

Clinical and Micromorphologic 29-Year Results of Posterior Composite Restorations

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Appendix

The supplemental appendix files contain the Appendix Table and Appendix Figures 1 to 8.

The Appendix Table gives a detailed overview of the longitudinal coding of SEM features of all controlled fillings according to the 6 micromorphological criteria of the CPM index.

Appendix Figure 1 represents the survival rate of the Visio Molar X restorations in Class I and Class II cavities according to a Kaplan-Meier analysis.

Appendix Figures 2 and 3 show two of the clinical criteria of the CPM index, representing wear and marginal integrity.

Appendix Figures 4 - 6 demonstrate the clinical behavior of one premolar and two molars over selected evaluation intervals from baseline to 29 years.

Appendix Figures 7 and 8 show the SEM features of wear, the filling-tooth interface and the dynamic changes over time due to abrasion and masticatory attrition.

Appendix Table. Micromorphological, longitudinal 29-year evaluation of hybrid composite Visio-Molar X restorations according to the M criteria of the CPM index (number/percentage, n=29)

Criterion "surface texture", n=29				
	Homogeneous surface	Local inhomogeneities	1/3 to 2/3 are homogeneous	Less than 1/3 homogeneous
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	29 (100.0%)	-	-	-
1 year	21 (72.4%)	7 (24.1%)	1 (3.4%)	-
5 years	14 (48.3%)	12 (41.4%)	3 (10.3%)	-
10 years	14 (48.3%)	11 (37.9%)	4 (13.8%)	-
15 years	14 (48.3%)	9 (31.0%)	6 (20.7%)	-
29 years	14 (48.3%)	6 (20.7%)	5 (17.2%)	4 (13.8%)
Criterion "marginal integrity", n=29				
	Perfect margin	Local marginal irregularities	1/3 to 2/3 of the margin are perfect	Less than 1/3 of the margin is perfect
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	-	13 (4.8%)	13 (44.8%)	3 (10.3%)
1 year	-	7 (24.1%)	13 (44.8%)	9 (31.0%)
5 years	-	1 (3.4%)	8 (27.6%)	20 (69.0%)
10 years	-	-	9 (31.0%)	20 (69.0%)
15 years	-	1 (3.4%)	9 (31.0%)	19 (65.5%)
29 years	-	-	3 (10.3%)	26 (89.7%)
Criterion "excess of material", n=29				
	No excess of material	Excess at up to 1/3 of the circumference	Excess at 1/3 to 2/3 of the circumference	Excess at more than 2/3 of the circumference
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	-	16 (55.2%)	10 (34.5%)	3 (10.3%)
1 year	7 (24.1%)	20 (69.0%)	2 (6.9%)	-
5 years	14 (48.3%)	15 (51.7%)	-	-
10 years	17 (58.6%)	12 (41.4%)	-	-
15 years	18 (62.1%)	11 (37.9%)	-	-
29 years	28 (96.6%)	1 (3.4%)	-	-
Criterion "marginal fractures", n=29				
	No marginal fracture	Fractures at up to 1/3 of circumference	Fractures at 1/3 to 2/3 of the circumference	Fractures at more than 2/3 of circumference
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	29 (100.0%)	-	-	-
1 year	24 (82.8%)	5 (17.2%)	-	-
5 years	22 (75.9%)	7 (24.1%)	-	-
10 years	20 (69.0%)	9 (31.0%)	-	-
15 years	20 (69.0%)	9 (31.0%)	-	-
29 years	25 (86.2%)	4 (13.8%)	-	-

