Hepatocellular Carcinoma: Case Study

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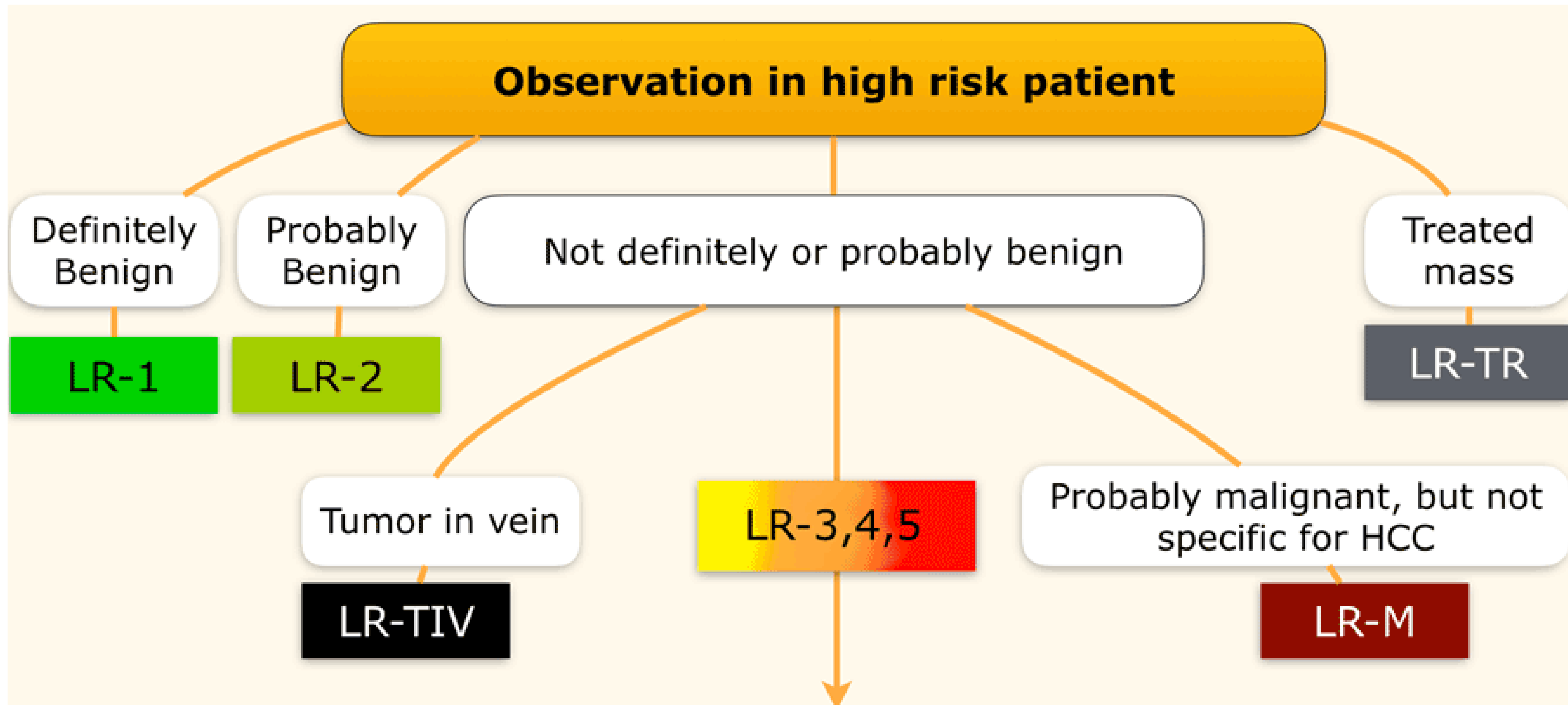
Case Study

- 67-year-old female
- PMH: CVA in 2021, GAD
- Hepatitis C – contracted in 1992
- Treated with Harvoni in 2014
- Drank 3-4 drinks nightly x 20 years but quit when diagnosed with HCV
- No ascites, jaundice, EV bleeding, or overt HE
- Labs show preserved hepatic function

