Liver and Pancreas Disease

Virginia Mason Franciscan Health™
Center for Digestive Health

Updates in Alcohol Associated Liver Disease

Randeep Kaur, MD

November 15th, 2025

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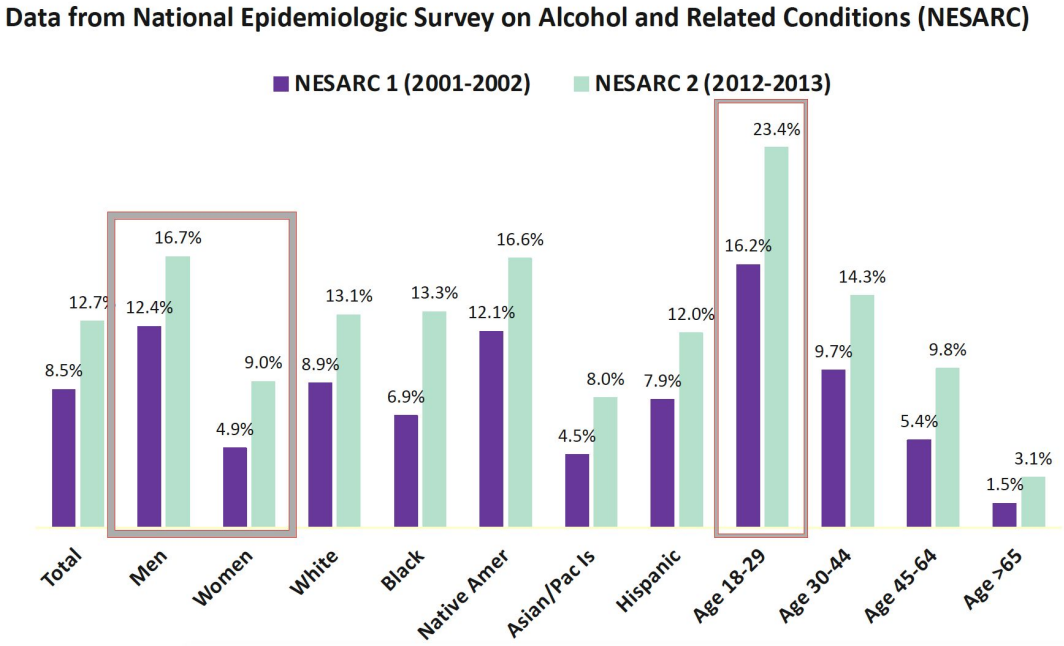
Agenda

- Epidemiology of Alcohol Related Liver Disease (ALD) and Alcohol Use Disorder (AUD)
- Development of ALD
- Screening for AUD
- When to refer patients to a specialist
- AUD treatment
- Recognizing MetALD
- Liver transplant trends in ALD
- Role of liver transplant in ALD

Alcohol Use Disorder Trends



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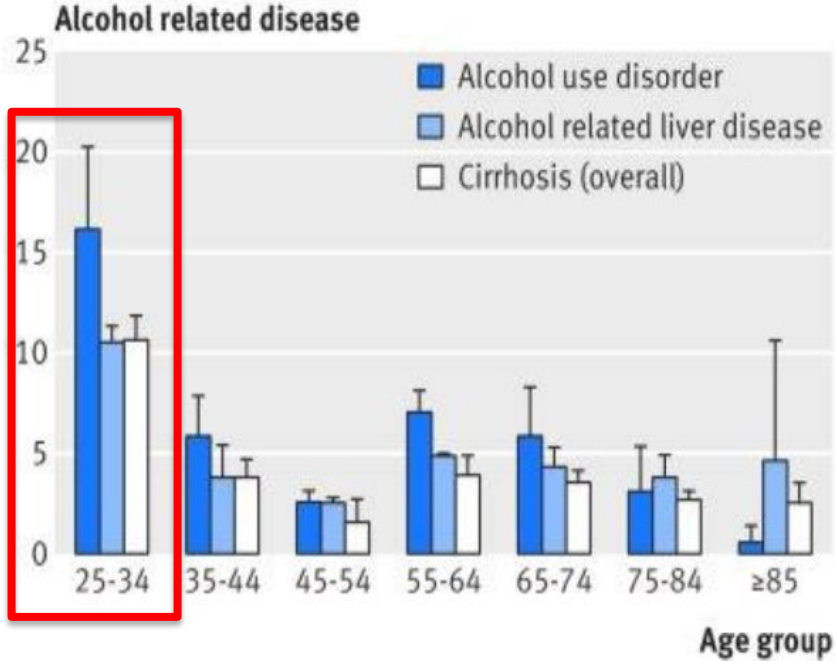
Grant BF, et al JAMA Psych 2017

Corresponding Trends in Alcohol Related Liver Disease (ALD)

- Alcohol will soon be most common cause of cirrhosis in the US
- Alcohol-related cirrhosis increasing at faster rate in **women** than men
- Increased all cause mortality in **young adults** (25-34 y/o)
  - Highest average annual % increase in cirrhosis-related, ALD, AUD mortality



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Crabb et al. AASLD Practice Guidelines. 2019.
Tapper and Parikh. BMJ. 2018.
Chirapongsathorn et al. Hep Comm. 2018.

Screening for AUD

- Screening in general medicine and specialty clinics helps detect ALD early
- Combining screening with discussions on liver disease implications can motivate alcohol reduction.
- Mandatory alcohol screening in hospitals and emergency departments effectively identifies heavy drinkers
- Screening tools like AUDIT improve detection and help predict long-term outcomes, including hospitalization for alcohol-related diagnoses.
- Early identification facilitates timely diagnosis and connection to treatment for Alcohol Use Disorder (AUD).

Screening for AUD: AUDIT-C

AUDIT-C

Please circle the answer that is correct for you.

1. How often do you have a drink containing alcohol?					**SCORE**
Never (0)	Monthly or less (1)	Two to four times a month (2)	Two to three times per week (3)	Four or more times a week (4)	_____
2. How many drinks containing alcohol do you have on a typical day when you are drinking?					
1 or 2 (0)	3 or 4 (1)	5 or 6 (2)	7 to 9 (3)	10 or more (4)	_____
3. How often do you have six or more drinks on one occasion?					
Never (0)	Less than Monthly (1)	Monthly (2)	Two to three times per week (3)	Four or more times a week (4)	_____
TOTAL SCORE Add the number for each question to get your total score.					_____

Maximum score is 12. A score of ≥ 4 identifies 86% of men who report drinking above recommended levels or meets criteria for alcohol use disorders. A score of > 2 identifies 84% of women who report hazardous drinking or alcohol use disorders.

Biomarkers of Alcohol Use

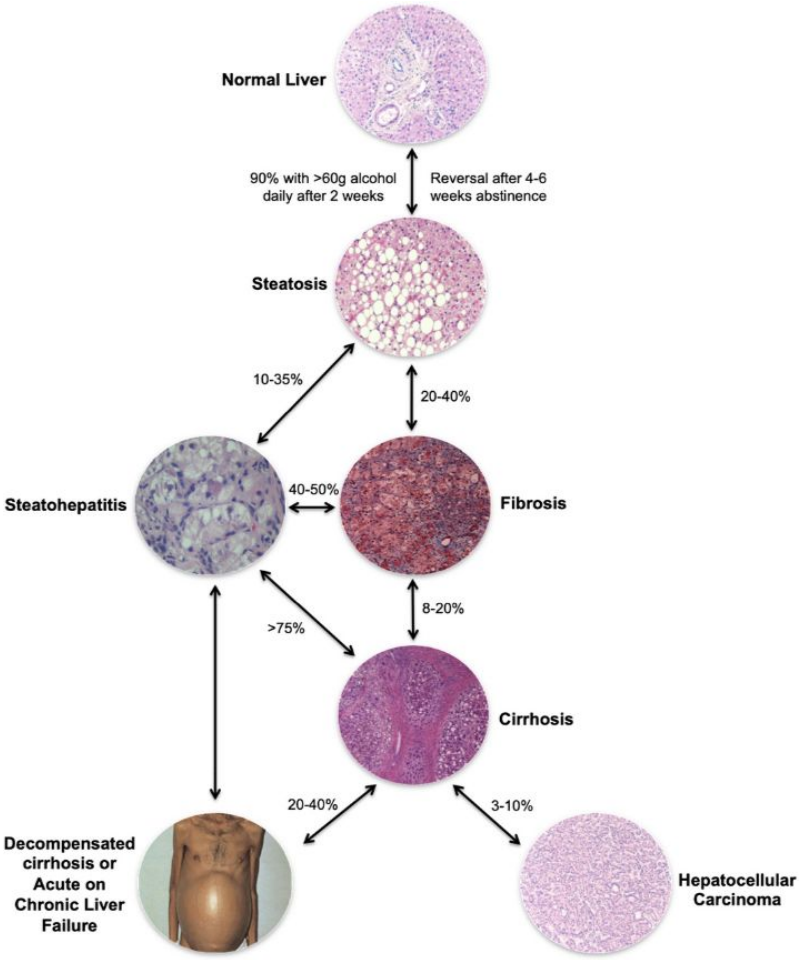
Test	Source	Detection Time	Cutoff Values	Sensitivity	Specificity	PPV	NPV	Clinical Use
CDT/%CDT*	Blood	2-3 weeks	1.7%-2.6%	21%-50%	50%-100%	64%-100%	86%-93%	Lower sensitivity and specificity
EtG	Urine	3 days	500 ng/mL	76%-89%	93%-99%	81%-90%	91%-99%	False positives and greater patient awareness of testing
EtG	Hair	Months	30 pg/mg	81%-100%	83%-98%	68%-95%	86%-100%	Costly, requires significant hair sample, limited availability
EtS	Urine	3 days	75 ng/mL	82%	86%	70%	93%	Often used to confirm + EtG
PEth	Blood	2-3 weeks	20 ng/mL	97%-100%	66%-96%	85%	100%	More costly than urine EtG

Should be used to aid to diagnosis, support recovery, rather than as tools to "catch" or punish patients

Risk factors that increase risk:

- Gender
- Alcohol amount
- Obesity
- PNPLA variations
- Smoking
- Viral hepatitis

Development of ALD and MASLD



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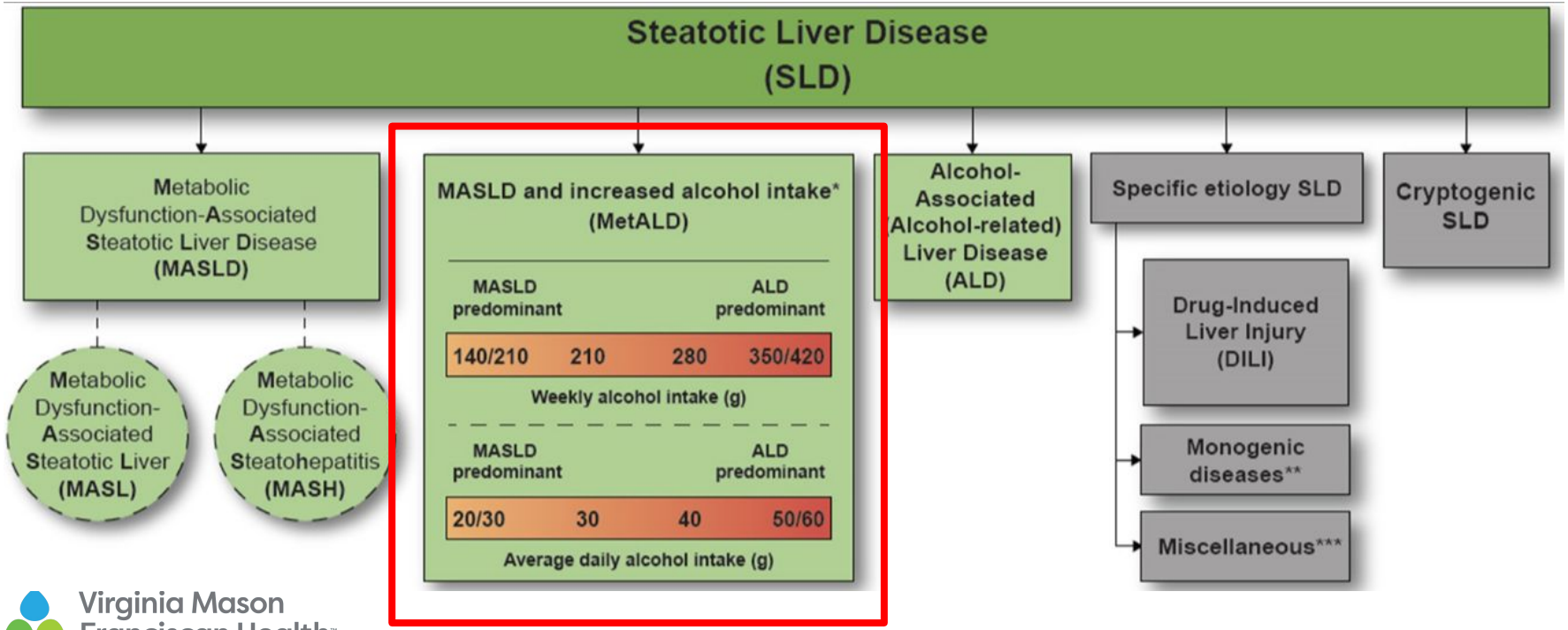
Recognizing Predominance of ALD with MASLD (MetALD)



