Surgical Resection for TIL

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Given on behalf of Stephaine Goff MD

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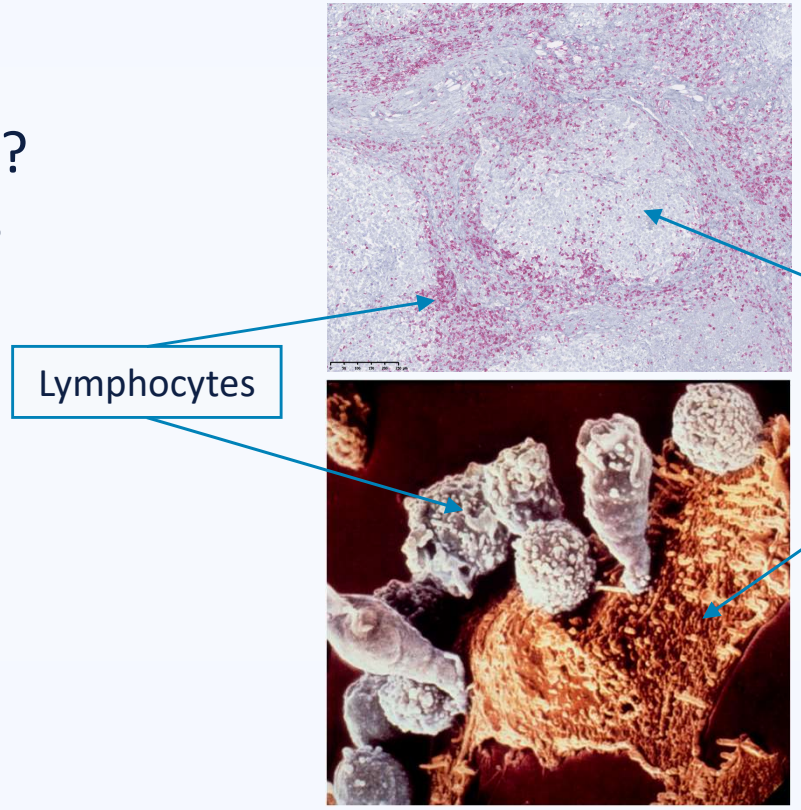
ACS Cancer Programs
American College of Surgeons

TIL Immunotherapy

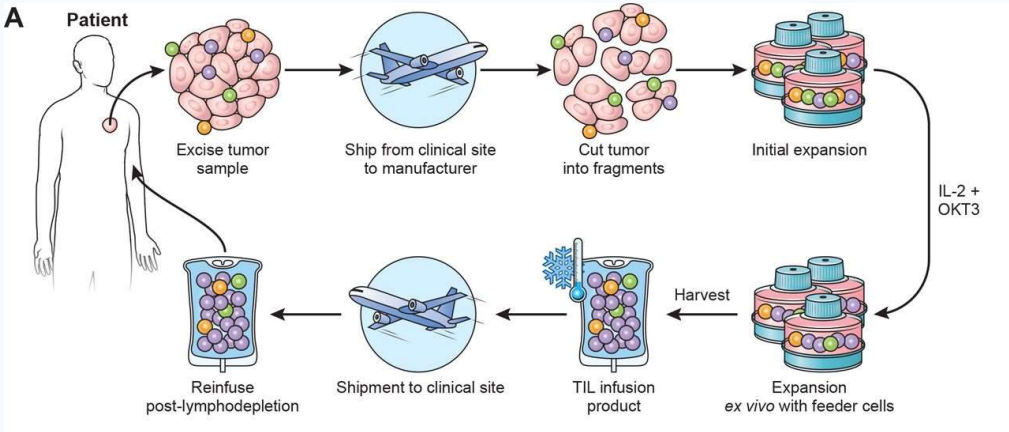
- What is TIL Immunotherapy?
- What are the outcomes using TIL?
- What is the surgeon's role in TIL?



(Surgery Branch, NCI)

What is TIL Immunotherapy?