Case Study

- Despite HCV being cured, she developed hepatocellular carcinoma
- US 3/2022 revealed 5.7 cm hepatic mass
- MRI abd w/wo 4/6/22 showed 4.9 cm LR5 lesion
- AFP 3.5



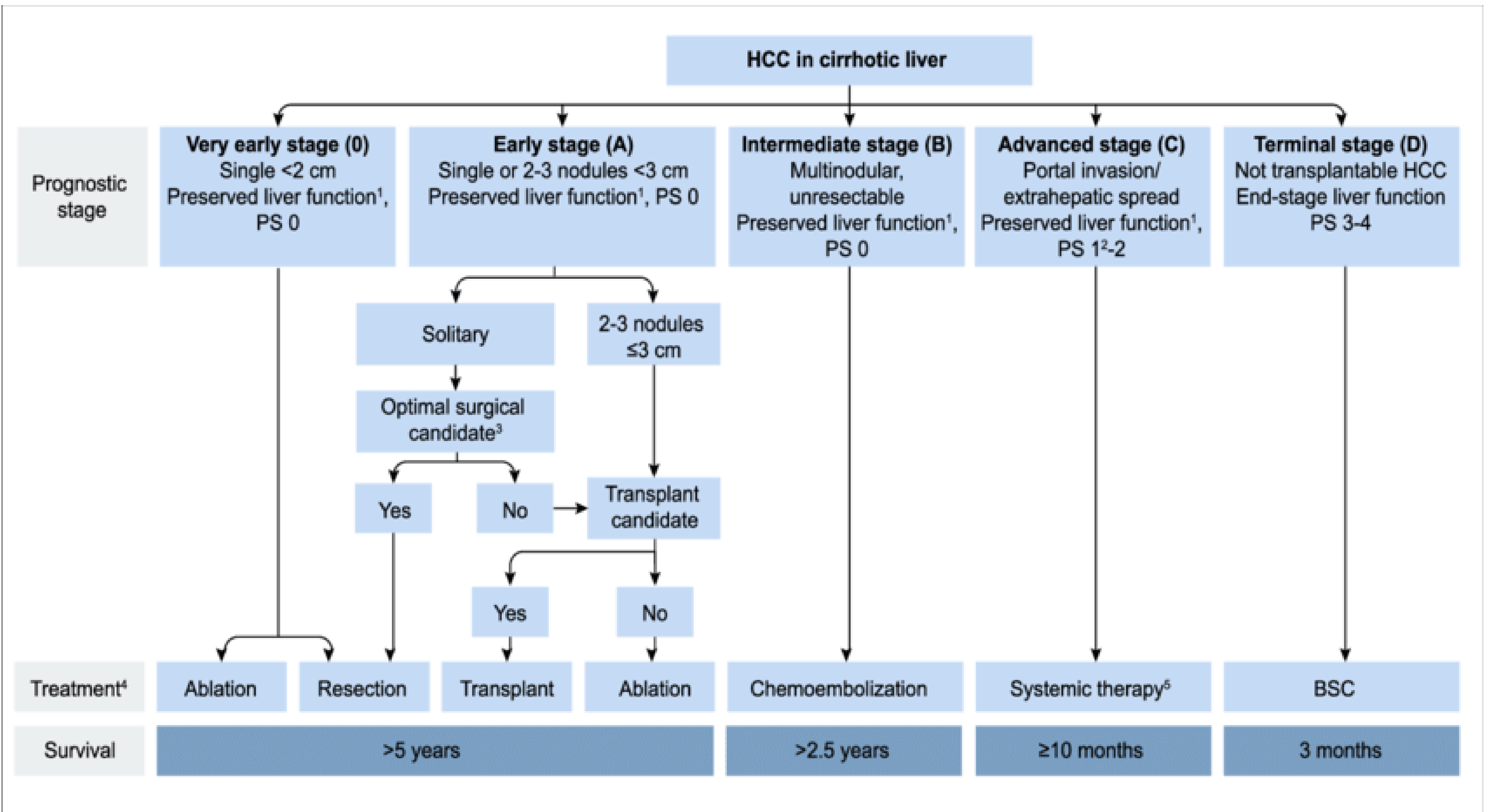
Observation in high risk patient
Definitely Benign
Probably Benign
Not definitely or probably benign
Treated mass
LR-1
LR-2
LR-TR
Tumor in vein
LR-3,4,5
Probably malignant, but not specific for HCC
LR-TIV
LR-M
Arterial phase hypo- or iso- enhancement
Arterial phase non-rim hyperenhancement
Size in mm
<20
≥20
<10
10-19
≥20
none
LR3
LR3
LR3
LR3
LR4
Enhancing capsule
Non-peripheral washout
Threshold growth
one
LR3
LR4
LR4
LR4*
LR5
LR5
≥two
LR4
LR4
LR4
LR5
LR5