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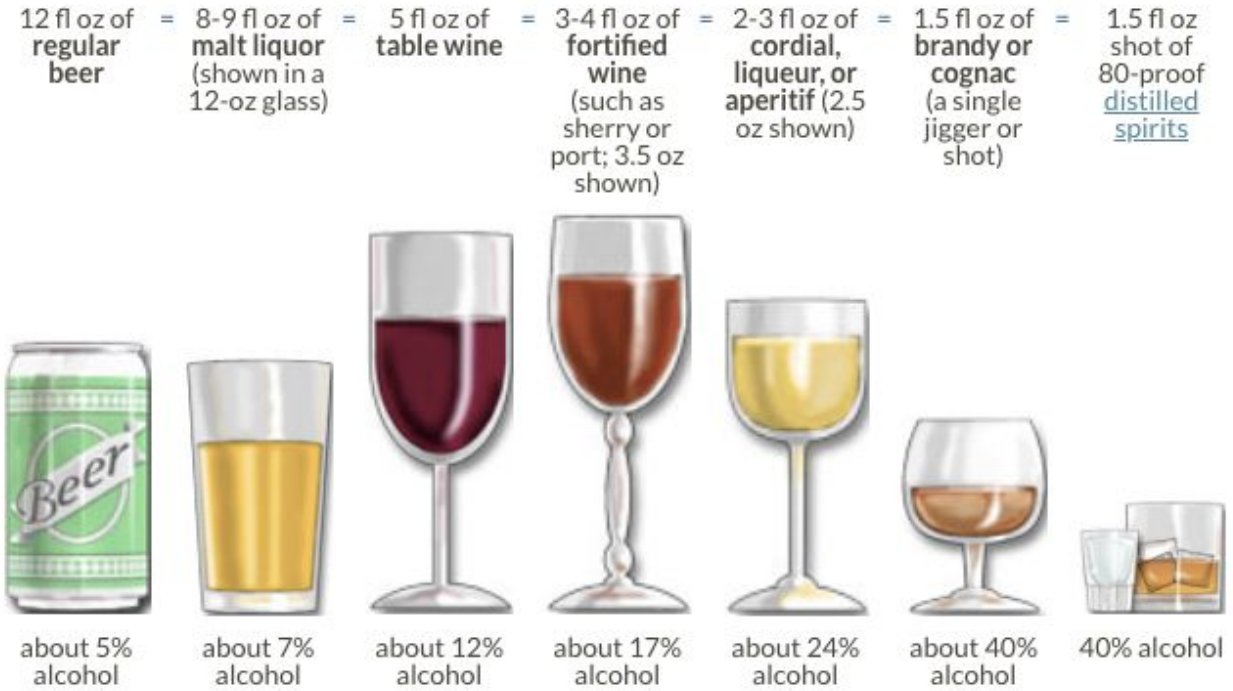
Alcohol Content in a Drink



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1 drink = 12-14 grams

Alcohol Contributing To Metabolic Syndrome

- Increased blood pressure
- Elevates triglycerides
- Increases caloric intake → Obesity

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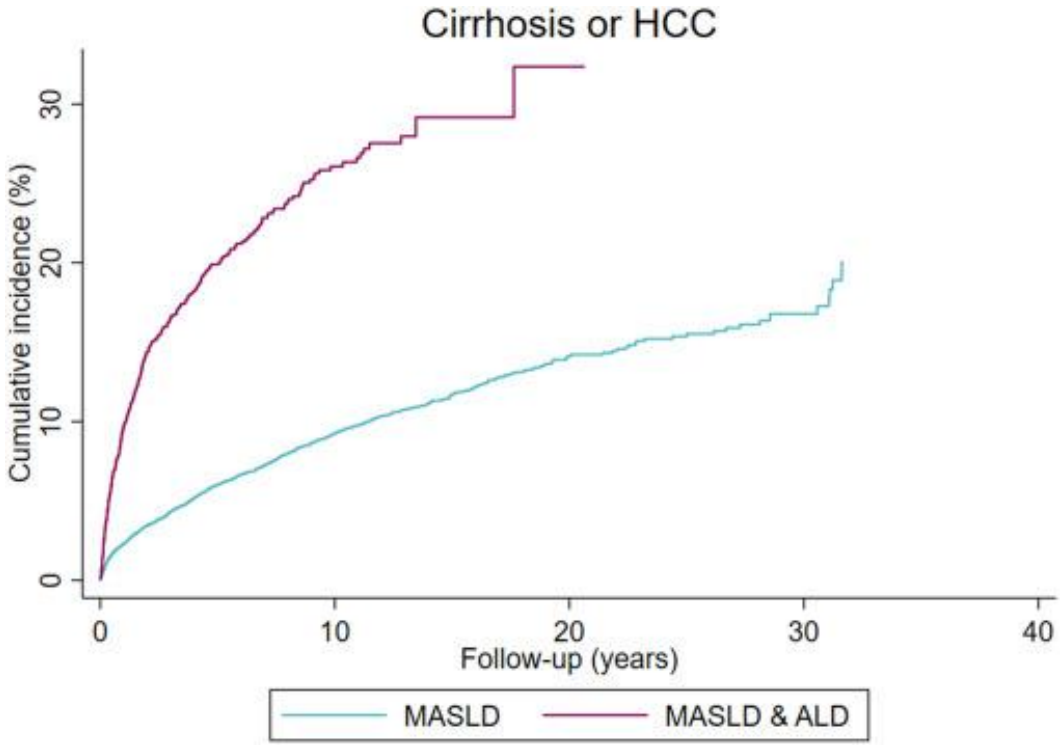
Progression of Liver Disease in MetALD vs MASLD alone

- Study in Sweden evaluated 15,100 pts from 1987-2020 who were diagnosed with MASLD based on ICD-10
- Found that 1,843 has prior ALD diagnosis and 787 diagnosed with ALD on f/u
- Those who had MetALD experienced 19.5% MALO vs 7.8% in MASLD only



Misclassified Alcohol-related Liver Disease is Common in Presumed Metabolic Dysfunction-associated Steatotic Liver Disease and Highly Increases Risk for Future Cirrhosis
Nasr, Patrik et al.
Clinical Gastroenterology and Hepatology, Volume 22, Issue 5, 1048 - 1057.e2

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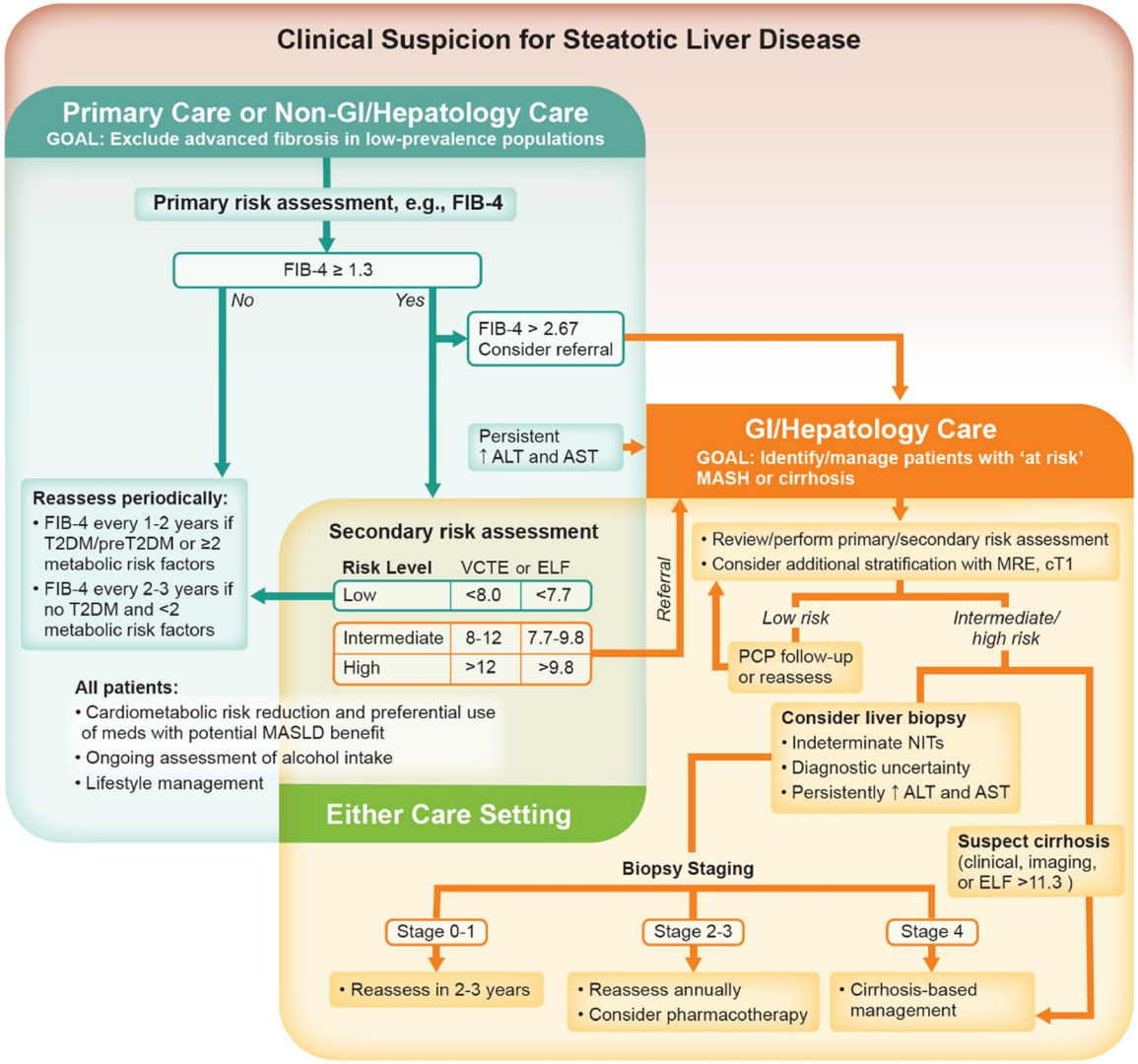
Non-Invasive Method To Diagnose and Stage SLD (includes MASLD, MetALD & ALD



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Alcohol Use Disorder in ALD

- Complete alcohol abstinence is critical

- The only available intervention associated with improved long-term mortality in patients with ALD is abstinence