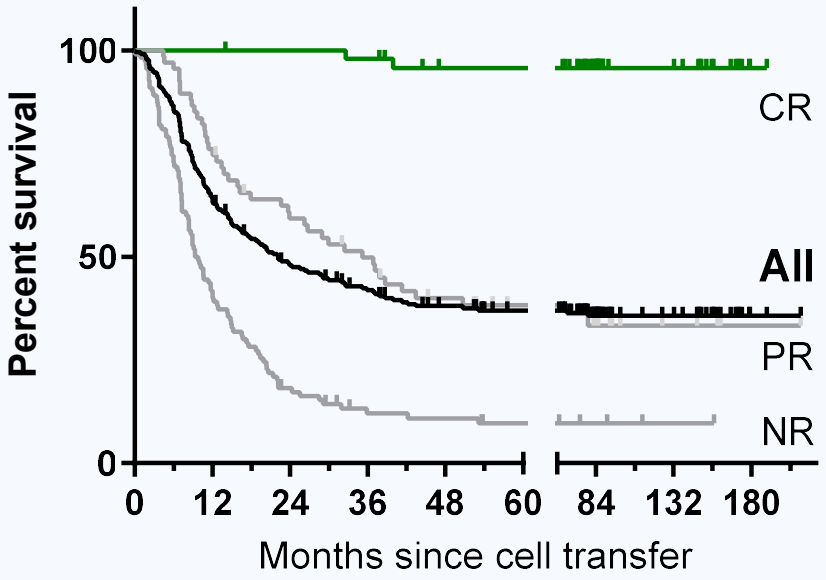
- **T**umor **I**nfiltrating **L**ymphocytes
- FDA-approved personalized cell therapy for metastatic melanoma (Lifileucel)
- A treatment regimen that includes preparative chemotherapy, TIL infusion, and IL-2



Turcotte et al *J Immunother Cancer* 2025

What are the outcomes using TIL immunotherapy?

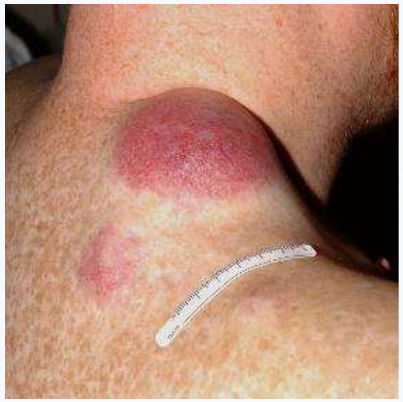
- Initially developed before the era of checkpoint blockade
- Tumor response in over 50% of patients
- Complete response in ~25%
- Complete responders 10-year survival of 96%



Seitter SJ et al, *Clin Cancer Res*, 2021

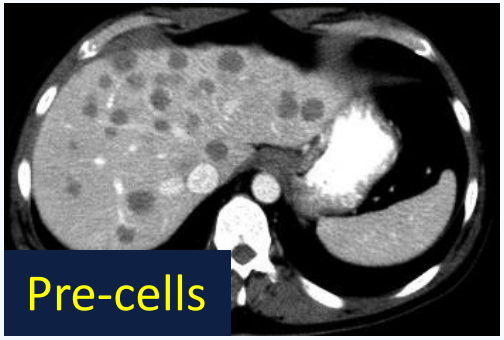
What are the outcomes using TIL immunotherapy?

Subcutaneous

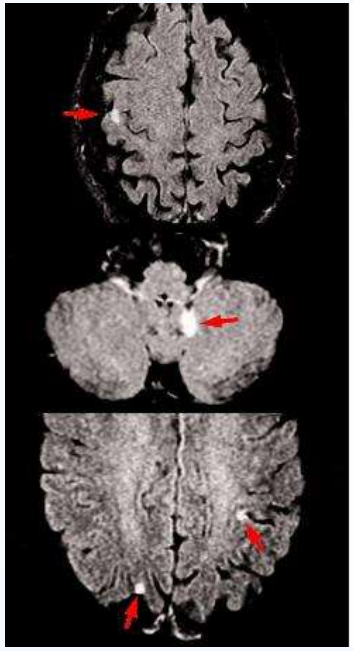


Pre-cells

Visceral (Liver)