MRI abd w/wo: 4.9 cm LR5 lesion

- What are her treatment options?

HCC Treatment

- Depends on size, number, and tumor location
- Locoregional treatment by interventional radiology
  - Microwave ablation
  - Transarterial chemoembolization (TACE)
  - Y90 radioembolization (Y90 or TARE)
- Systemic treatment through medical oncologist: Immunotherapy
- Surgical resection
- Liver transplantation
  - Cadaveric
  - Living donor liver



HCC in cirrhotic liver
Prognostic stage
Very early stage (0)
Single <2 cm
Preserved liver function[1], PS 0
Early stage (A)
Single or 2-3 nodules <3 cm
Preserved liver function[1], PS 0
Intermediate stage (B)
Multinodular, unresectable
Preserved liver function[1], PS 0
Advanced stage (C)
Portal invasion/ extrahepatic spread
Preserved liver function[1], PS 1[2]-2
Terminal stage (D)
Not transplantable HCC
End-stage liver function
PS 3-4
Solitary
2-3 nodules ≤3 cm
Optimal surgical candidate[3]
Yes
No
Transplant candidate
Yes
No
Treatment[4]
Ablation
Resection
Transplant
Ablation
Chemoembolization
Systemic therapy[5]
BSC
Survival
>5 years
>2.5 years
≥10 months
3 months

MRI abd w/wo: 4.9 cm LR5 lesion

- What are her treatment options?

Case Study

- Here’s what happened…

Case Study

- Liver resection and cholecystectomy 5/5/22 → 4 cm grade 2 HCC in left lobe
  - No satellitosis, tumor confined to liver, no vascular invasion, negative margins
  - Pathology of surgical specimen from 5/5/22 revealed CTNNB1 pathogenic variants CTNNB1 and TERT promoter; otherwise, the tumor was MSI stable, TRK undetected, -BRAF, -RET, -PDL1, and low tumor mutational burden
- CT abd w/wo 8/2022 showed post-surgical changes
  - Received no additional surveillance

