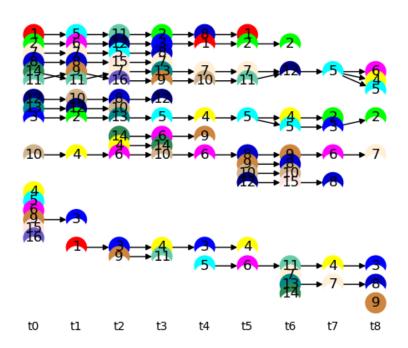
C. A. Patient Summary Patient Study Based on Lesion Graph



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 Counting According to Their Classification

Time Layer	complex	disappeared	lone	merged	new	persistent	split
0	0	0	0	0	16	0	0
1	0	5	0	0	1	11	0
2	0	1	0	0	3	11	0
3	0	1	0	0	0	13	0
4	0	5	0	0	1	8	0
5	0	1	0	0	3	7	1
6	0	2	2	1	1	8	0
7	0	5	0	0	0	6	1
8	0	2	1	0	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	16.9	-	-
1	1.46	-91%	-15.44
2	1.64	+12%	+0.17
3	3.34	+104%	+1.7
4	12.96	+288%	+9.62
5	15.79	+22%	+2.83
6	13.21	-16%	-2.58
7	12.1	-8%	-1.11
8	8.61	-29%	-3.49

Individual Lesion Changes

New Lesions

Lesion 9 appeared for the first time in the last scan.

Lesions that have disappeared over time

Over time, 22 lesions disappeared.

- 5 lesions were last identified in t0 scan.
- 1 lesion was last identified in t1 scan.
- 1 lesion was last identified in t2 scan.
- 5 lesions were last identified in t3 scan.
- 1 lesion was last identified in t4 scan.
- 2 lesions were last identified in t5 scan.
- 5 lesions were last identified in t6 scan.
- 2 lesions were last identified in t7 scan.

Lesions appearing throughout several scans

The History of Lesions 4, 6, 5



Lesion volume has decreased by 5% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: complex

The History of Lesion 2



Lesion volume has decreased by 184% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: split

The History of Lesion 7

 $\begin{array}{l} 9.25 [cm98[cm3]cm3]cm2][cm2][cm3] 9 [cm3][cm3]6[cm^3] \\ 10399 \begin{array}{l} 4 \\ 199 \end{array} \begin{array}{l} 6 \\ 779 \end{array} \begin{array}{l} 1076 \begin{array}{l} 6 \\ 00 \end{array} \begin{array}{l} 8 \\ 001 \end{array} \begin{array}{l} + \begin{array}{l} 9 \\ 189 \end{array} \begin{array}{l} 6 \\ 04 \end{array} \begin{array}{l} 7 \\ 05.11.107.0122804.12812.31803.28.04.14801.010.04.22005.20 \end{array}$

Lesion volume has decreased by 64% 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 3

0.16[c0nf2[c0n28[c5nf5[cln94[cm³] 5:79 6.34 1171 4529 3 05.11.107.01228.04.13812.31803.28.04.140.01.070.04.2005.20

Lesion volume has decreased by 752% 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 8

0.17[cm/4][cm/4]5[cm³] 13¹2° 7 19° 8 05.11.107.01228.04.1138.12.318.03.289.04.1143.01.207.04.320.05.20

Lesion volume has decreased by 54% 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