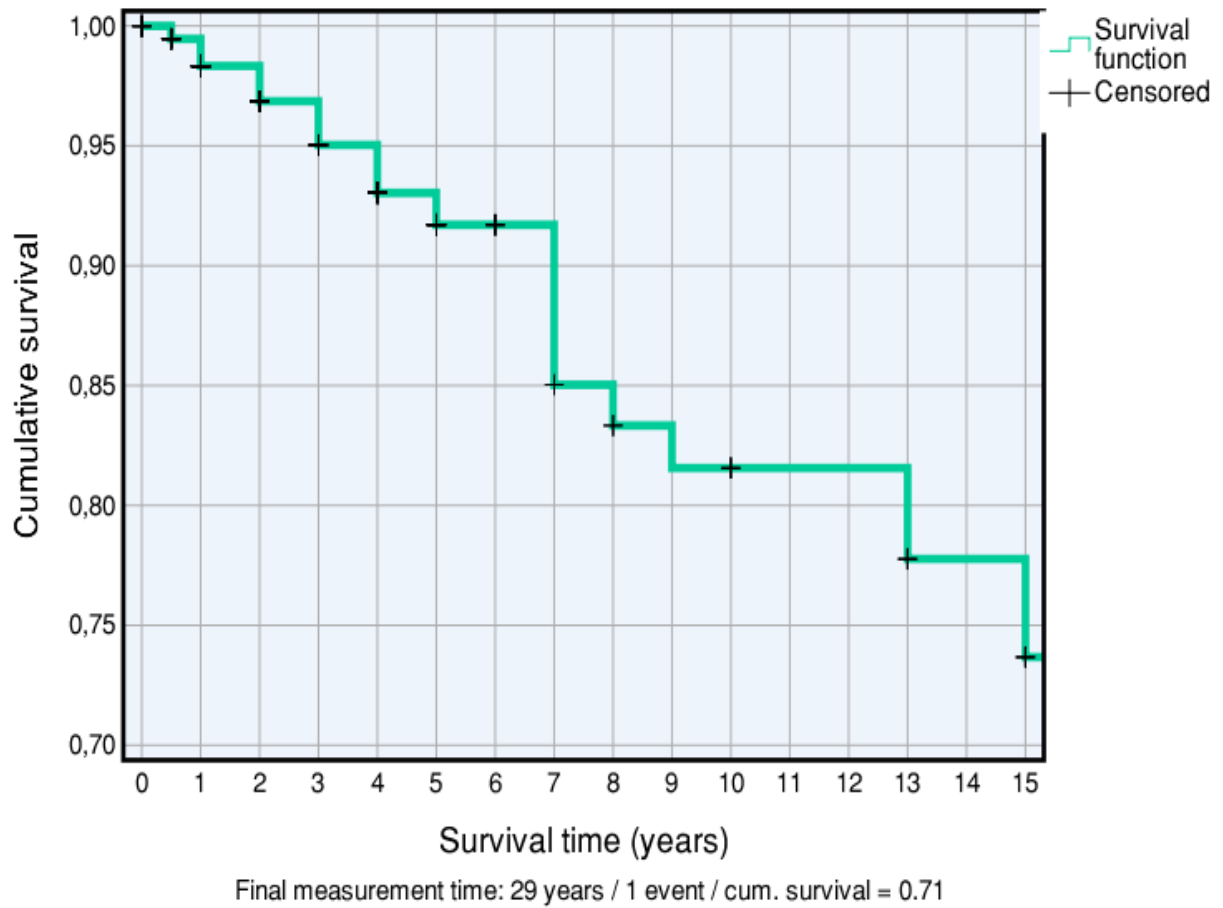
Cont. Table 1

Criterion “negative marginal ledges (loss of material)”, n=29

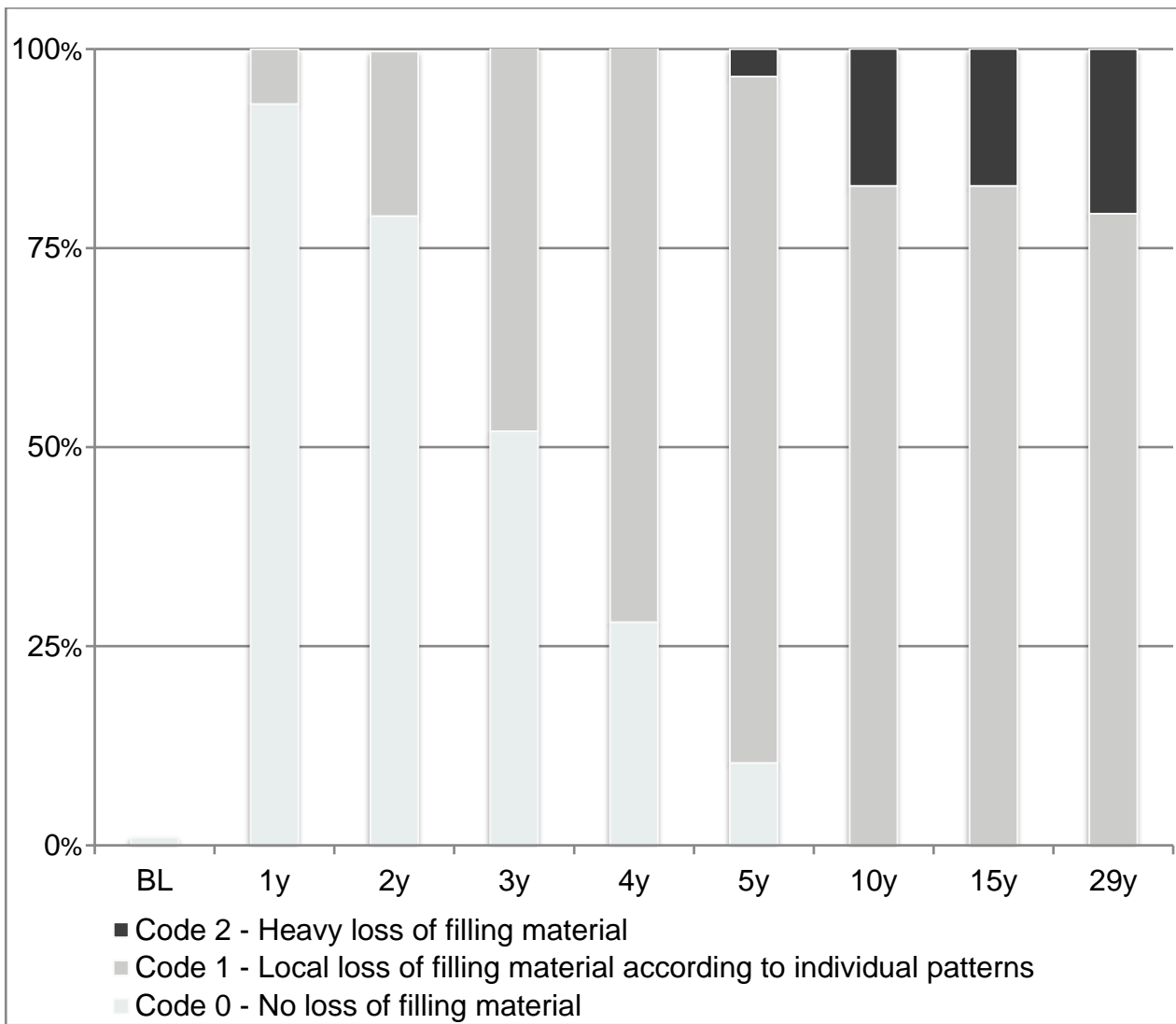
	No marginal ledges	Ledges at up to 1/3 of the circumference	Ledges at 1/3 to 2/3 of the circumference	Ledges at more than 2/3 of the circumference
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	16 (55.2%)	9 (31.0%)	4(13.8%)	-
1 year	2 (6.9%)	6 (20.7%)	11 (37.9%)	10 (34.5%)
5 years	-	1 (3.4%)	8 (27.6%)	20 (69.0%)
10 years	-	-	9 (31.0%)	20 (69.0%)
15 years	-	1 (3.4%)	9 (31.0%)	19 (65.5%)
29 years			3 (10,3%)	26 (89,7%)