Discussion

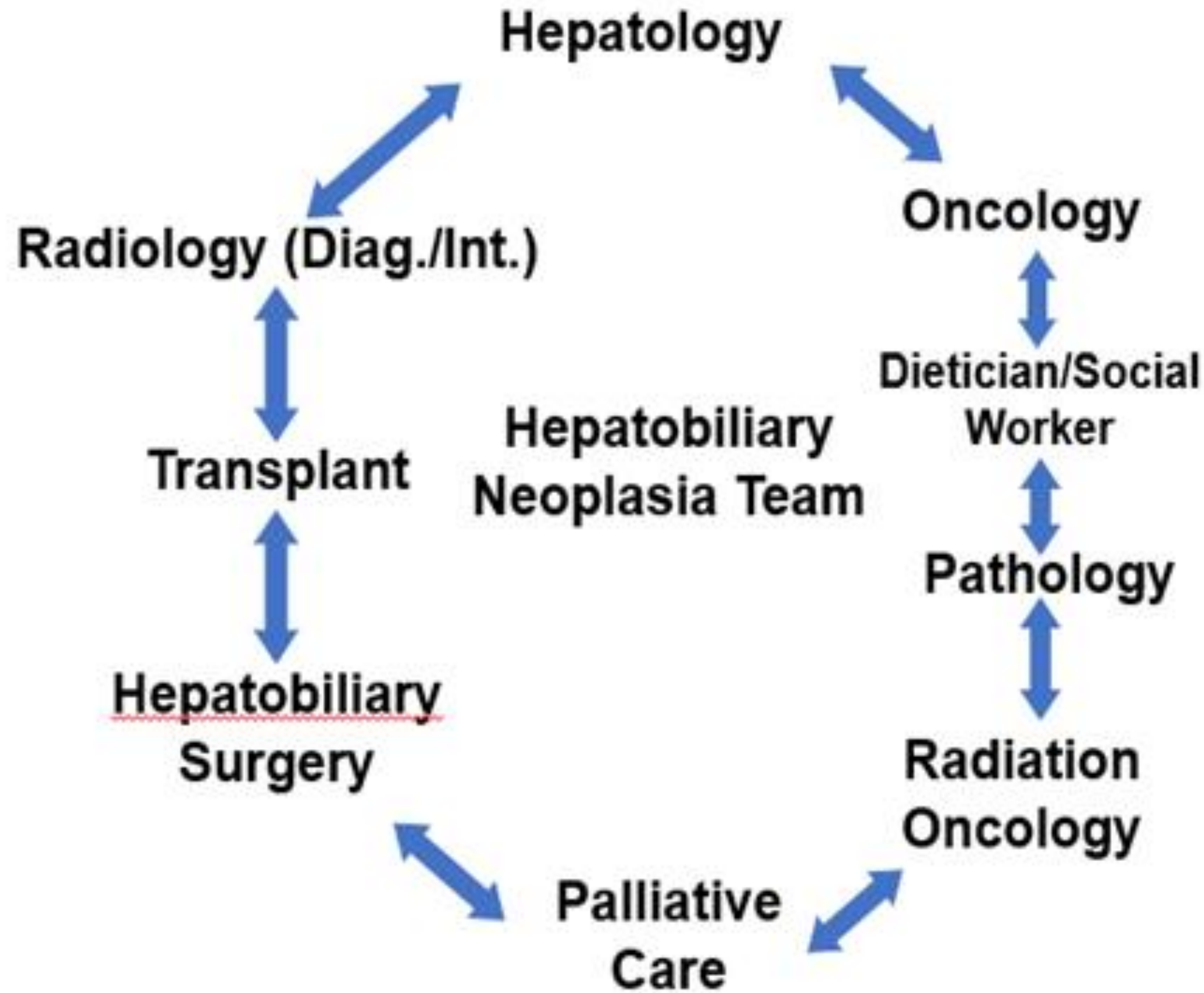
Would you have done anything differently?

Case Study

- MRI abd w/wo 4/3/23 showed at least four hepatic masses; AFP 2
- Liver biopsy 4/20/23 confirms HCC recurrence
- Started on atezolizumab + bevacizumab 5/10/23
- "Monitored" on CT C/A/P W 7/2023 and 10/2023
- CT chest/abd/pelvis with contrast 1/8/24 showed 2.1 cm, 1.3 cm, 1.3 cm, and 0.9 cm lesions
- Self-referred to Texas Liver Institute
    - Read online that liver transplant might be an option!

Discussion

Would you have done anything differently?