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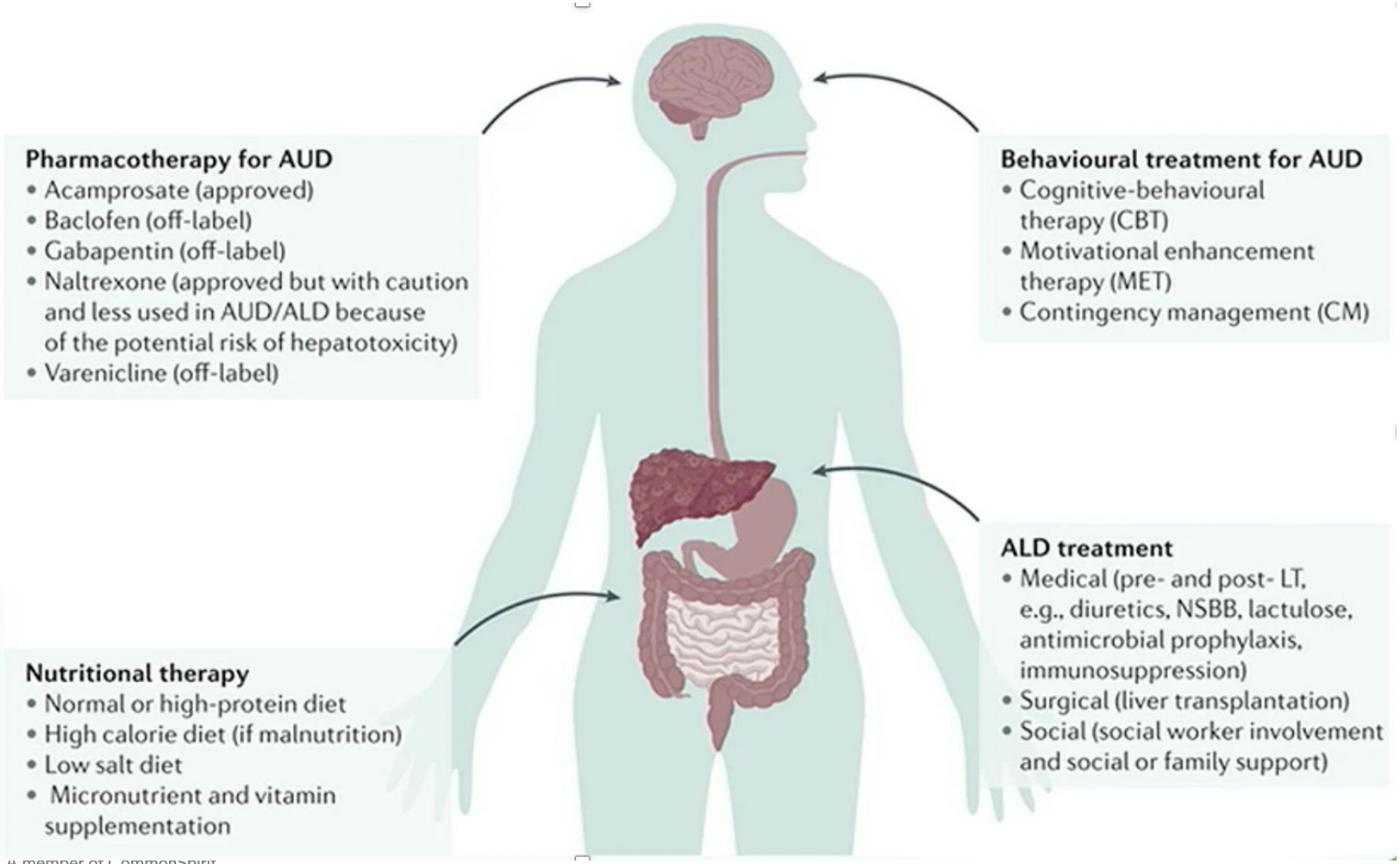

Pharmacotherapy for AUD
• Acamprosate (approved)
• Baclofen (off-label)
• Gabapentin (off-label)
• Naltrexone (approved but with caution and less used in AUD/ALD because of the potential risk of hepatotoxicity)
• Varenicline (off-label)
Behavioural treatment for AUD
• Cognitive-behavioural therapy (CBT)
• Motivational enhancement therapy (MET)
• Contingency management (CM)
ALD treatment
• Medical (pre- and post- LT, e.g., diuretics, NSBB, lactulose, antimicrobial prophylaxis, immunosuppression)
• Surgical (liver transplantation)
• Social (social worker involvement and social or family support)
Nutritional therapy
• Normal or high-protein diet
• High calorie diet (if malnutrition)
• Low salt diet
• Micronutrient and vitamin supplementation

FDA Approved Medications for AUD

- Naltrexone
  - Dosage:
    - Oral: 50-100 mg/day
    - IM: 380mg/month
  - MOA opioid receptor antagonist that reduces rewarding effects of alcohol
  - Can be used if actively drinking but no opiate use
  - Hepatotoxicity
    - Avoid if Child-Pugh C or greater, or alanine aminotransferase (AST)/aspartate aminotransferase (ALT) >5x upper limit of normal
    - Need to monitor liver enzymes

FDA Approved Medications for AUD

- Acamprosate
  - Dosage:
    - Oral: 666mg orally three times daily
  - MOA: Modulates glutamate neurotransmission
  - Can be used if actively drinking and in setting of opiate use
  - Safe to use with ALD
  - Requires renal dosing 50% reduce for moderate renal impairment and contraindicated if CrCl <30

Table 2 | **Pharmacotherapy agents for AUD in patients with ALD and cirrhosis and liver transplant recipients**

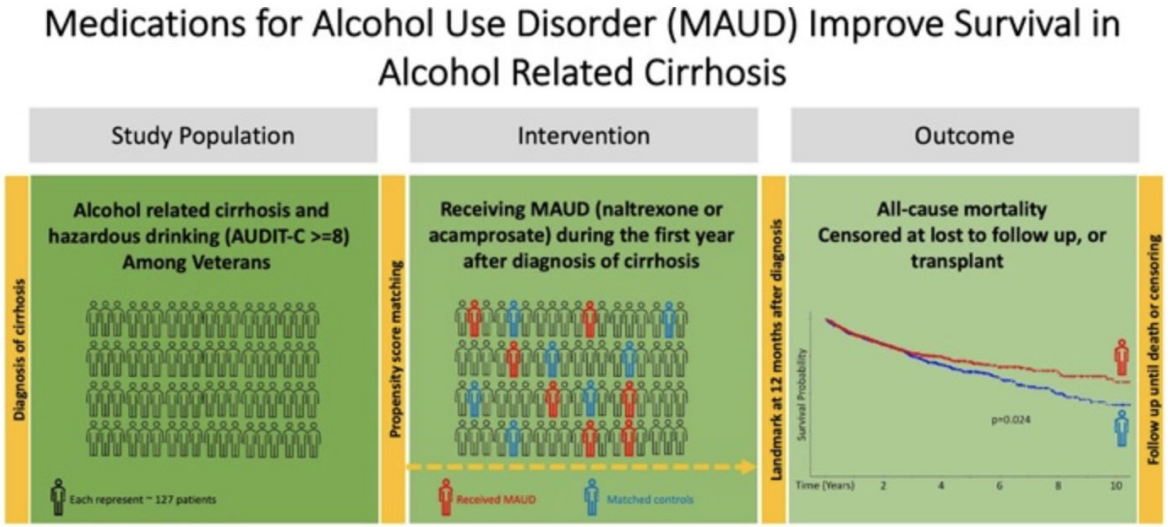
Medication	FDA/EMA-approved	APA recommendation	Dose	Use in advanced liver disease	Interaction with post-transplant immunosuppressants	Hepatotoxicity	Use in renal impairment[a]	Common adverse effects
Naltrexone[75,78,79,82]	Yes	First line	50 mg daily oral, 380 mg monthly, IM	Avoid in Child-Pugh class C	None	Possible	Allowed	Diarrhoea, nausea, somnolence
Acamprosate[79,87–90]	Yes	First line	666 mg three times a day, oral	Allowed	None	None	Reduce dose if Cr Cl 30–50 ml/min/1.73 m^2, avoid if Cr Cl <3 ml/min/1.73 m^2	Diarrhoea
Topiramate[b] (REFS[79,92–94])	No	Second line	Initially 25 mg daily, titrated up to 150 mg twice a day, oral	Allowed	None	Possible, if used with valproate-based medication	Reduce dose if Cr Cl <70 ml/min/1.73 m^2	Paraesthesia, altered taste, anorexia, difficulty concentrating
Baclofen[76,79,95–102,104]	No	NA	10–30 mg three times a day, oral	Allowed	None	None	Reduce dose	Fatigue, sleepiness, and dry mouth
Gabapentin[79,105,106,108,109]	No	Second line	300–600 mg three times a day, oral	Allowed	None	Possible (in case reports)	Reduce dose if Cr Cl <60 ml/min/1.73 m^2	Fatigue, headache, insomnia
Varenicline[112]	No	NA	1 mg two times a day, oral	Allowed	None	Possible (in case reports)	Reduce dose if Cr Cl <30 ml/min/1.73 m^2	Fatigue, nausea, somnolence

APA, American Psychiatric Association; Cr Cl, creatinine clearance; IM, intramuscular; NA, not available. [a]Based on manufacturer's recommendation. [b]Topiramate should be avoided in patients with hepatic encephalopathy.

Arab JP, Izzy M, Leggio L, Bataller R, Shah VH. Management of alcohol use disorder in patients with cirrhosis in the setting of liver transplantation. Nat Rev Gastroenterol Hepatol. 2022 Jan;19(1):45-59. doi: 10.1038/s41575-021-00527-0. Epub 2021 Nov 1. PMID: 34725498; PMCID: PMC8559139.

AUD Pharmacotherapy Improves Survival

- Study included 9131 patients
- 886 (9.7%) were exposed to MAUD
    - Naltrexone: 520
    - Acamprosate: 307
    - Both medications: 59



Rabiee, Anahita et al. "Medications for alcohol use disorder improve survival in patients with hazardous drinking and alcohol-associated cirrhosis." *Hepatology communications* vol. 7,4 e0093. 24 Mar. 2023

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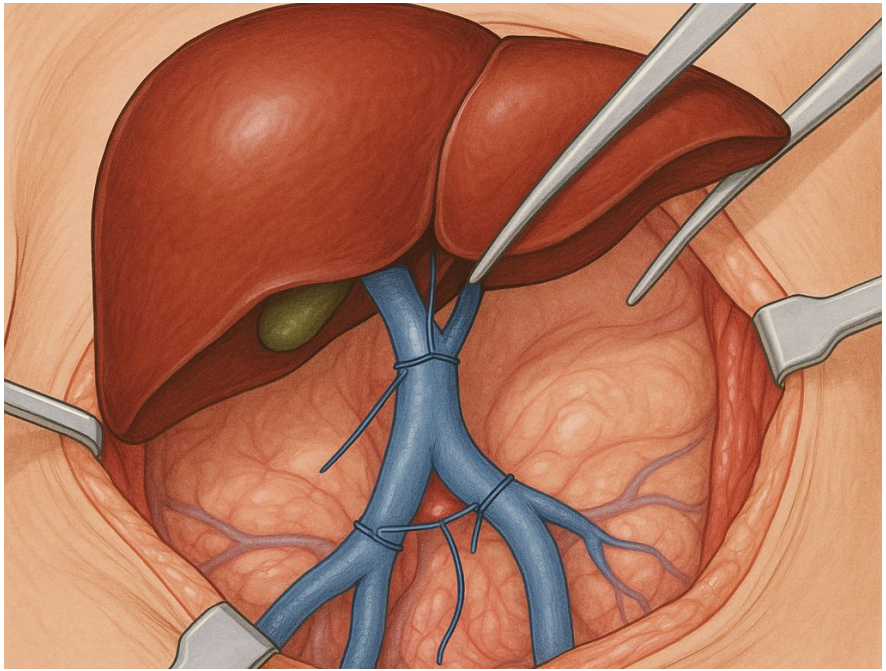
Role and Outcomes of Liver Transplant in ALD

- Liver transplant offers excellent survival rates comparable to other etiologies
- Early transplant improves survival in severe alcohol associated hepatitis
- Post-transplant relapse prevention is key
    - Ongoing addiction support
    - Structured monitoring for relapse



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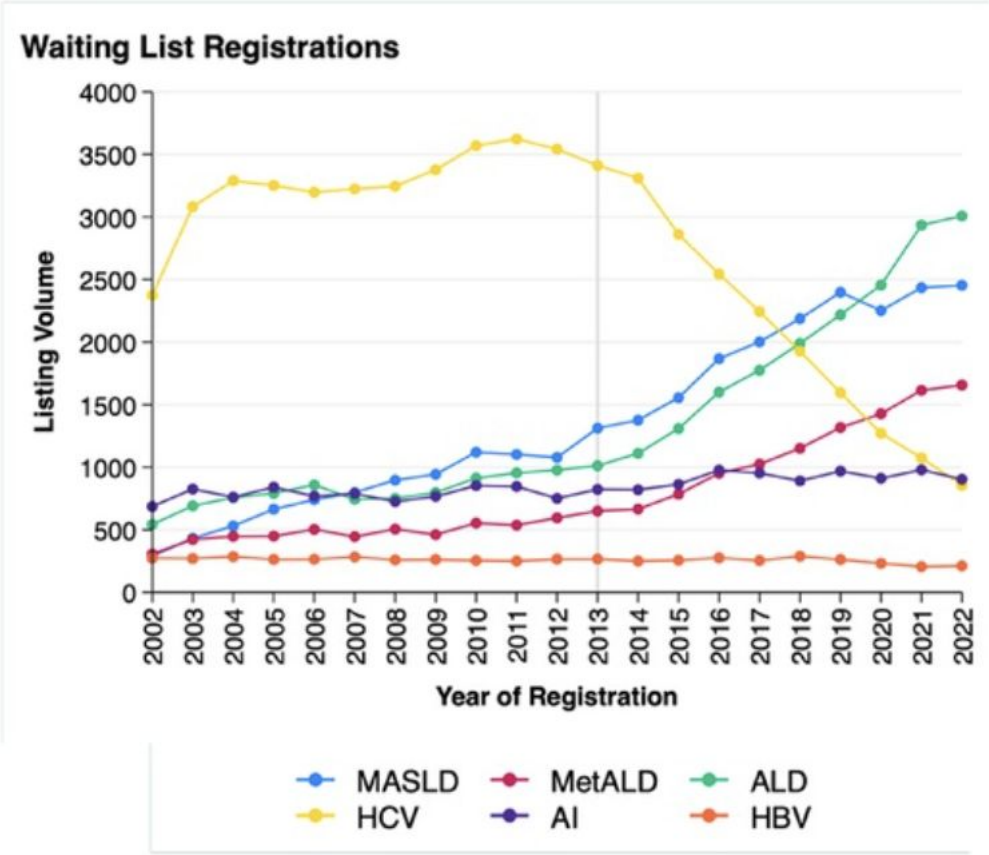
Trends in Liver Transplant Based on Etiology