Criterion “marginal gaps”, n=29

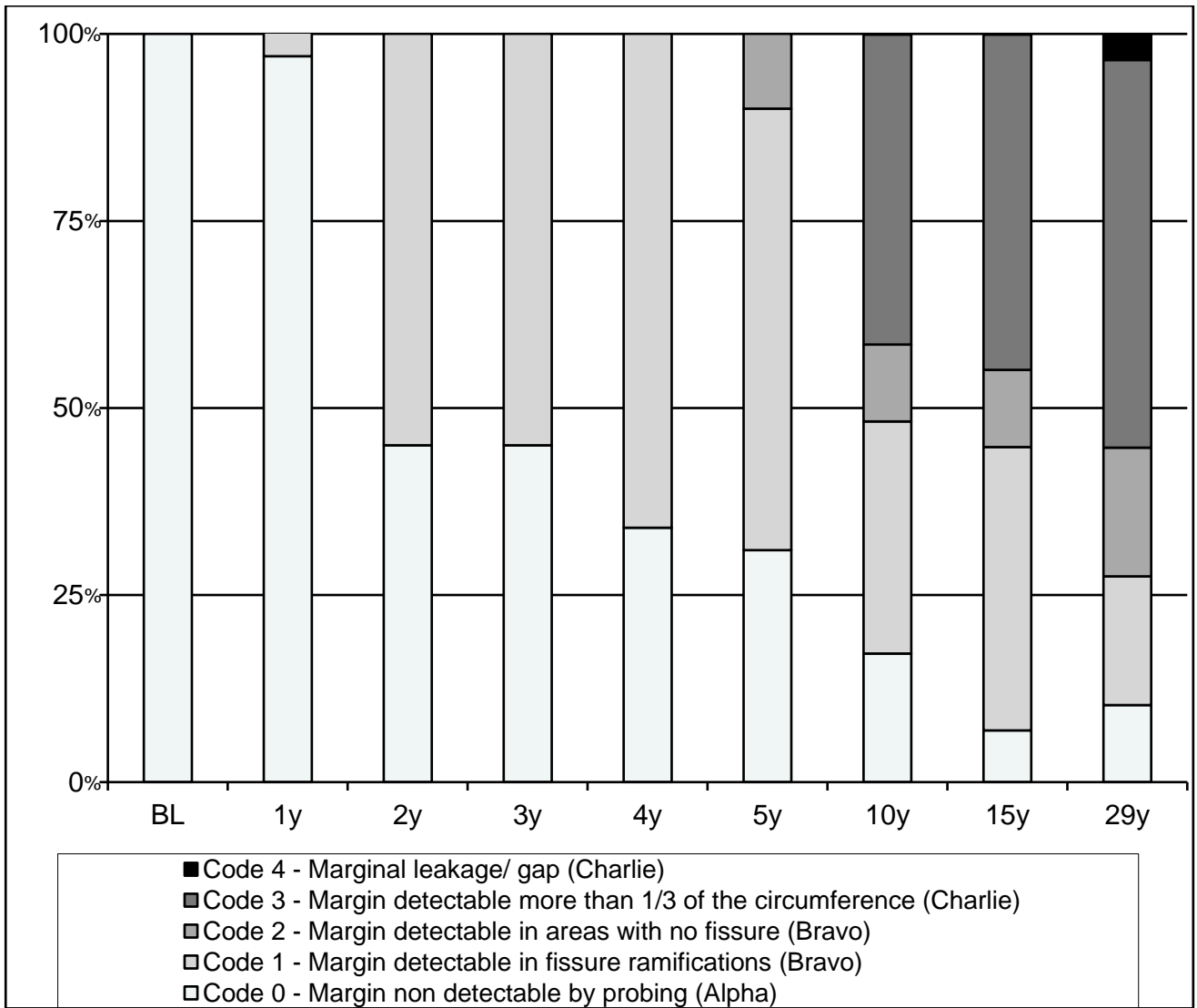
	No gap	Occasional gaps	Frequent gaps	Gaps at more than 2/3 of the margin
Control time	Code 0	Code 1	Code 2	Code 3
Baseline	28 (96.6%)	1 (3.4%)	-	-
1 year	16 (55,2%)	11 (37.9%)	2 (6.9%)	-
5 years	16 (55,2%)	12 (41.4%)	1 (3.4%)	-
