Supplementary Information

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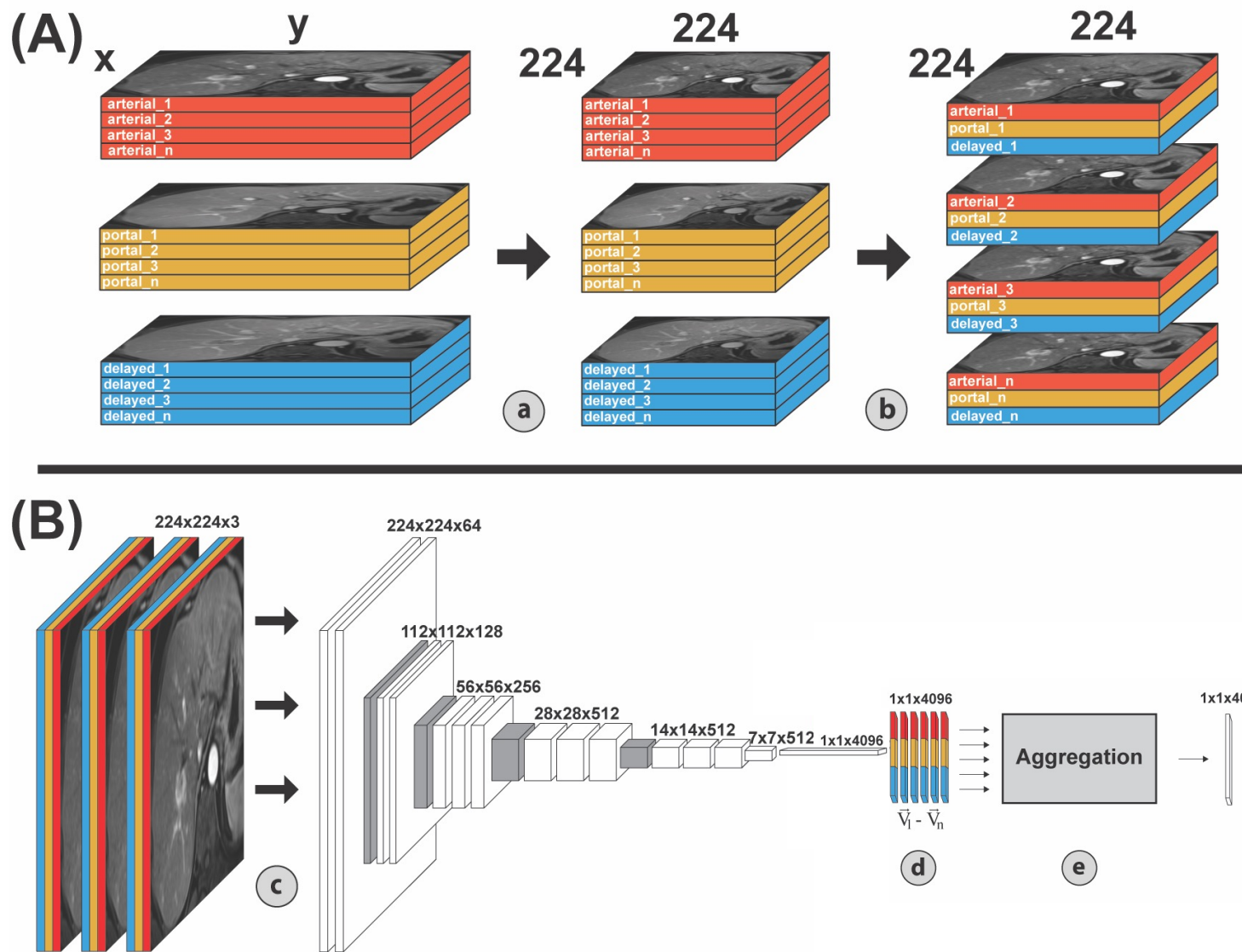Department of Radiology and Biomedical Imaging
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Supplementary Figure 1. Detailed overview of the (A) pre-processing and (B) feature extraction pipeline. (a) Tri-phasic MR images were resized to 224x224 pixels (b) and corresponding slices of each phase were stacked. The number of stacks for each patient equals the number of slices in the MR images. (c) Feature extraction was done using VGG16 (d) resulting in one feature vector per stack. (e) Finally, max pooling was applied to obtain a single feature value (aggregation) per patient.