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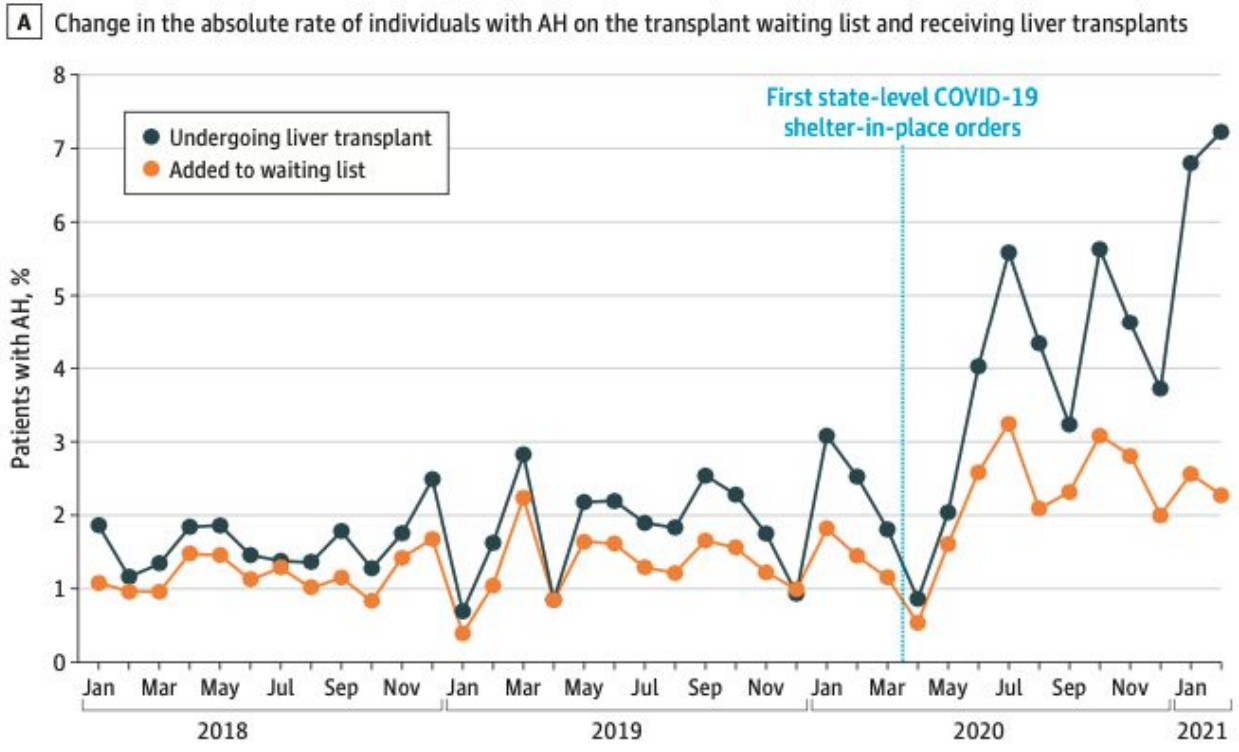
Ochoa-Allemant, Pedro et al. Waitlisting and liver transplantation for MetALD in the United States: An analysis of the UNOS national registry. Hepatology 81(2):p 532-545, February 2025.

Effect of the COVID-19 Pandemic



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Bittermann T and Mahmud N JAMA Open 2021

Liver Transplant for ALD: "6-month rule"

- 1997 AASLD/AST consensus conference created the 6-month rule to allow time for to assess:
  - Liver recovery that might obviate need for LT
  - Commitment to abstinence through alcohol rehab
- While duration of abstinence pre-LT is linked to future abstinence, 6-month rule is not an adequate predictor of relapse
  - Penalizes some patients at low risk of relapse who won't survive 6 months (ex: AH patients)
  - Support for 6-month rule is rapidly declining

Dallas Consensus Conference Criteria for Liver Transplant Listing in Alcohol-Associated

Domain	Primary / Required Criteria	Supporting / Secondary Considerations
AH Assessment & Transplant Medical Criteria	• First presentation of decompensated AH • Non-response to medical therapy (e.g., steroids) • Severe liver dysfunction (high MELD) • No prohibitive comorbidities	• Not expected to recover without transplant • Multidisciplinary assessment required
Alcohol Use Disorder (AUD) / Psychosocial Assessment	• Comprehensive multidisciplinary evaluation • Commitment to lifelong abstinence and structured follow-up	• Favourable factors: strong social support • Caution with repeated relapses or poor insight
Abstinence Period	• No fixed abstinence period required (6-month rule not mandatory)	• Pre-transplant abstinence helpful but not sole criterion
Programmatic / Ethical Considerations	• Ensure outcomes comparable to other indications • Transparent selection and documentation	• Avoid disparities by indication, geography, sex, or insurance status

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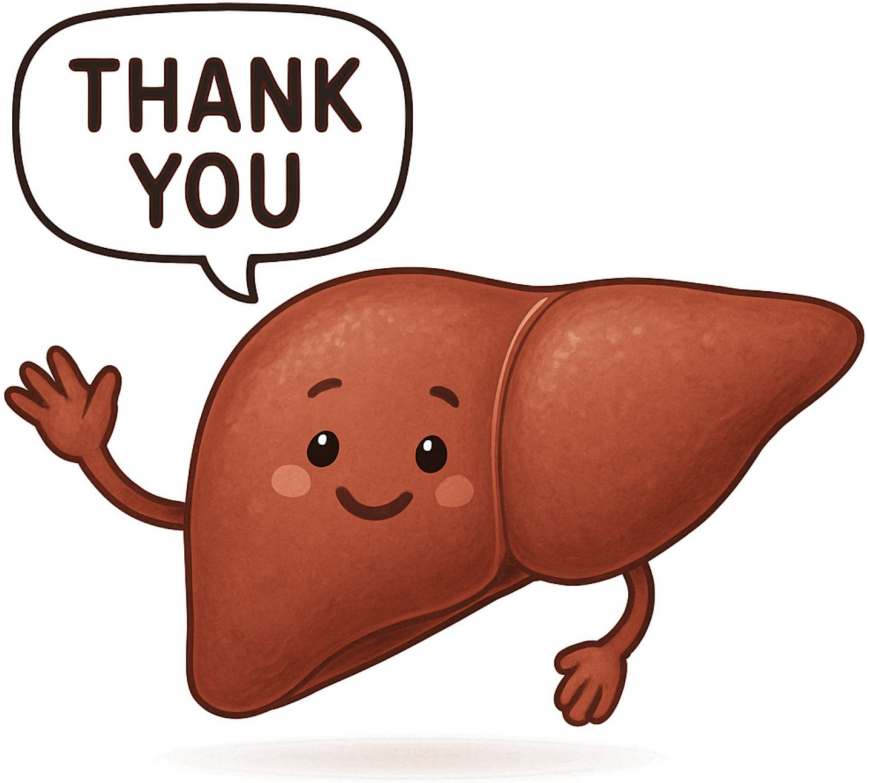
Risk of relapse with limited sobriety

- Multiple series for early LT for severe AH have demonstrated relapse rates comparable to or lower than ALD cohorts with pre-LT abstinence periods
- AASLD 2019 Guidelines:
    - Candidate selection for liver transplantation in alcohol-associated cirrhosis should not be based solely on a fixed interval of abstinence."
    - Patients with decompensated alcohol-associated cirrhosis, CPT class C or MELD-Na of at least 21 should be referred and considered for liver transplantation.



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Surgical Management of Hepatocellular Carcinoma

Clancy J. Clark, MD, FACS
Director, Hepato-Pancreato-Biliary Surgery
Virginia Mason Medical Center, Seattle

Nov 15, 2025

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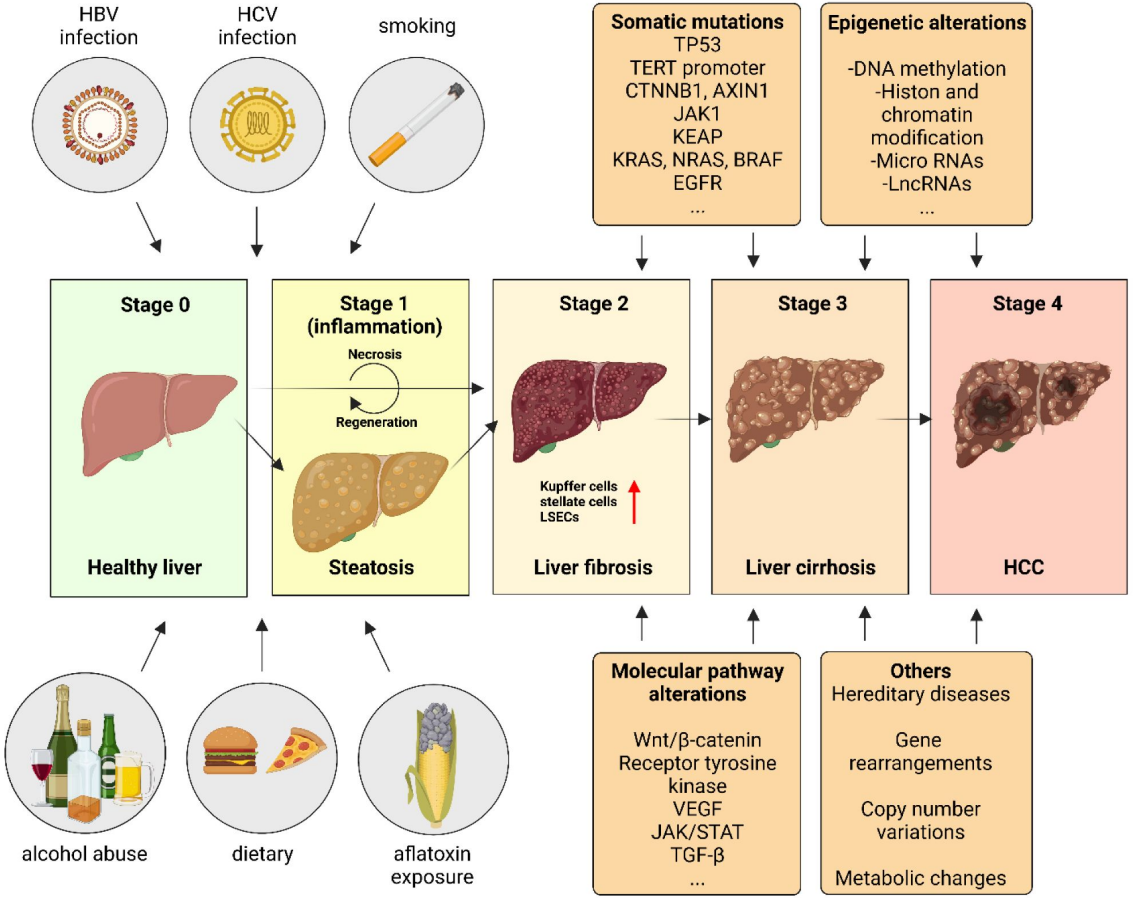