10 years	19 (65,5%)	9 (31.0%)	1 (3.4%)	-
15 years	16 (55,2%)	12 (41.4%)	1 (3.4%)	-
29 years	19 (65,5%)	6 (20,7%)	3 (10,3%)	1 (3,4%)



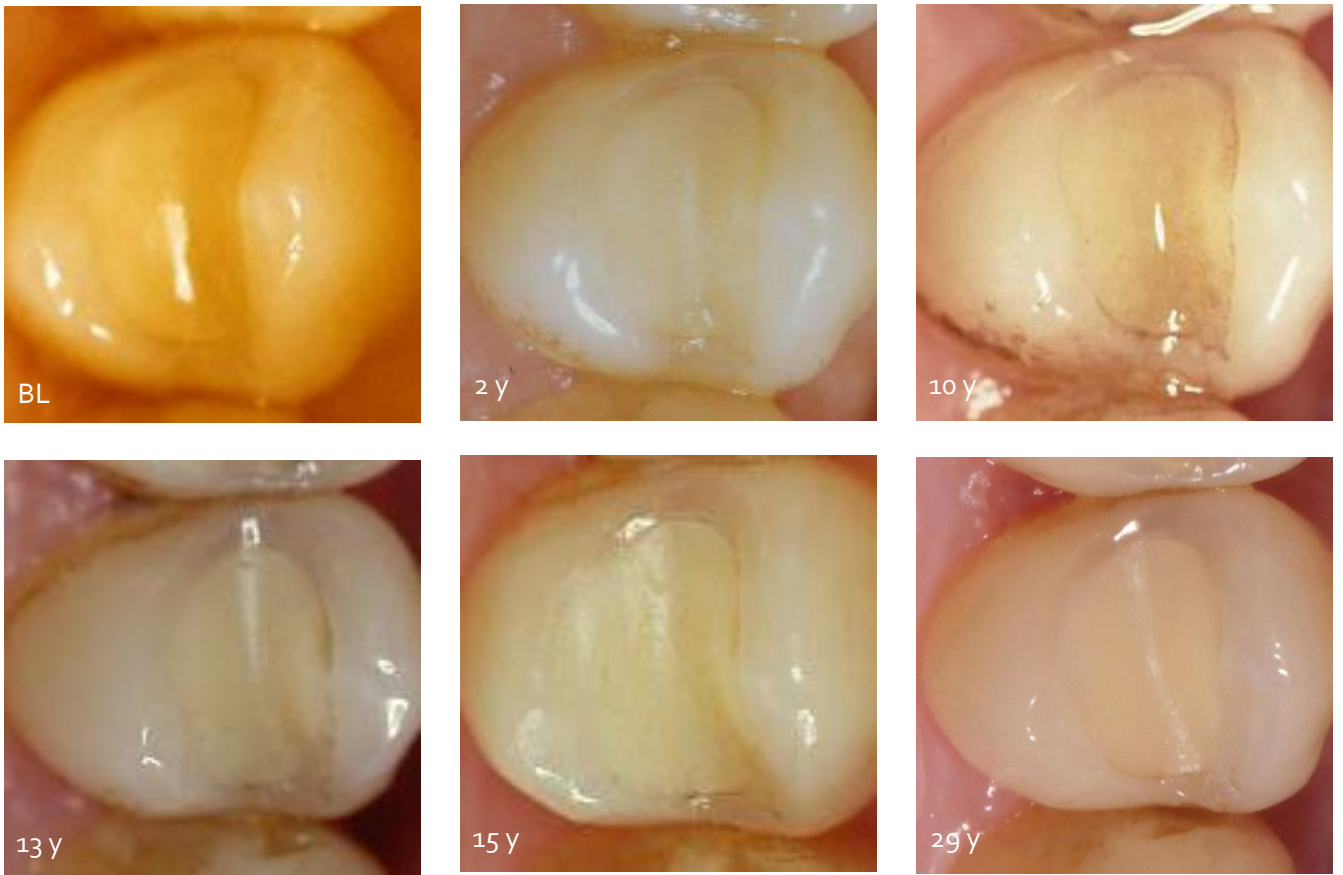
Appendix Figure 1. Cumulative survival rate of posterior composite Visio-Molar X restorations over 29 years according to a Kaplan-Meier analysis.



