tumor involvement of the lobar bronchial orifice and/or adjacent lobar or main bronchus, suggesting a need for pneumonectomy or sleeve resection

## CONCLUSIONS

- Induction tislelizumab plus chemotherapy demonstrated substantial antitumor activity and conversion potential in initially unresectable stage III NSCLC.
- The MDT-guided tri-modal reassessment strategy integrating imaging, bronchoscopy, and intraoperative exploration facilitated optimized surgical decision-making, maintained favorable perioperative safety, without compromising oncological radicality.
- This approach may provide a practical and innovative model for conversion therapy in the immunotherapy era.

### Abbreviations

DCR, disease control rate; ECOG PS, eastern cooperative oncology group performance status; EFS, event-free survival; ICU, Intensive Care Unit; IO, immunotherapy; MDT, multidisciplinary team; MPR, major pathological response; NSCLC, non-small cell lung cancer; N2, node stage 2; N3, node stage 3; ORR, objective response rate; OS, overall survival; pCR, pathological complete response; PET/CT, positron emission tomography/computed tomography; RT, Radiotherapy

### References

1.Liu J , et al. 2025 WCLC.MA01.05.

### Disclosure

Dr. Guowei Che declare no conflict of interest

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