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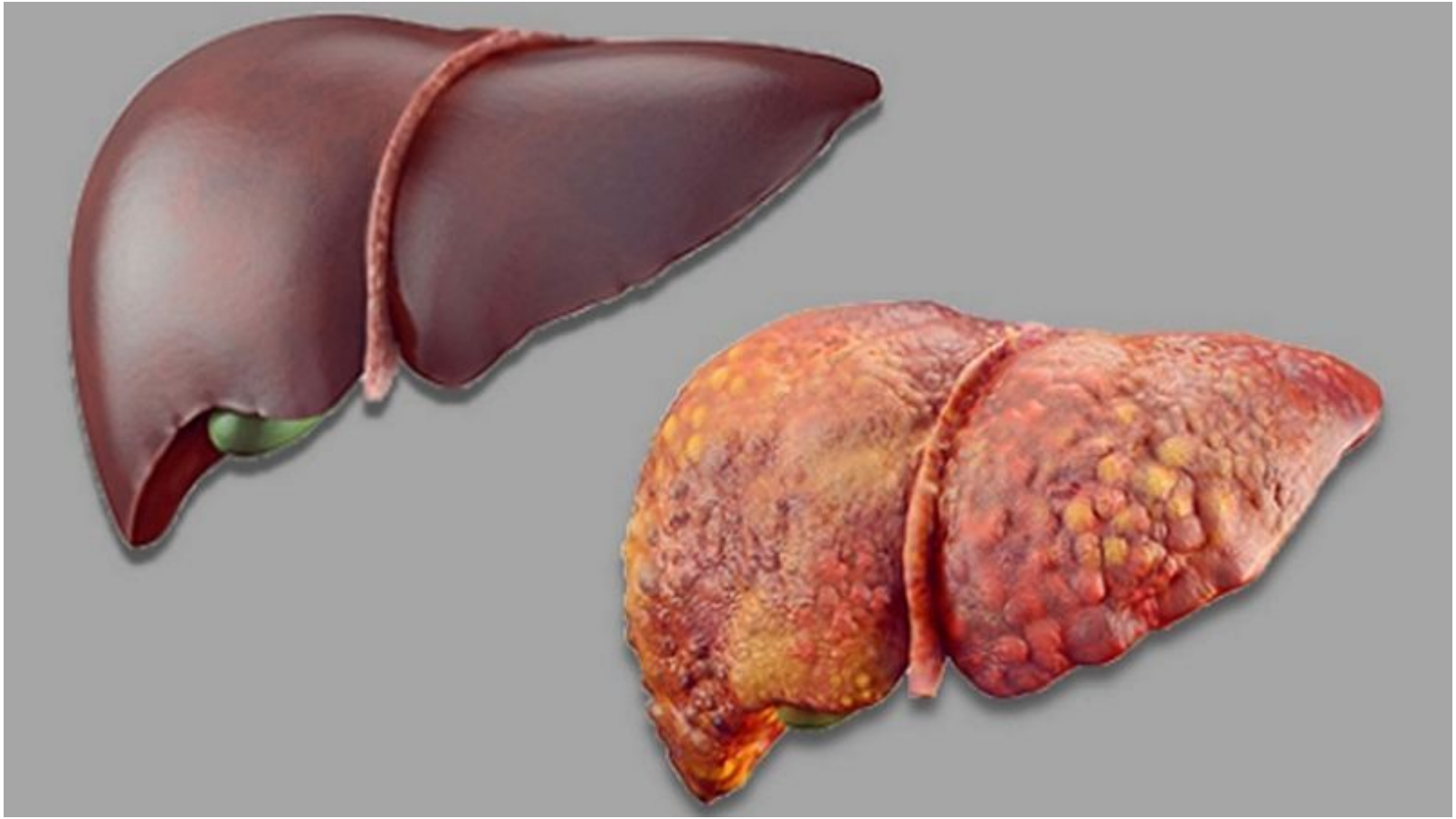

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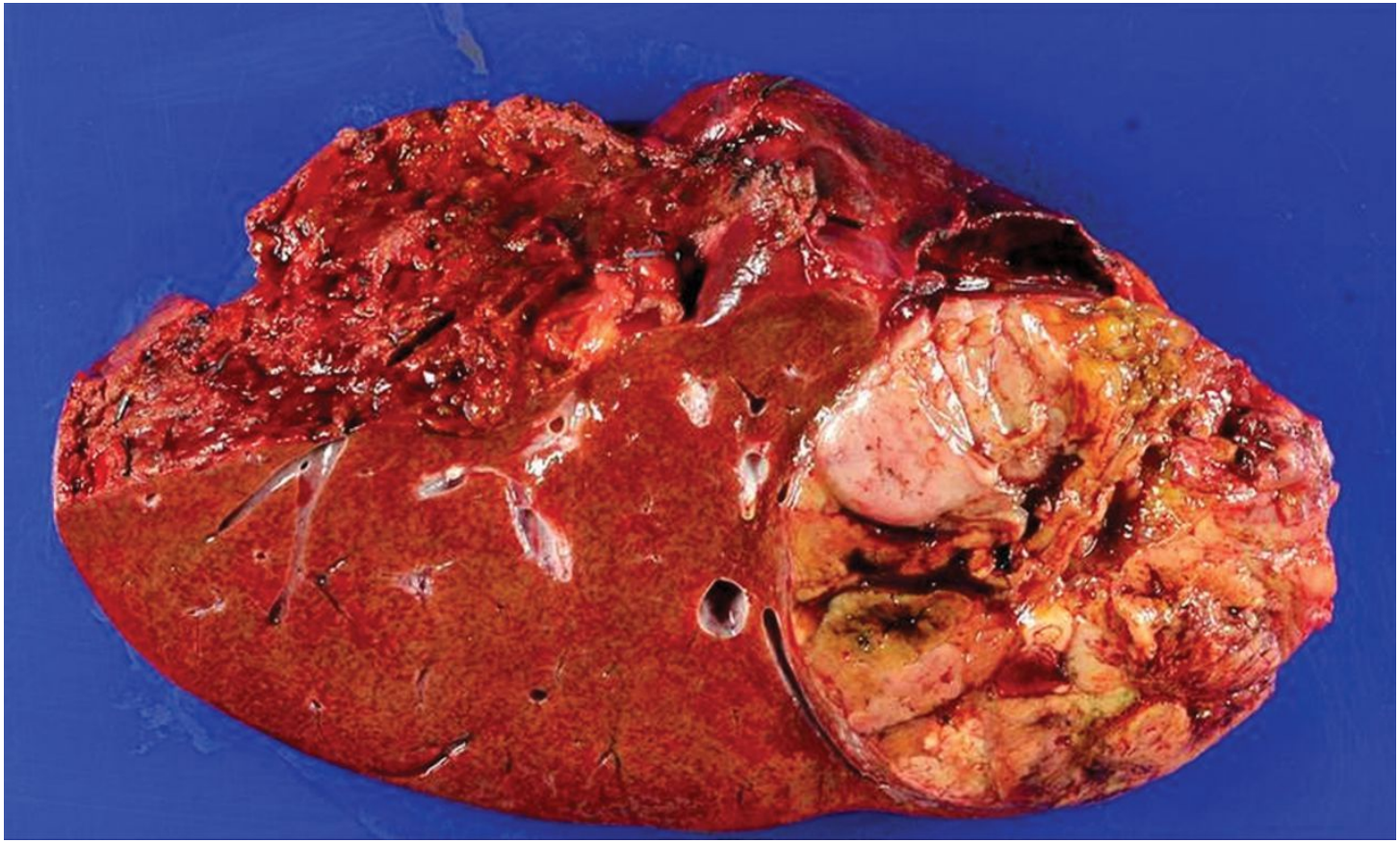

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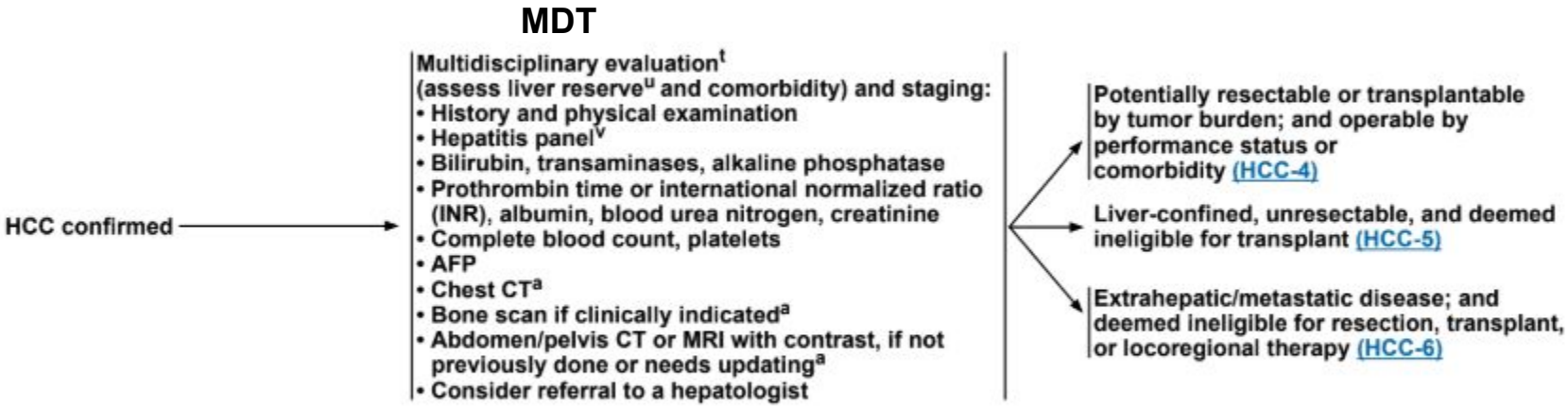
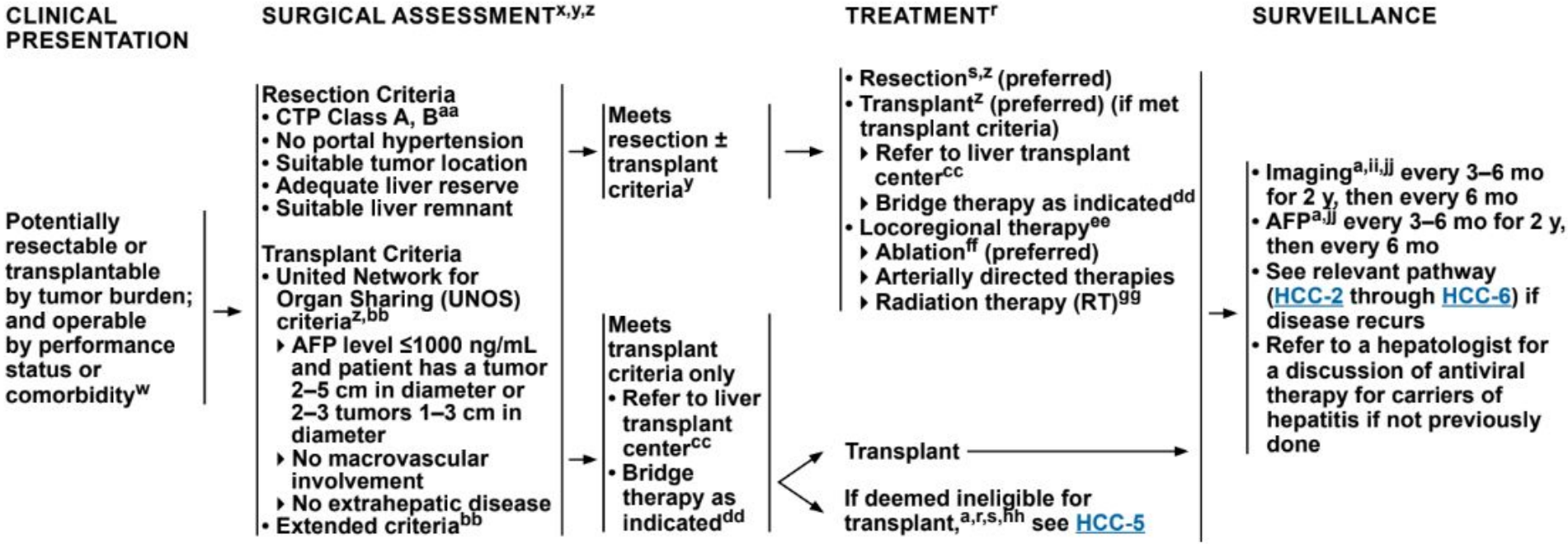
NCCN 2025 HCC Guidelines



NCCN 2025 HCC Guidelines

NCCN National Comprehensive Cancer Network®
CELEBRATING 30 YEARS



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Multidisciplinary Team (MDT) for HCC

- Collaborative effort with pathology, radiology, hepatology, oncology, and surgery
- Multiple treatment options
- Management change in **42%** of cases
- Improved overall survival

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Oh JH, Sinn DH. J Liver Cancer. 2024 Mar;24(1):47-56. doi: 10.17998/jlc.2024.02.27. Epub 2024 Mar 25

Surgery vs Transplant for Early HCC

Annals of Surgical Oncology 14(9):2608–2614
DOI: 10.1245/s10434-007-9443-3

Hepatic and Pancreatic Tumors

An Analysis of Resection vs Transplantation for Early Hepatocellular Carcinoma: Defining the Optimal Therapy at a Single Institution

Shimul A. Shah, Sean P. Cleary, Jensen C. C. Tan, Alice C. Wei, Steve Gallinger, David R. Grant, and Paul D. Greig

Department of Surgery, University Health Network, University of Toronto, Toronto, Canada

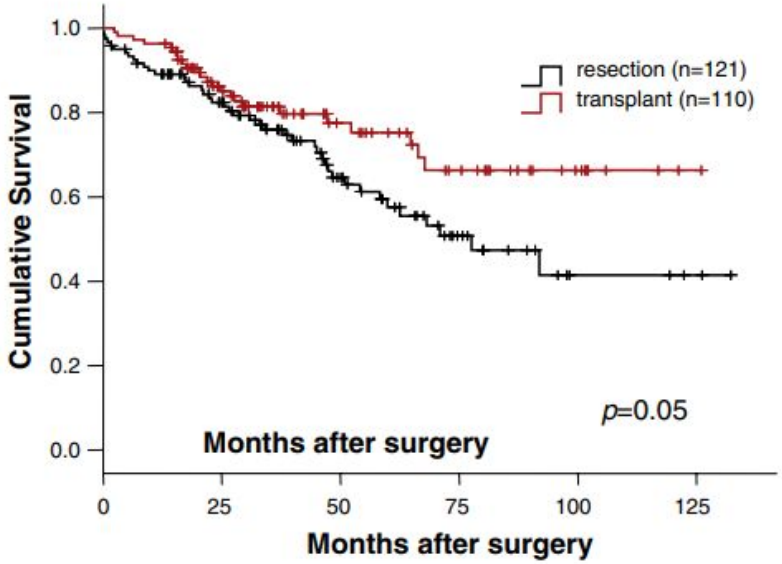

FIG. 1. Cumulative survival from time of resection or transplantation.