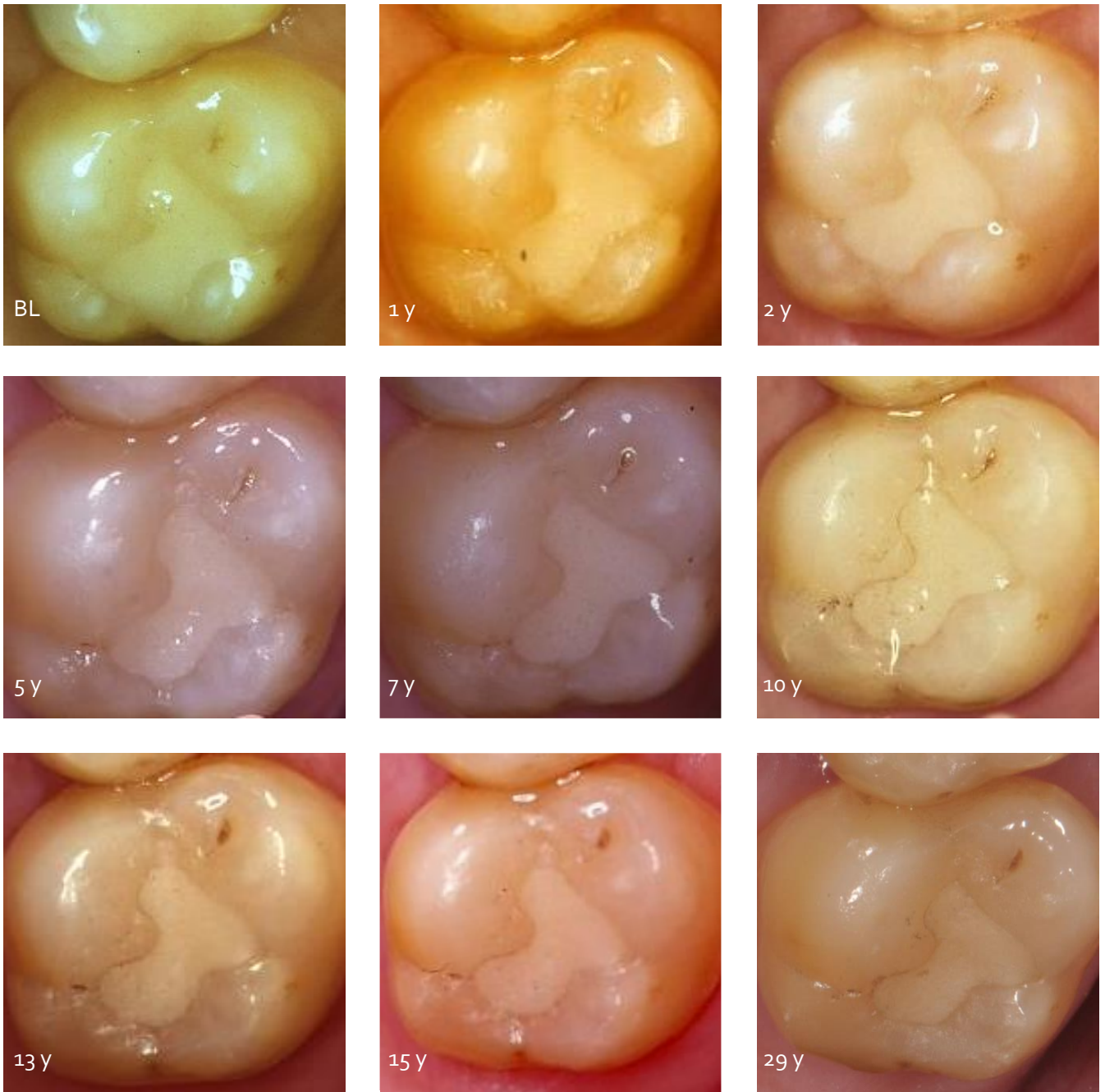
Appendix Figure 2. CPM Index: Clinical, photographic and micromorphologic coding of composite restorations. Part: CP/ USPHS criteria, wear (% of fillings) (no USPHS equivalent, BL - baseline, y - years).