Brain



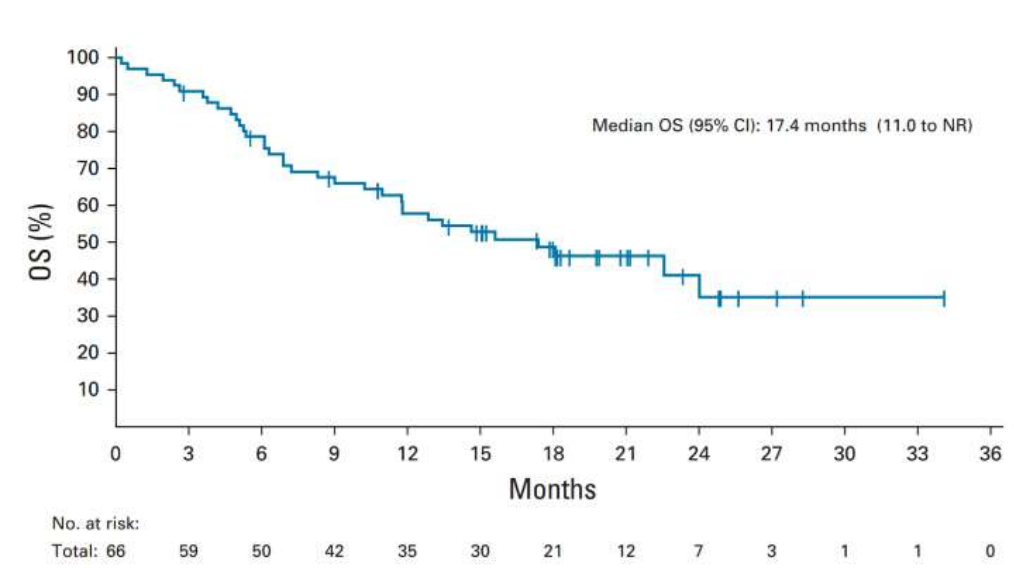
Pre-cells

Durable Regression

(Surgery Branch, NCI)

Modern outcomes and FDA approval

- Post-checkpoint era



Sarnaik et al, *J Clin Oncol*, 2021

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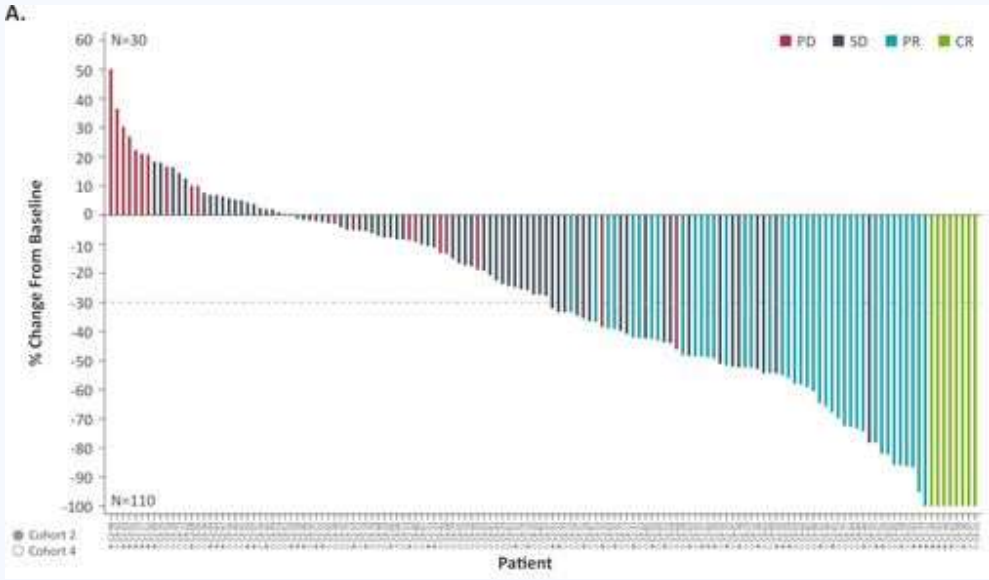
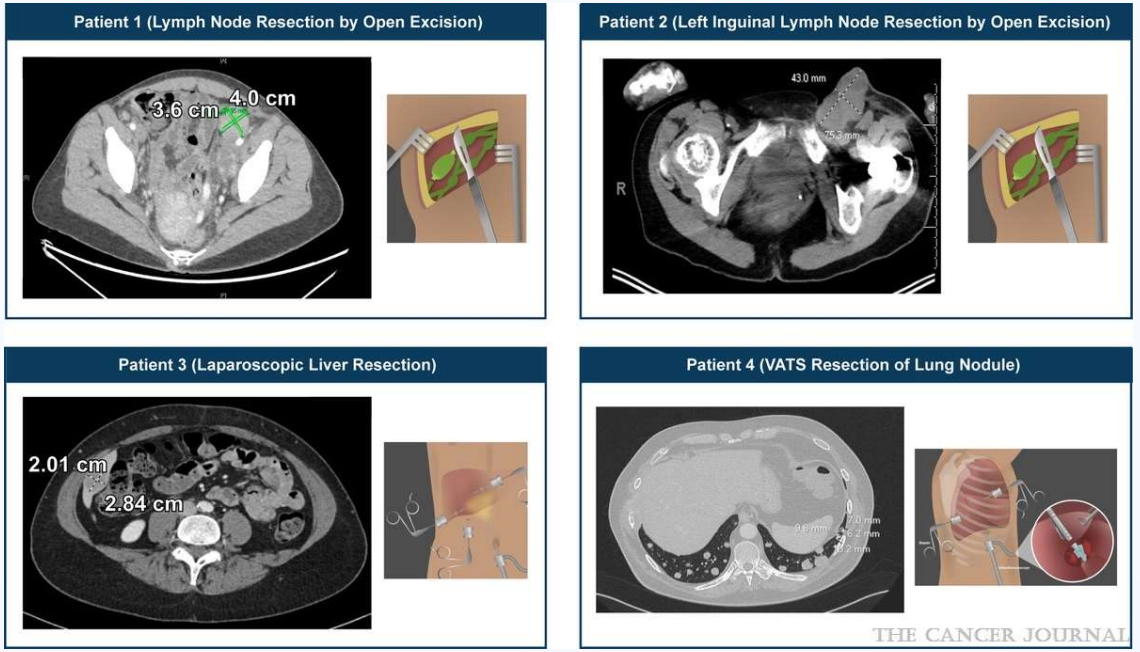