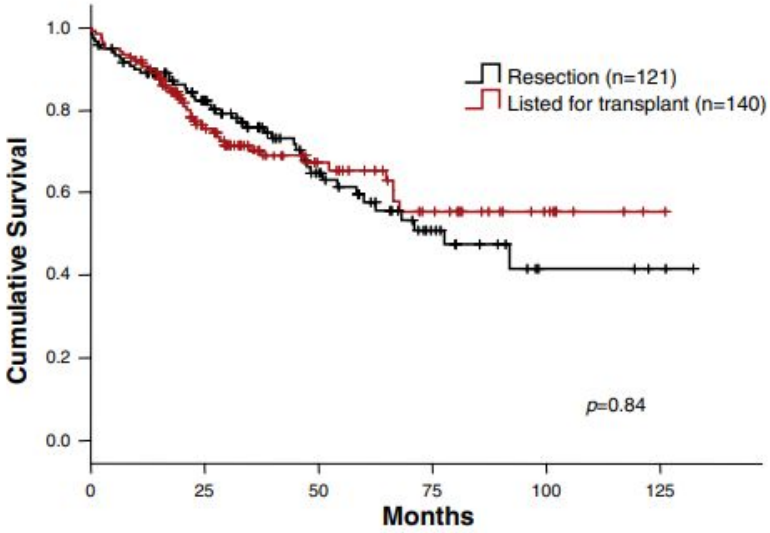

FIG. 2. Cumulative survival from time of resection or listing for transplantation.

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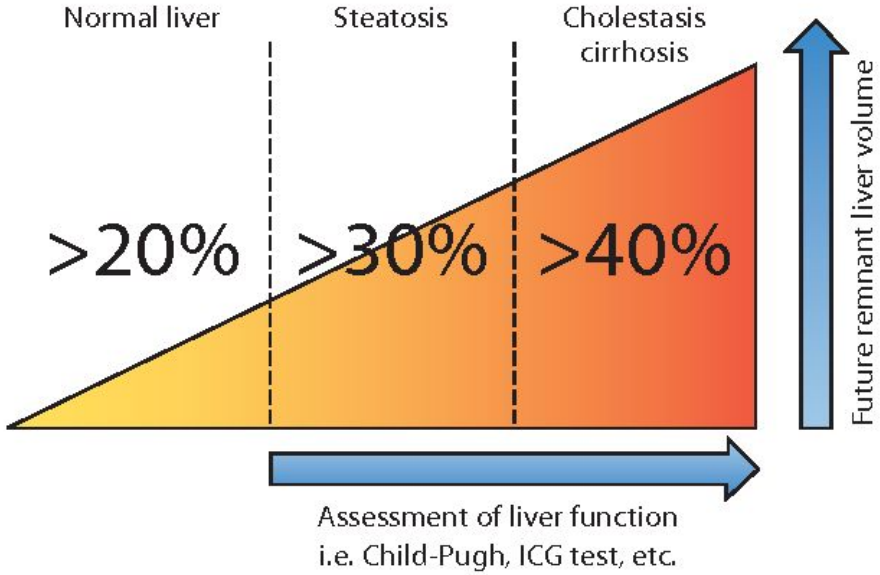
Criteria for Surgical Resection

- Medically Fit
- Child-Pugh A or B (MELD < 12)
- No (minimal) portal hypertension
- Adequate Liver Reserve
- Appropriate future liver remnant volume



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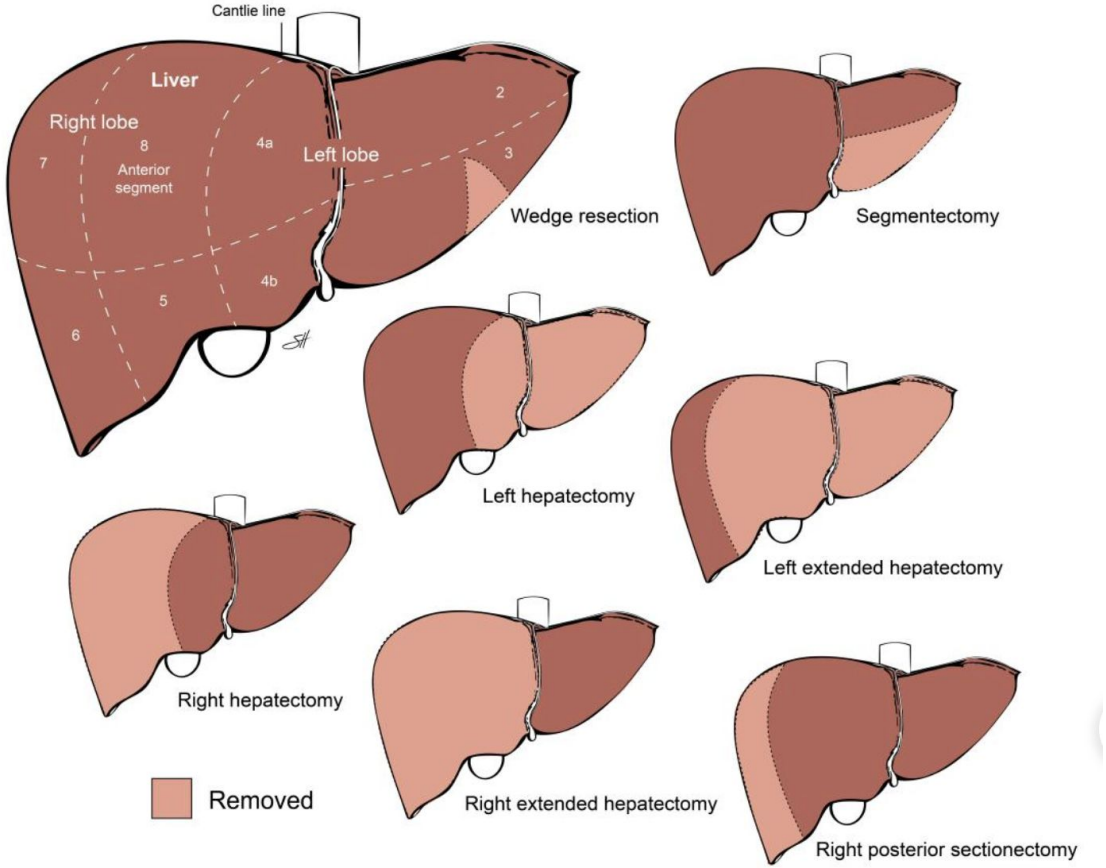
Types of Liver Resection



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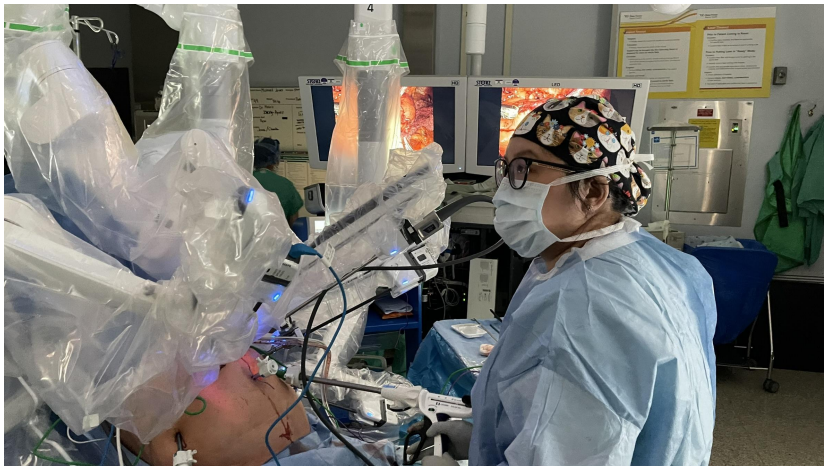
Surgical Intervention for HCC

- Liver Transplant
- Open resection
- Laparoscopic resection
- Robotic resection
- Microwave ablation
- Irreversible electroporation
- Histotripsy



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Surgical Intervention for HCC

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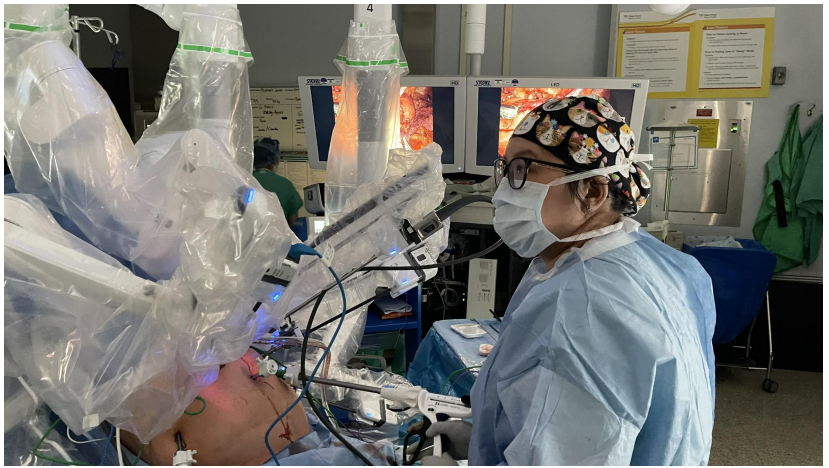

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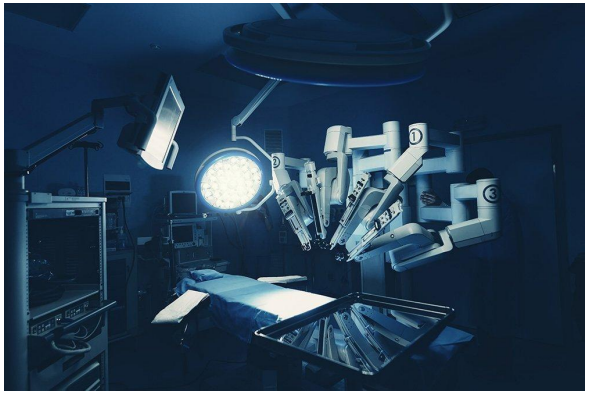
Robotic Liver Surgery: Why and When?