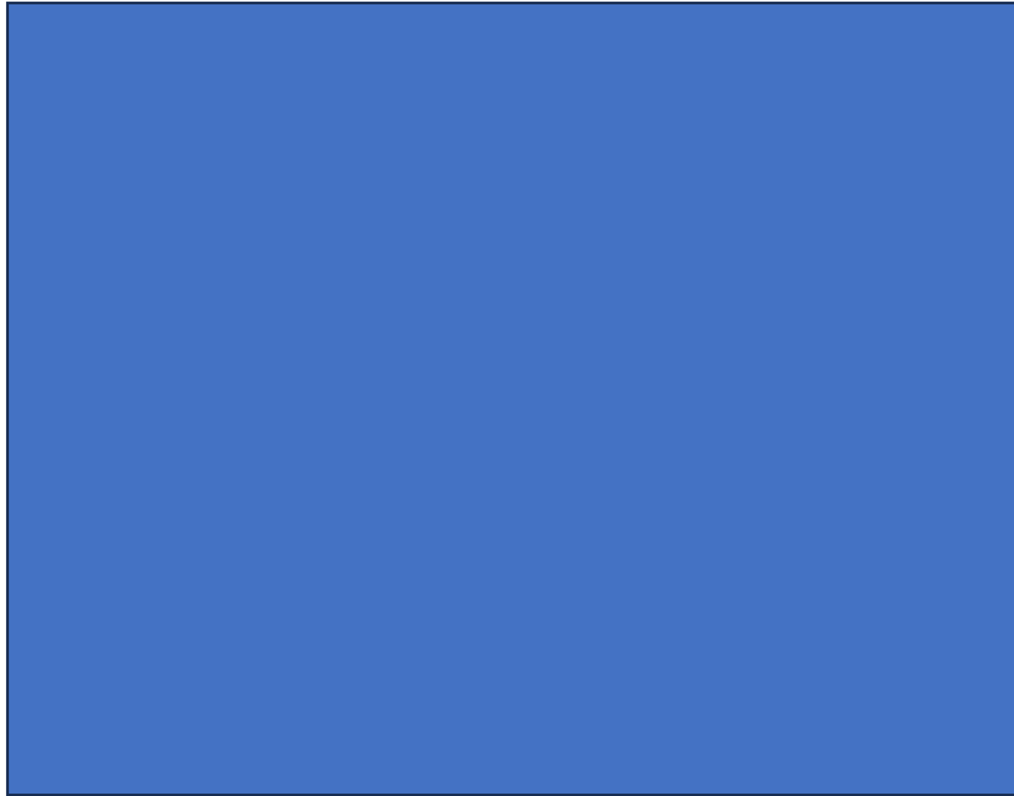
Multidisciplinary Care is Critical

Liver Transplant Evaluation?

- But is our patient even a liver transplant candidate?
  - She’s 67!
  - She has 4 lesions!
  - She had a stroke!

Liver Transplant Candidacy

Milan Criteria for HCC



- One tumor 2-5 cm
- 2-3 tumors ≤3 cm
- No vascular invasion or extrahepatic spread

Tumors can be down-staged with locoregional therapies (Y90, TACE)

These patients get “exception” MELD points

Medical Candidacy

- Contraindications
  - Advanced cardiopulmonary disease
    - Decreased EF
    - FEV 1<1
  - Cancer: Depends on type, stage, duration of remission
    - Need <10% chance of recurrence
    - HCC outside of Milan/with extrahepatic spread
  - Uncontrolled HIV
- Relative contraindications: Age, BMI, CAD, smokers, functional status
- Advanced renal disease may require combined liver/kidney
  - “Safety net”

Psychosocial Candidacy

- Will the recipient be a good steward of this gift?

- Caregivers
- Compliance
- Substance use
  - 6-month arbitrary cut-off

Referral to Transplant Center for Evaluation

- If unsure, refer anyway and let the transplant center decide!
- Multidisciplinary selection committee
  - Transplant hepatologist
  - Transplant surgeon
  - Interventional radiologist
  - Social workers
  - Nurses, dieticians, financial coordinators, etc.
- “Work up” vs. Listing

Plan of Care

- Open liver transplant evaluation
  - She has living donors!
- Refer to IR for Y90
  - MELD exception
- Stop immune therapy
- Repeat MRI abd w/wo every 3 months
- CT chest every 6 months
- Monitor AFP & DCP

Happy Ending

- Received living donor liver transplant from a friend
- Doing great!
- No hepatocellular carcinoma recurrence