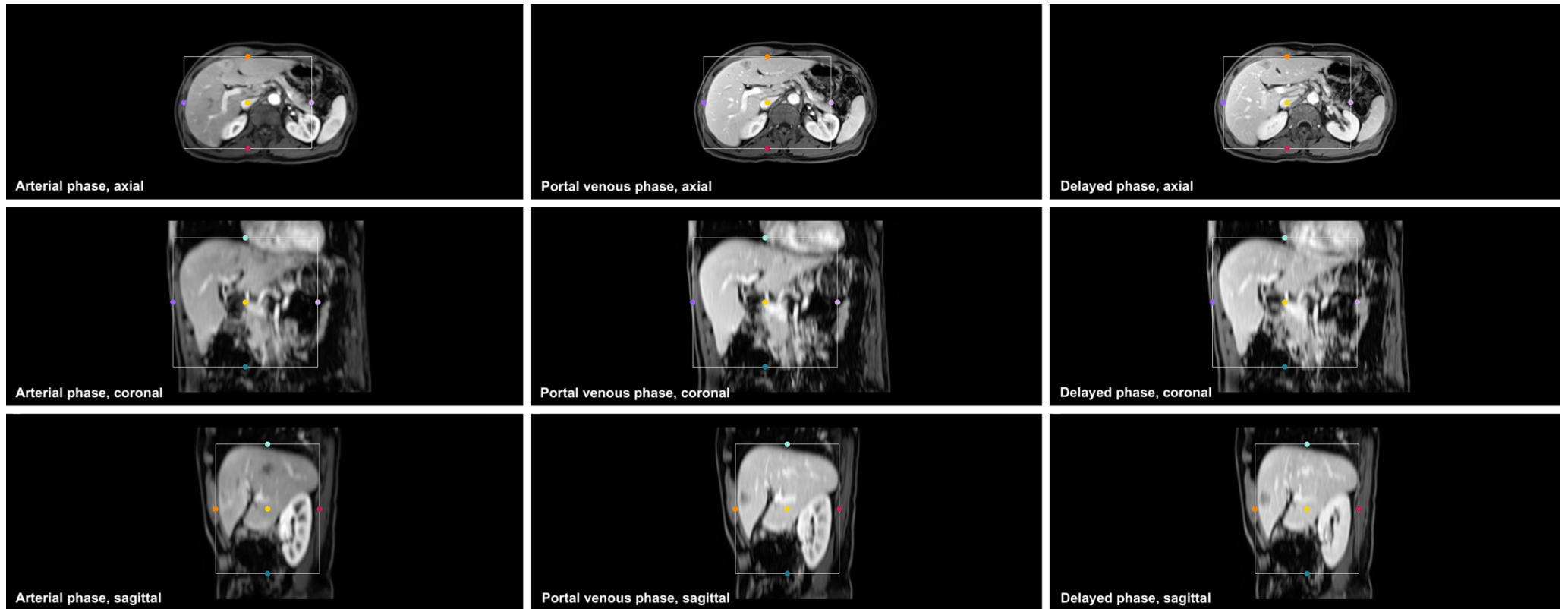
Supplementary Figure 2. Example of a bounding box, created in 3DSlicer. Each bounding box was drawn in arterial phase, and then adapted to portal venous and delayed phase imaging. The borders of the box are in line with the largest cross section in every dimension.