- **Advantages over open and laparoscopic surgery:**

  1. Better visualization (3D magnification, articulation)
  2. Enhanced precision (wristed instruments, tremor filtering)
  3. Minimized blood loss and shorter hospital stay



- **Ideal Locations:** Segments II, III, IVb, and VI resections

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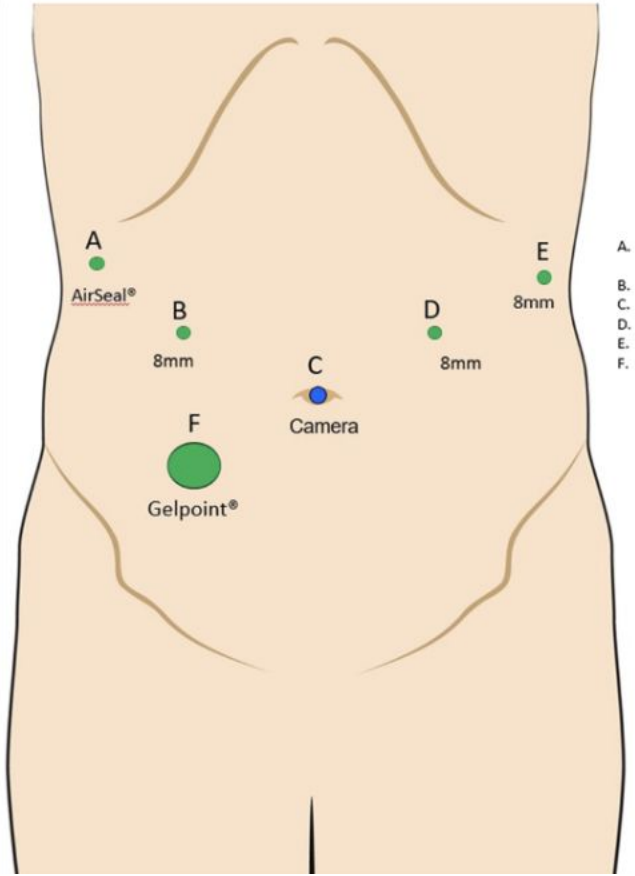
Technical Considerations in Robotic Liver Resection

- Patient selection & positioning
- Port placement strategy for liver resections
- Vascular control techniques (Pringle maneuver, selective clamping)
- Parenchymal transection using robotic energy devices

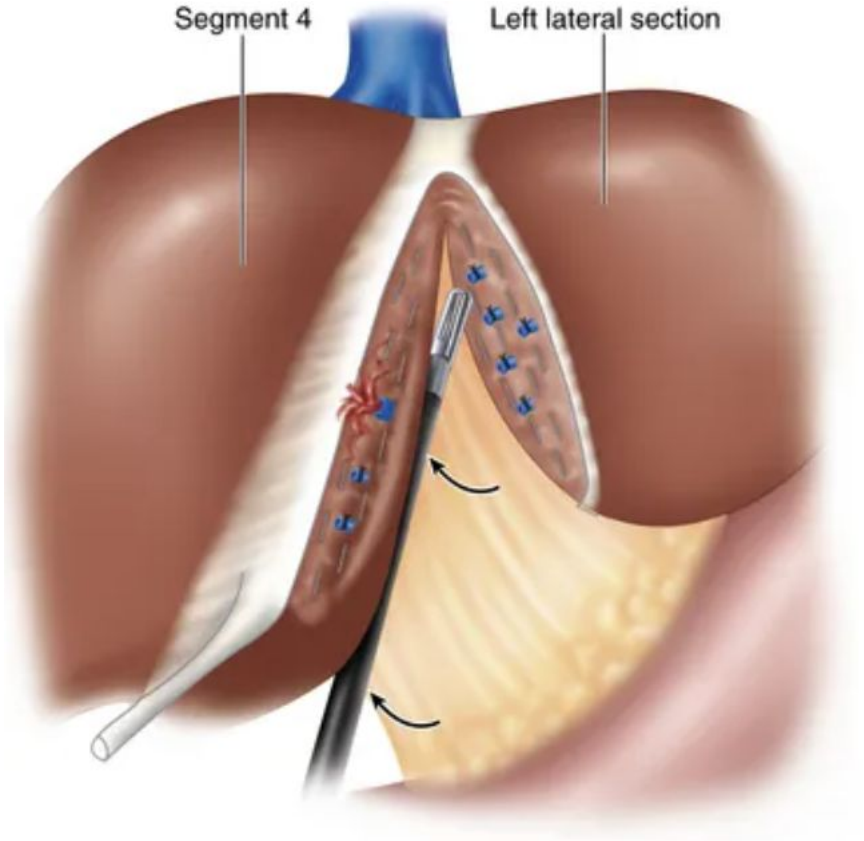
Case Example: Robotic Left Lateral Sectorectomy

- 78-year-old non-cirrhotic with a **solitary HCC in segment III**
- Pre-op imaging: Well-defined lesion, no extrahepatic disease
- Surgical steps:

1. Trocar placement and liver mobilization
2. Vascular Control
3. Parenchymal transection
4. Specimen retrieval via suprapubic extraction



A. AirSeal® trocar for insufflation and placement of liver retractor
B. Arm # 1
C. Arm # 2
D. Arm # 3
E. Arm # 4
F. Gelpoint® assistant port



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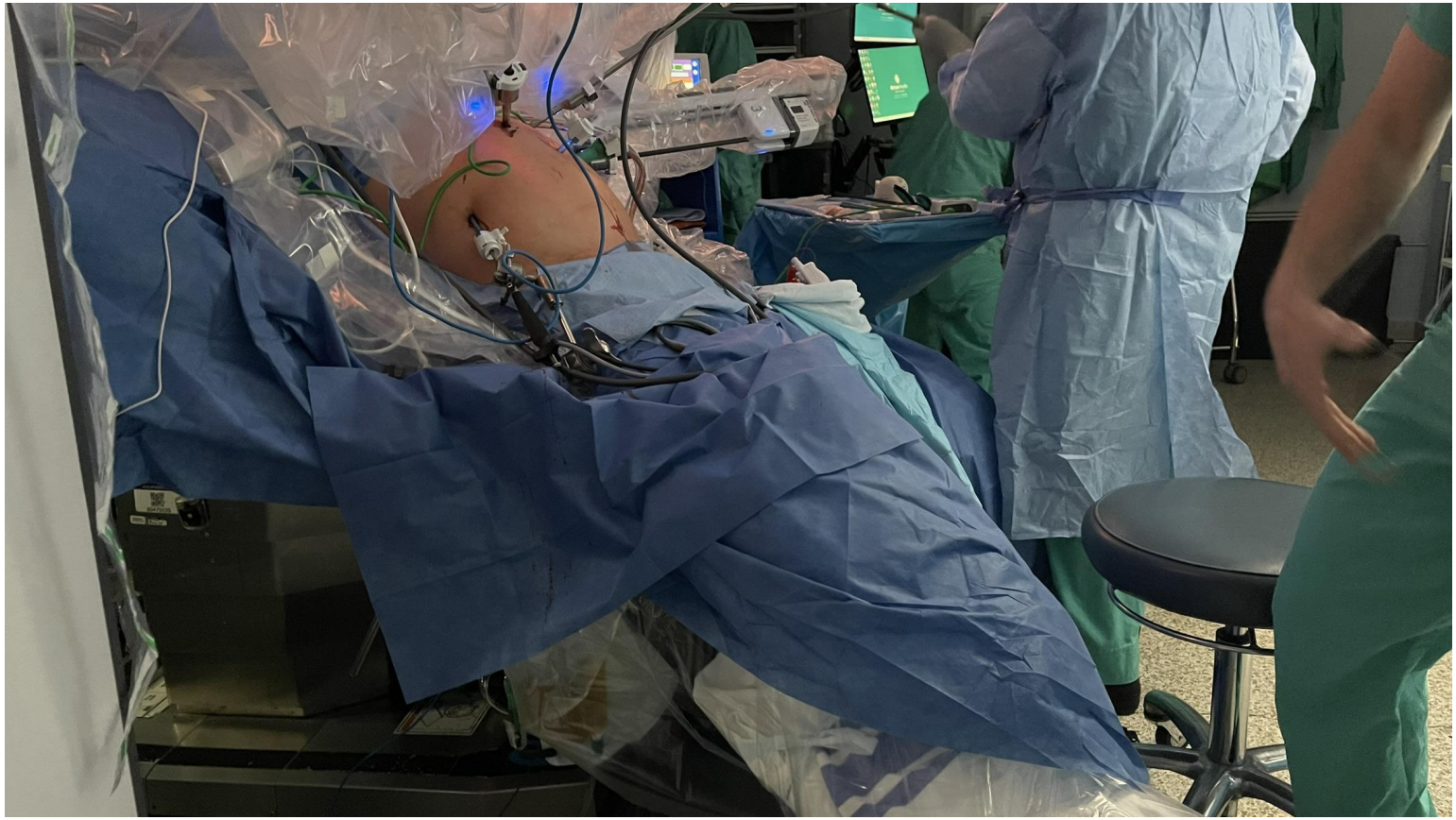

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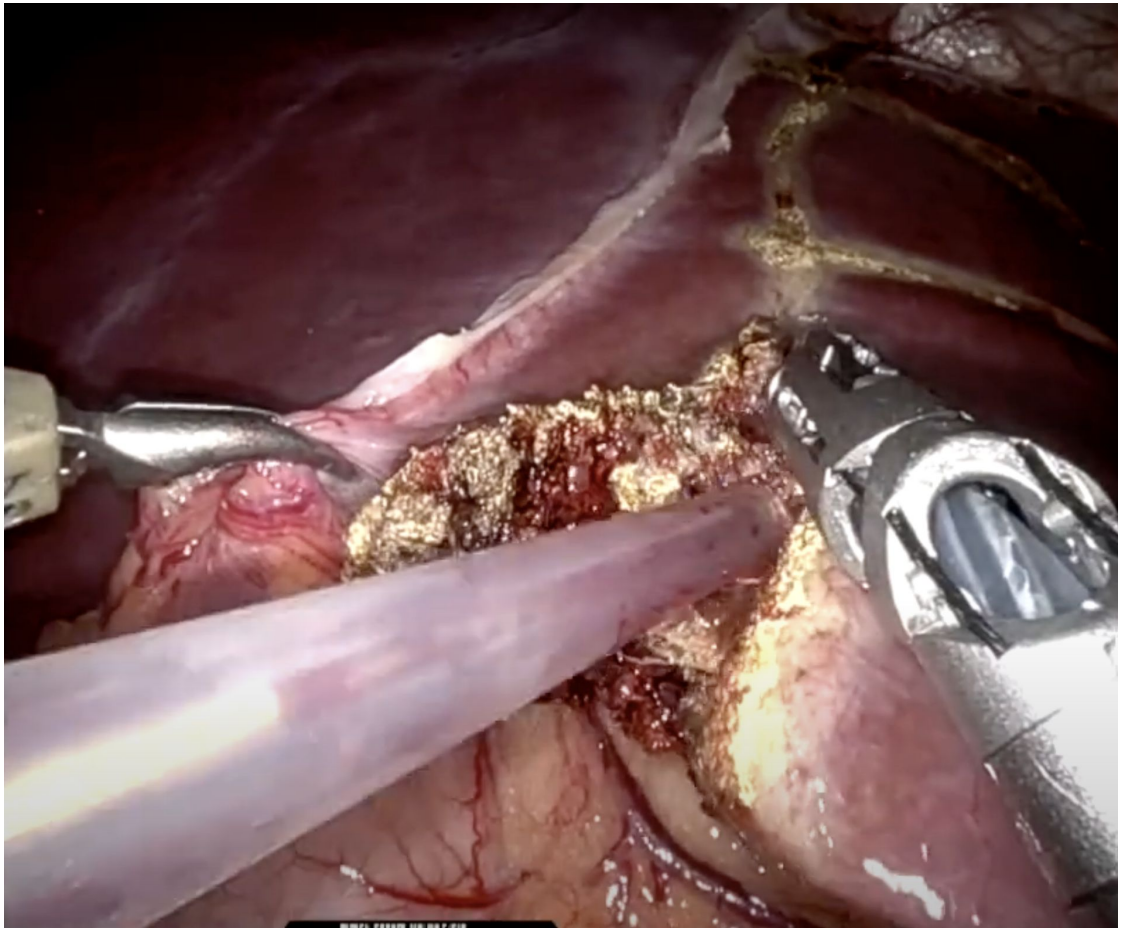

