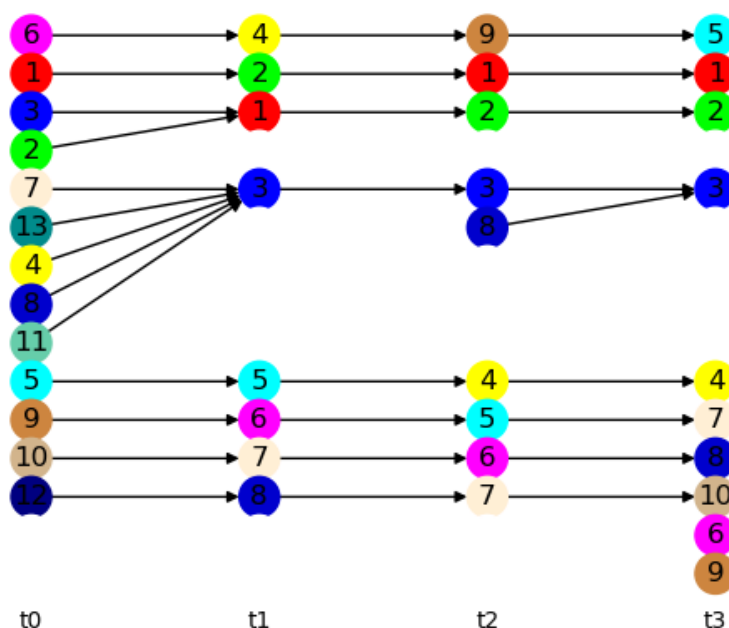# A. S. H. Patient Summary
Patient Study Based on Lesion Graph

Di Veroli B., Joskowicz L. A Graph Theoretic Approach for Analysis of Lesion Changes and Lesions Detection Review in Longitudinal Ontological Imaging, CASMIP Hebrew University, 2023

Lesion Count According to Classification

Time Layer	complex	disappeared	lone	merged	new	persistent	split
0	0	0	0	0	13	0	0
1	0	0	0	2	0	6	0
2	0	0	0	0	1	8	0
3	0	0	2	1	0	7	0

Tracking the Changes in the Total Volume of the Tumors From One Scan to the Previous One

Time Stamp	Total Volume [cm³]	Volume Difference Percentage	Volume Difference [cm³]
0	647.47	-	-
1	712.19	+10%	+64.73

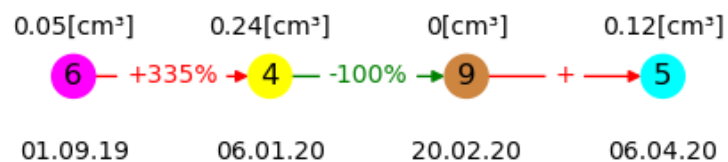|			
2	690.31	-3%	-21.88
3	785.18	+14%	+94.87

Individual Lesion Changes

New Lesions

Lesions 6, 9 appeared for the first time in the last scan.

Disappeared Lesions

Over time, no lesions disappeared.

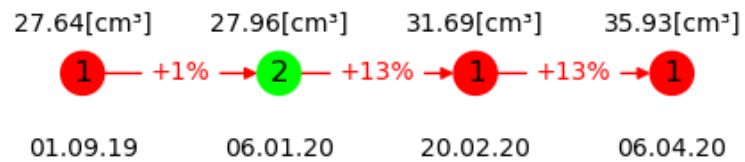## Lesions Appearing in Multiple Scans
• The History of Lesion 5

Lesion volume has decreased by 94% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: linear.

• The History of Lesion 1

27.64[cm³]   27.96[cm³]   31.69[cm³]   35.93[cm³]

1 — +1% → 2 — +13% → 1 — +13% → 1

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 13% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.
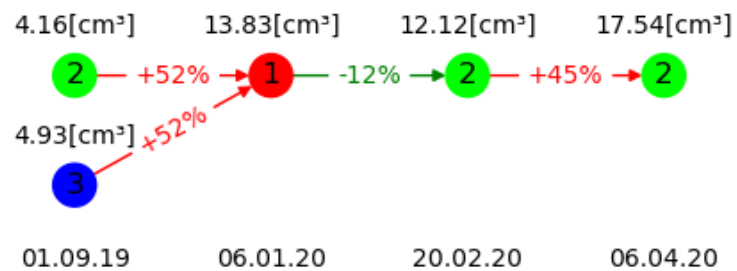
Classification of connected component: linear.