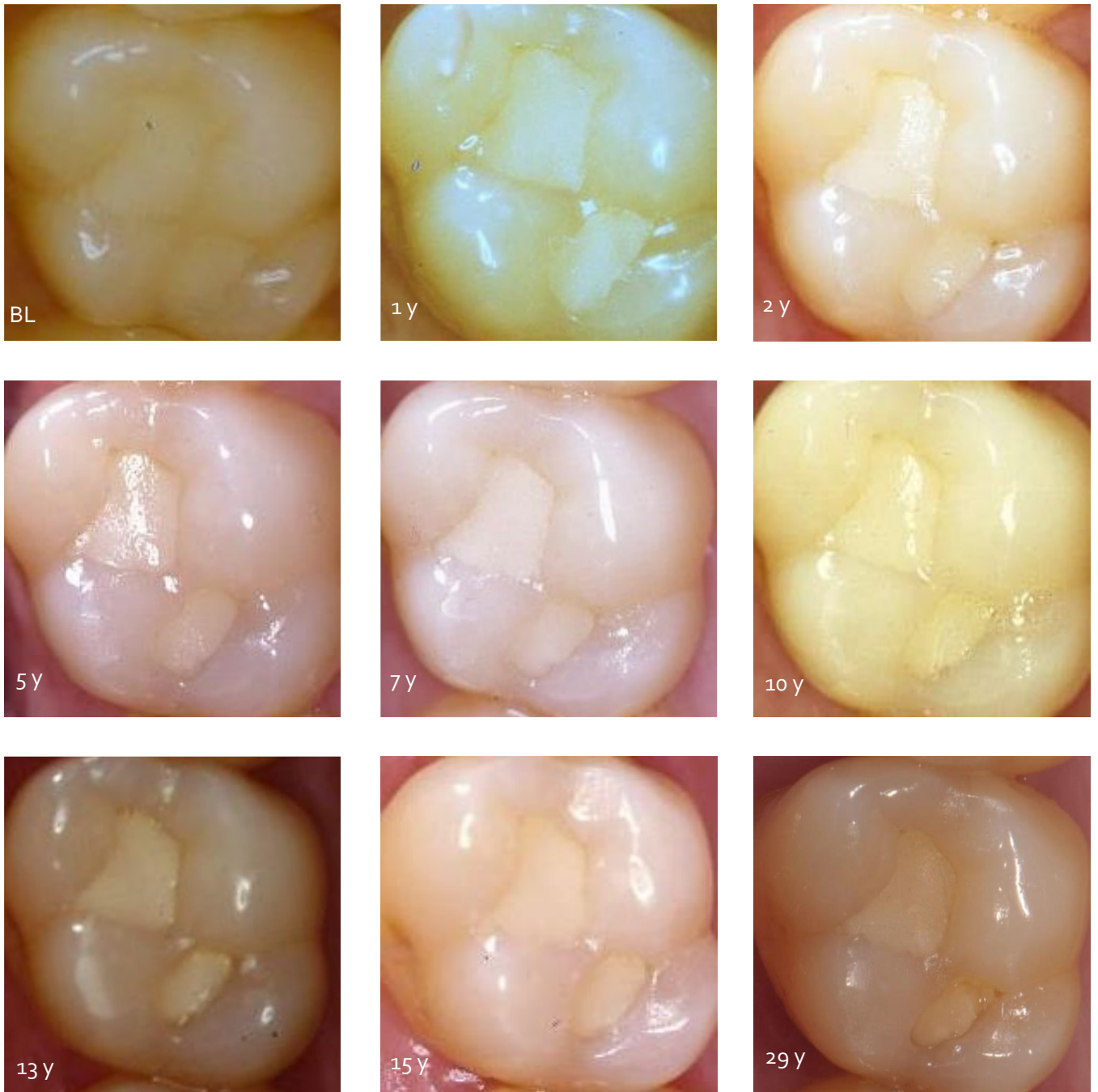
Appendix Figure 3. CPM Index: Clinical, photographic and micromorphologic coding of composite restorations. Part: CP/ USPHS criteria, marginal integrity (% of fillings) (USPHS equivalent, BL - baseline, y - years).