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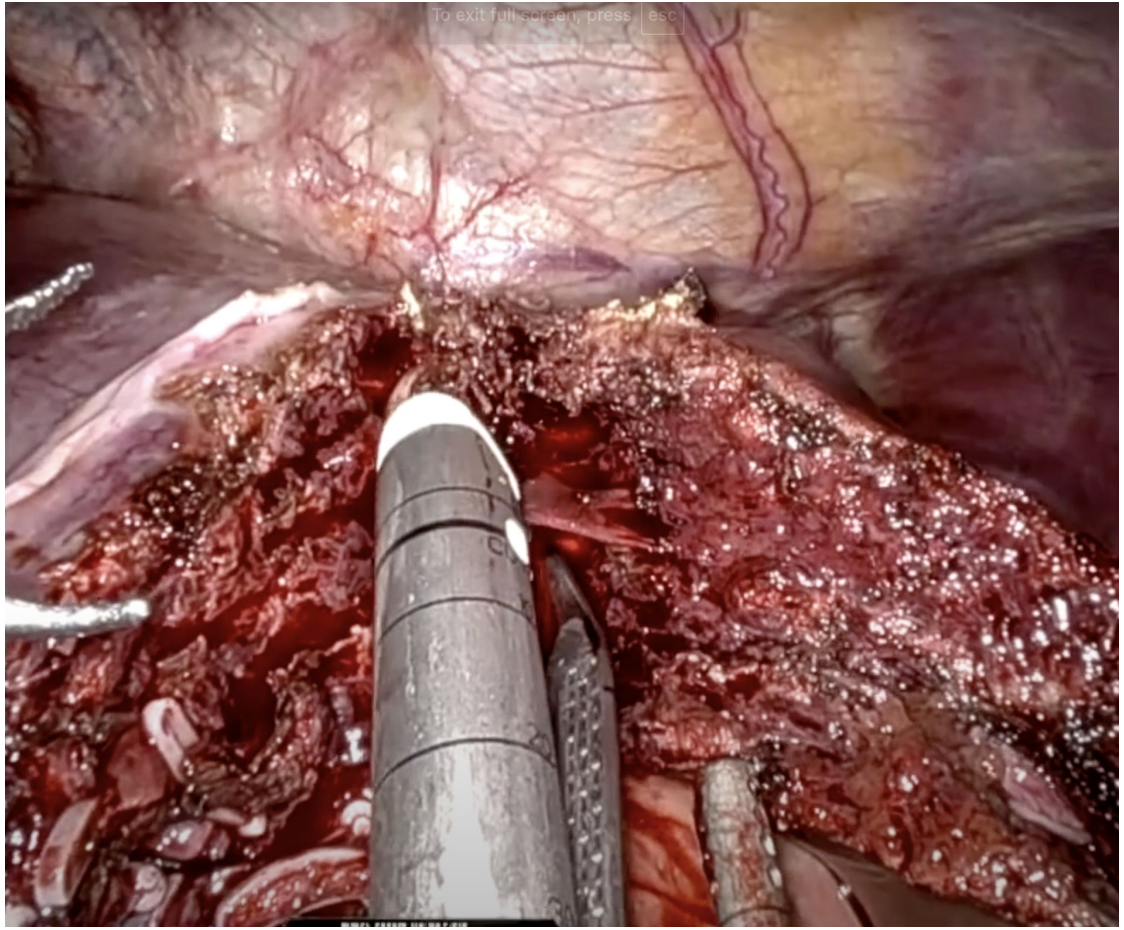

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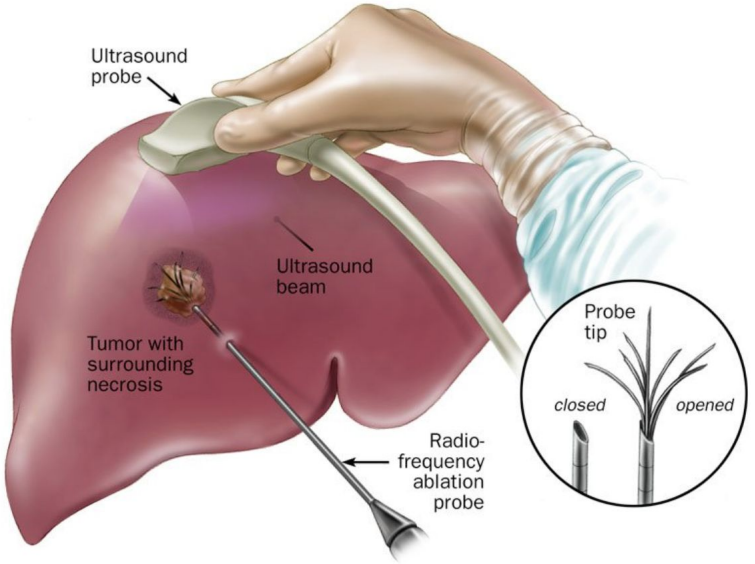
Alternative Surgical Therapies in HCC

- Used when **resection is <u>not</u> feasible, bridge to transplant, and/or <u>not</u> transplant candidate**.
- Options:
  1. Microwave Ablation (MWA)
  2. Irreversible Electroporation (IRE)
  3. Histotripsy

Non-Surgical Options:
- Y-90
- TACE
- SBRT

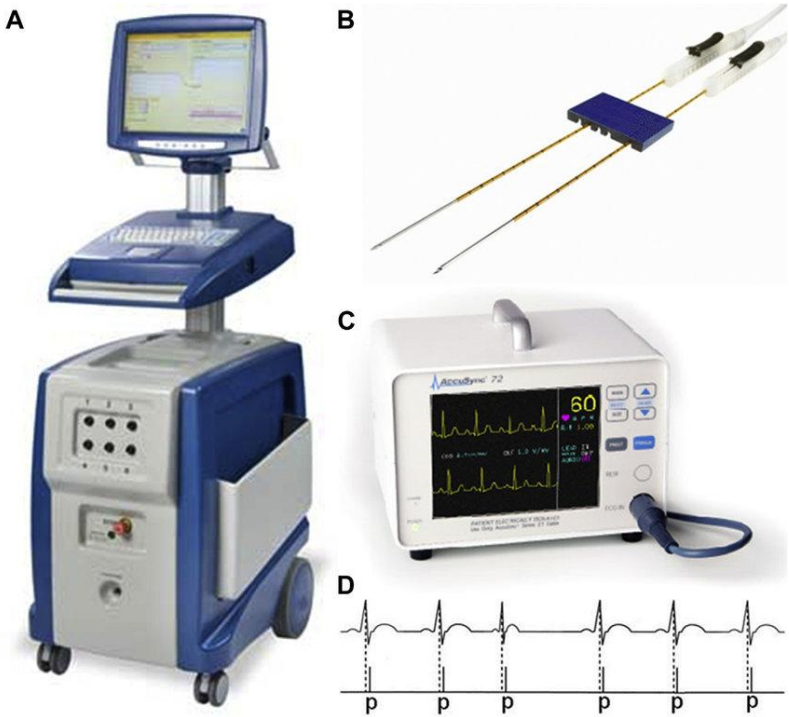
Microwave Ablation (MWA)

- Thermal ablation technique using electromagnetic waves
- Benefits:
  - Faster treatment
  - Larger ablation zones
  - Less heat sink effect
- Ideal for tumors **≤3 cm**



Irreversible Electroporation (IRE)

- Non-thermal technique using high-voltage pulses
- Preserves vessels and bile ducts → Suitable for perivascular tumors
- Growing evidence supports use in borderline-resectable CRLM



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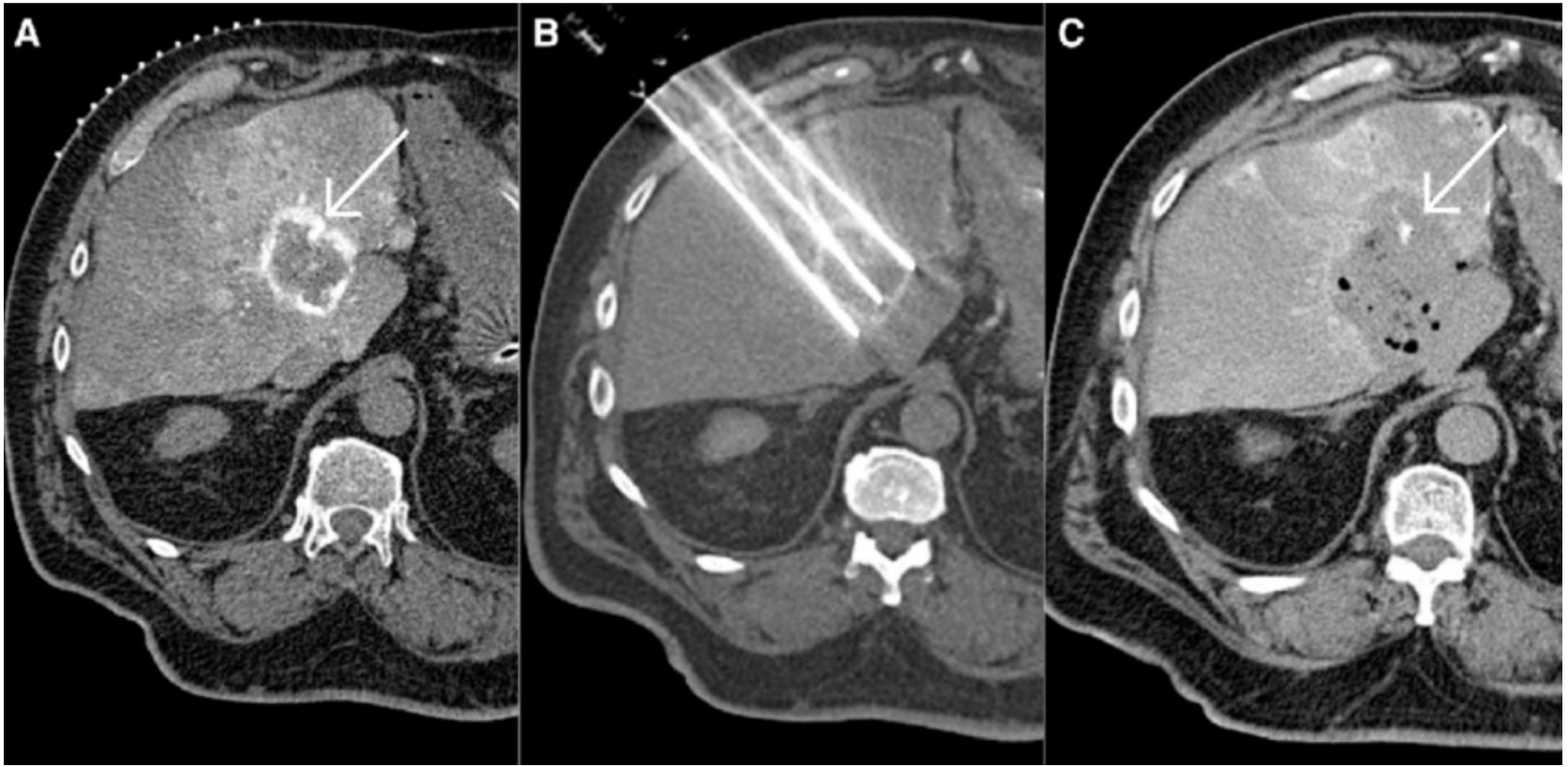
Ruarus et al. Can Assoc Radiol 2018 Feb;69(1):38-50



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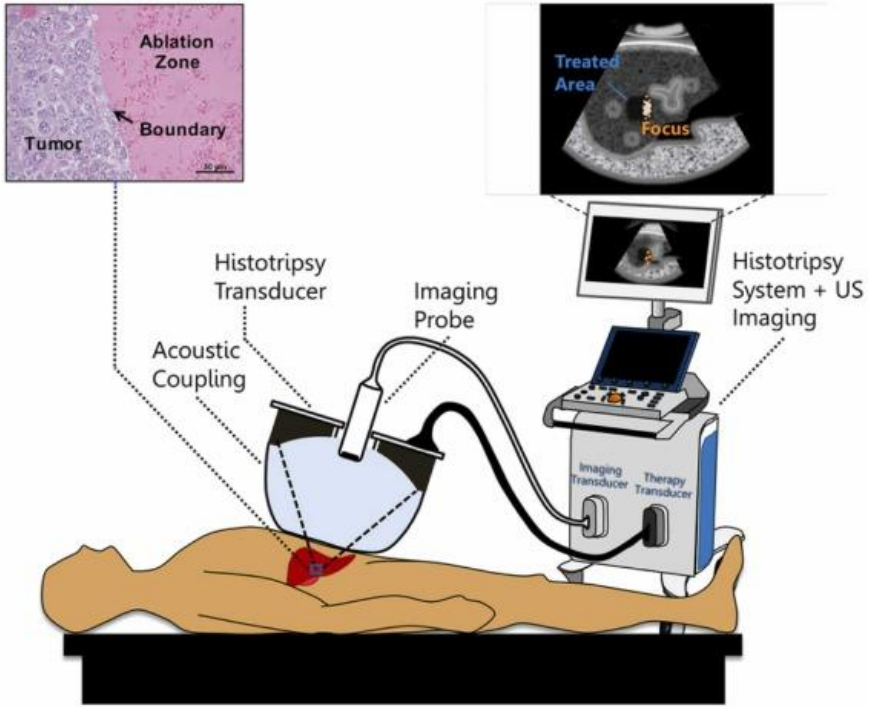
Histotripsy: A Disruptive Technology



- Noninvasive ultrasound-based tumor destruction (acoustic cavitation)
- No heat, no needles – completely extracorporeal
- Clinical trials ongoing for solid liver tumors

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Summary & Future Directions

1. Surgical evaluation is key component of HCC care
2. Robotic liver surgery is safe and effective for well-selected cases
3. Novel techniques have expanded treatment options for non-resectable lesions and non-transplant candidates
4. Histotripsy represents a potential paradigm shift in liver tumor management

Learn more here!

Virginia Mason HPB Program
https://www.vmfh.org/our-services/digestive-health/liver-pancreas-and-biliary-center-of-excellence

Thank you.

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Question & Answer

Live Audience: Please raise your hand and a mic will come to you.
Virtual Attendees: Please click on the Q&A button to enter your question.

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