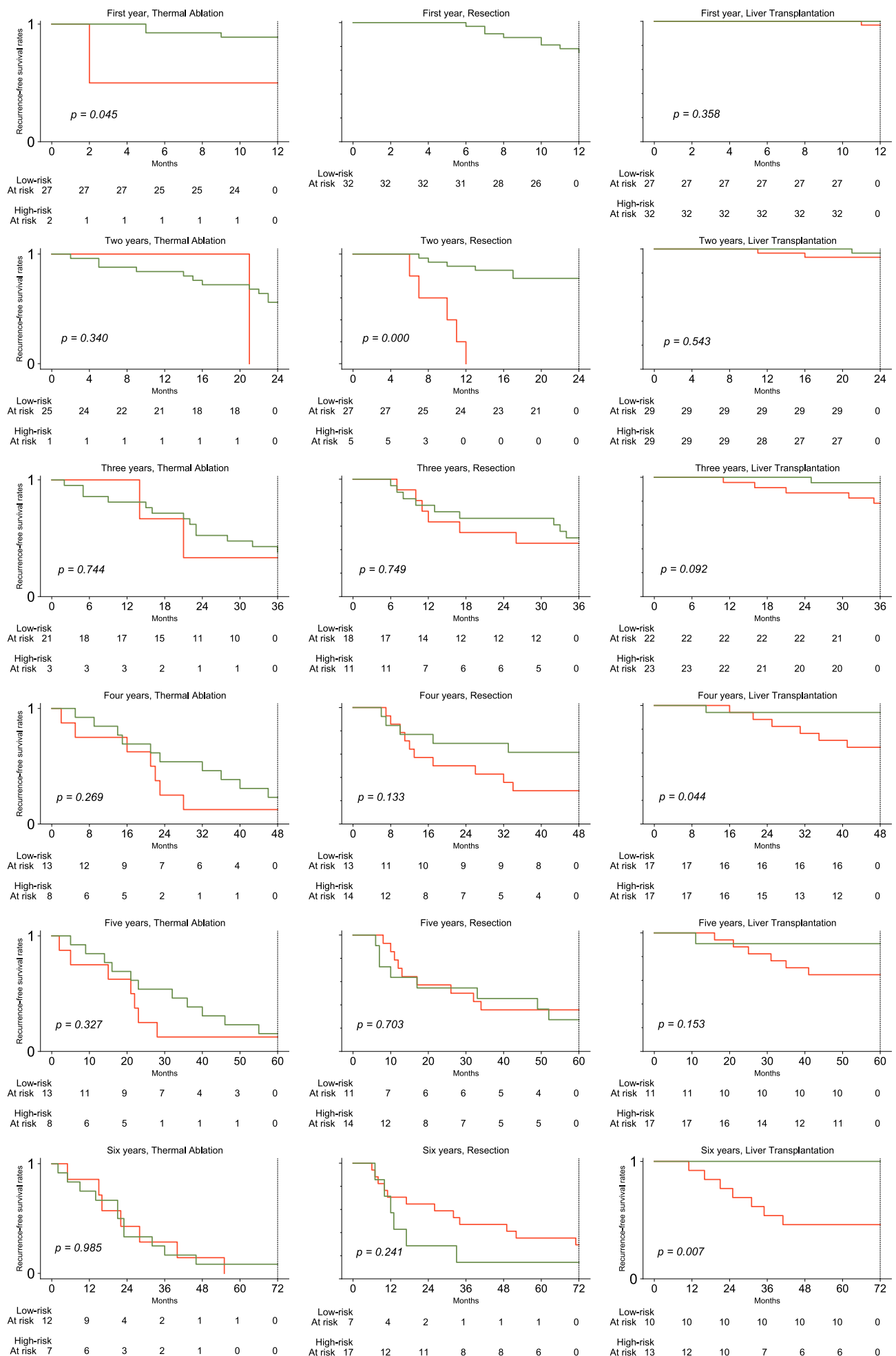
Supplementary Figure 3. Kaplan-Meier analysis of RFS for each analyzed time frame and treatment according to algorithm predictions. The plot "First year, Resection" shows only one curve because the algorithm classified all patients as low-risk recurrence.

Supplementary Table 1. Additional performance metrics for each time frame						
	Time frame (years)					
	1	2	3	4	5	6
N (recurrence)	120 (12)	116 (26)	98 (36)	82 (40)	74 (43)	66 (44)
Accuracy	0.81	0.75	0.67	0.74	0.69	0.8
Sensitivity	0.33	0.62	0.67	0.75	0.77	0.82
Specificity	0.86	0.79	0.68	0.74	0.58	0.77
Positive Predictive Value	0.21	0.46	0.55	0.73	0.72	0.88
Negative Predictive Value	0.92	0.88	0.78	0.76	0.64	0.68
Matthews Correlation Coefficient	0.16	0.37	0.33	0.49	0.35	0.57