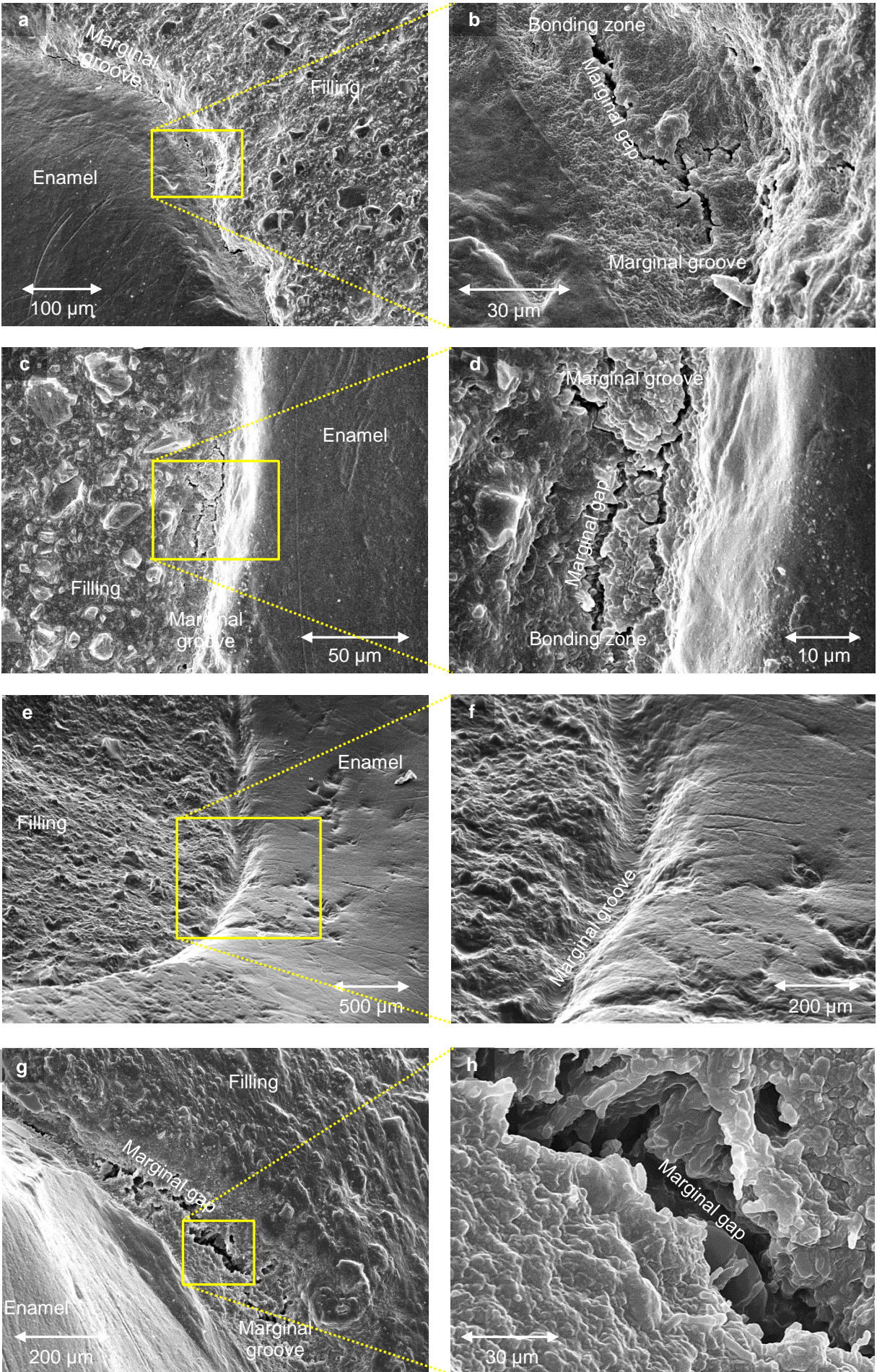
Appendix Figure 4. Clinical follow up of Visio-Molar X initial restoration of premolar tooth 24 (BL - baseline, y - years).