• The History of Lesion 2

4.16[cm³]   13.83[cm³]   12.12[cm³]   17.54[cm³]

2 — +52% → 1 — -12% → 2 — +45% → 2

4.93[cm³] +52%

3

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 45% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.
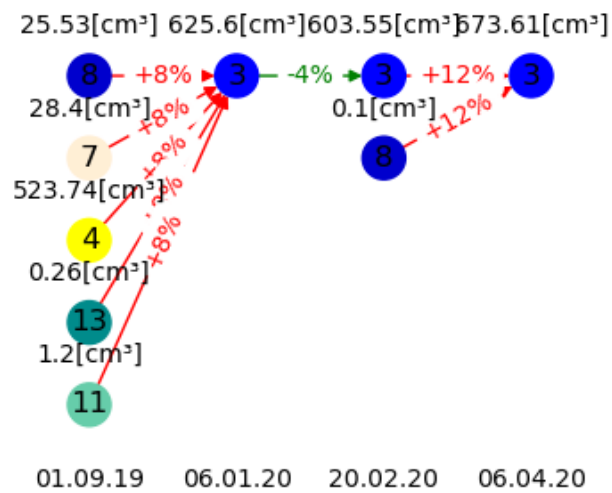
Classification of connected component: merge.

• The History of Lesion 3

25.53[cm³] 625.6[cm³]603.55[cm³]573.61[cm³]

8 — +8% ▶ 3 — -4% ➔ 3 — +12% — 3
28.4[cm³] +8% 0.1[cm³] +12%
7   +8%
523.74[cm³]   8
4   +8%
0.26[cm³]
13
1.2[cm³]
11

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 12% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

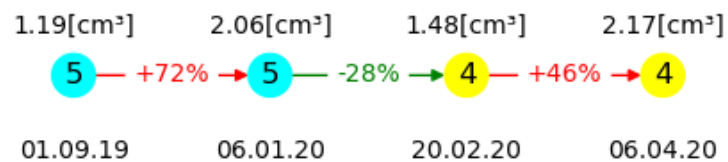Classification of connected component: merge.

• The History of Lesion 4

1.19[cm³]   2.06[cm³]   1.48[cm³]   2.17[cm³]

5 — +72% ➔ 5 — -28% ➔ 4 — +46% ➔ 4

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 46% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.
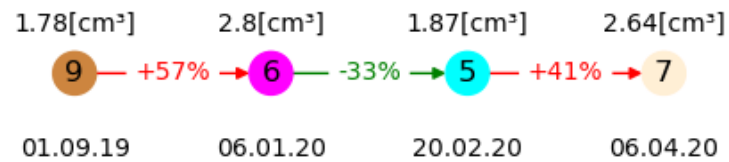
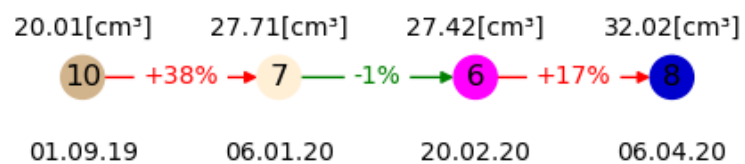Classification of connected component: linear.

• The History of Lesion 7

1.78[cm³]   2.8[cm³]   1.87[cm³]   2.64[cm³]

9 — +57% → 6 — -33% → 5 — +41% → 7

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 78% from previous scan to current scan. Volume consistently decreased over time by 91% from first scan to last scan.

Classification of connected component: linear.

• The History of Lesion 8

20.01[cm³]   27.71[cm³]   27.42[cm³]   32.02[cm³]

10 — +38% → 7 — -1% → 6 — +17% → 8

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 32662% from previous scan to current scan. Volume consistently decreased over time by 25% from first scan to last scan.

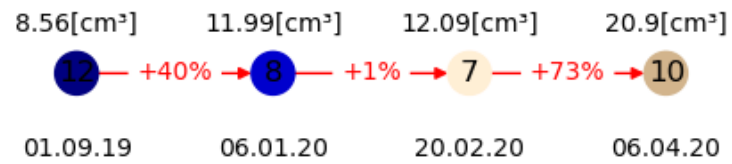Classification of connected component: linear.

• The History of Lesion 10

8.56[cm³]   11.99[cm³]   12.09[cm³]   20.9[cm³]

12 — +40% → 8 — +1% → 7 — +73% → 10

01.09.19   06.01.20   20.02.20   06.04.20

Lesion volume has decreased by 4% from previous scan to current scan. Volume consistently increased over time by 4% from first scan to last scan.

Classification of connected component: linear.