Chesney et al, *J Immunother Cancer*, 2022

What is the surgeon's role?

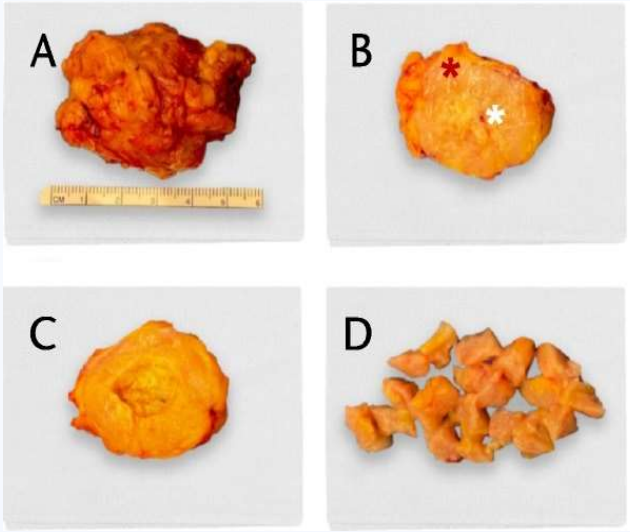
- Multidisciplinary cancer care
- New indication for resection of metastatic disease
  - Consider risk/benefit of proposed site
  - Minimal risk procedures
  - Avoid colonized/contaminated tumors
    - GI tract
    - Oropharyngeal
    - Infected masses



Mullinax et al, *Cancer J*, 2022

What is the surgeon's role?

- Back table preparation of specimen
  - Trim normal tissue
  - Excise necrotic tissue
  - +/- fragmentation



Ideal (Red Asterisk)

- Prosect tumor with attention to areas of highly infiltrated T cells
  - Peripheral tumor mass
  - Close to blood or lymphatic vessels
  - Lymphoid structures
- Recommended tumor tissue should be ≥1.5 cm in aggregate diameter but <4 cm

Avoid (White Asterisk)

- Areas of necrosis, hemorrhage, and fatty tissue
- Areas of high bioburden (e.g., bowel, GI, mucosal lesions)
- Ulcerated/contaminated tumors
- Superficial tumors requiring prolonged time for wound healing
- Risk of contamination

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Mullinax et al, *Cancer J*, 2022

TIL Immunotherapy

- Exciting new treatment modality for patients
- Requires careful coordination with manufacturing center
- TIL Immunotherapy is not possible without input and participation from surgeons in the melanoma community
- FDA-approved for checkpoint-refractory melanoma
- Active research:
  - 1st line metastatic melanoma
  - NSCLC
  - Cervical cancer
  - Gastrointestinal cancer
  - Breast cancer