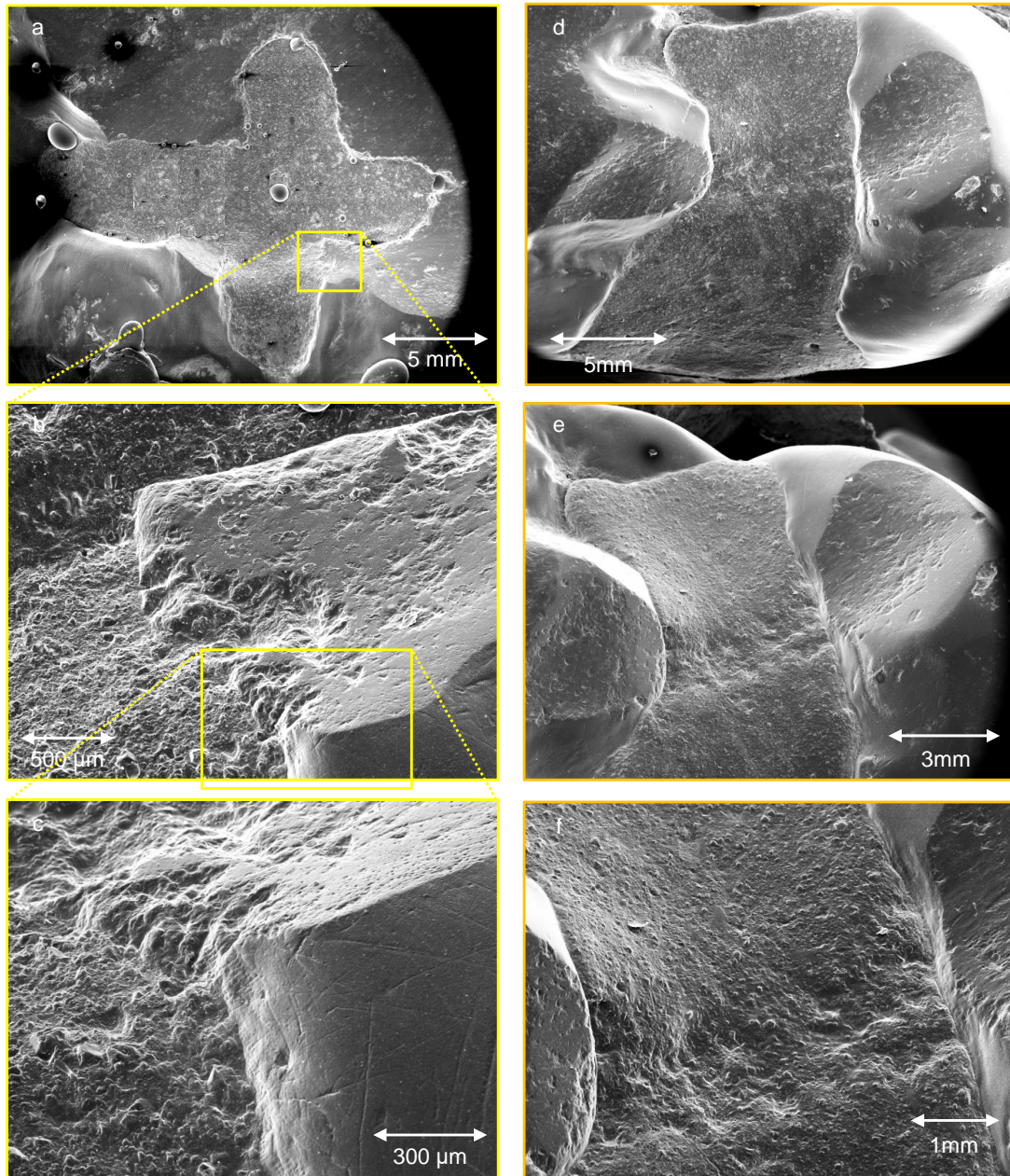
Appendix Figure 5. Clinical follow up of Visio-Molar X initial restoration of molar tooth 27 (BL - baseline, y - years).



Appendix Figure 6. Clinical follow up of Visio-Molar X initial restoration of molar tooth 16 (BL - baseline, y - years).



Appendix Figure 7. Marginal grooves and gaps within the bonding zone of different posterior composite Visio-Molar X restorations after 15 (a - d) and 29 (e - h) years. Original SEM magnifications 100:1 – 2000:1.



Appendix Figure 8. Heavy localized wear of a molar composite restoration after 29 years (a – c); Parallel wear of enamel and composite filling resulting in a masticatory equilibrium in a molar (d – f). Original magnification: 12:1 – 210:1.