



# Identifying nasopharyngeal carcinoma patients with metachronous metastasis sensitive to local treatment: a real-world study

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**Supplementary Table 1 Prognostic score of variables involved in the nomogram**

| Variable                  | Score   |
|---------------------------|---------|
| Sex                       |         |
| Female                    | 0       |
| Male                      | 27      |
| DFI (months)              |         |
| ≤12                       | 25      |
| >12                       | 0       |
| Liver metastasis          |         |
| No                        | 0       |
| Yes                       | 24      |
| No. of metastatic lesions |         |
| 1                         | 0       |
| 2–5                       | 51      |
| >5                        | 100     |
| Locoregional recurrence   |         |
| No                        | 0       |
| Yes                       | 37      |
| No. of PCT cycles         |         |
| <4                        | 47      |
| ≥4                        | 0       |
| Risk score                |         |
| Low-risk                  | 0-122   |
| High-risk                 | 123-260 |

DFI: disease-free interval; No.: number; PCT: palliative chemotherapy.

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**Supplementary Table 2 Characteristics of patients in the low-risk group**

| Variable                  | LT+PCT (n=79) | PCT (n=39) | P-value |
|---------------------------|---------------|------------|---------|
| Age (years) <sup>a</sup>  |               |            | 0.525   |
| <49                       | 37 (46.8)     | 15 (40.5)  |         |
| ≥49                       | 42 (53.2)     | 22 (59.5)  |         |
| Sex                       |               |            | 0.213   |
| Female                    | 19 (24.1)     | 13 (35.1)  |         |
| Male                      | 60 (75.9)     | 24 (64.9)  |         |
| BMI                       |               |            | 0.650   |
| <23                       | 37 (46.8)     | 19 (51.4)  |         |
| ≥23                       | 42 (53.2)     | 18 (48.6)  |         |
| KPS                       |               |            | 0.478   |
| ≤80                       | 35 (44.3)     | 19 (51.4)  |         |
| >80                       | 44 (55.7)     | 18 (48.6)  |         |
| T stage <sup>b</sup>      |               |            | 0.974   |
| T1                        | 7 (8.9)       | 4 (10.8)   |         |
| T2                        | 15 (19.0)     | 6 (16.2)   |         |
| T3                        | 26 (32.9)     | 12 (32.4)  |         |
| T4                        | 31 (39.2)     | 15 (40.6)  |         |
| N stage <sup>b</sup>      |               |            | 0.790   |
| N0                        | 1 (1.3)       | 1 (2.7)    |         |
| N1                        | 27 (34.2)     | 14 (37.9)  |         |
| N2                        | 35 (44.2)     | 17 (45.9)  |         |
| N3                        | 16 (20.3)     | 5 (13.5)   |         |
| DFI (months)              |               |            | 0.515   |
| ≤12                       | 19 (24.1)     | 11 (29.7)  |         |
| >12                       | 60 (75.9)     | 26 (70.3)  |         |
| Lung metastasis           |               |            | 0.056   |
| No                        | 47 (59.5)     | 15 (40.5)  |         |
| Yes                       | 32 (40.5)     | 22 (59.5)  |         |
| Bone metastasis           |               |            | 0.003   |
| No                        | 41 (51.9)     | 30 (81.1)  |         |
| Yes                       | 38 (48.1)     | 7 (18.9)   |         |
| Liver metastasis          |               |            | 0.067   |
| No                        | 67 (84.8)     | 26 (70.3)  |         |
| Yes                       | 12 (15.2)     | 11 (29.7)  |         |
| Distant nodal metastasis  |               |            | 0.015   |
| No                        | 70 (88.6)     | 26 (70.3)  |         |
| Yes                       | 9 (11.4)      | 11 (29.7)  |         |
| No. of metastatic lesions |               |            | 0.002   |
| 1                         | 48 (60.8)     | 12 (32.4)  |         |
| 2–5                       | 31 (39.2)     | 22 (59.5)  |         |
| >5                        | 0 (0.0)       | 3 (8.1)    |         |
| Locoregional recurrence   |               |            | 0.910   |
| No                        | 71 (89.9)     | 33 (89.2)  |         |
| Yes                       | 8 (10.1)      | 4 (10.8)   |         |
| No. of PCT cycles         |               |            | 0.039   |
| <4                        | 35 (44.3)     | 9 (24.3)   |         |
| ≥4                        | 44 (55.7)     | 28 (75.7)  |         |

<sup>a</sup>Age at diagnosis of distant metastasis. <sup>b</sup>According to the 8th UICC/AJCC staging system. LT: local treatment of metastases; PCT: palliative chemotherapy; BMI: body mass index; KPS: Karnofsky performance score; DFI: disease-free interval; No.: number.

**Supplementary Table 3 Characteristics of patients in the high-risk group**

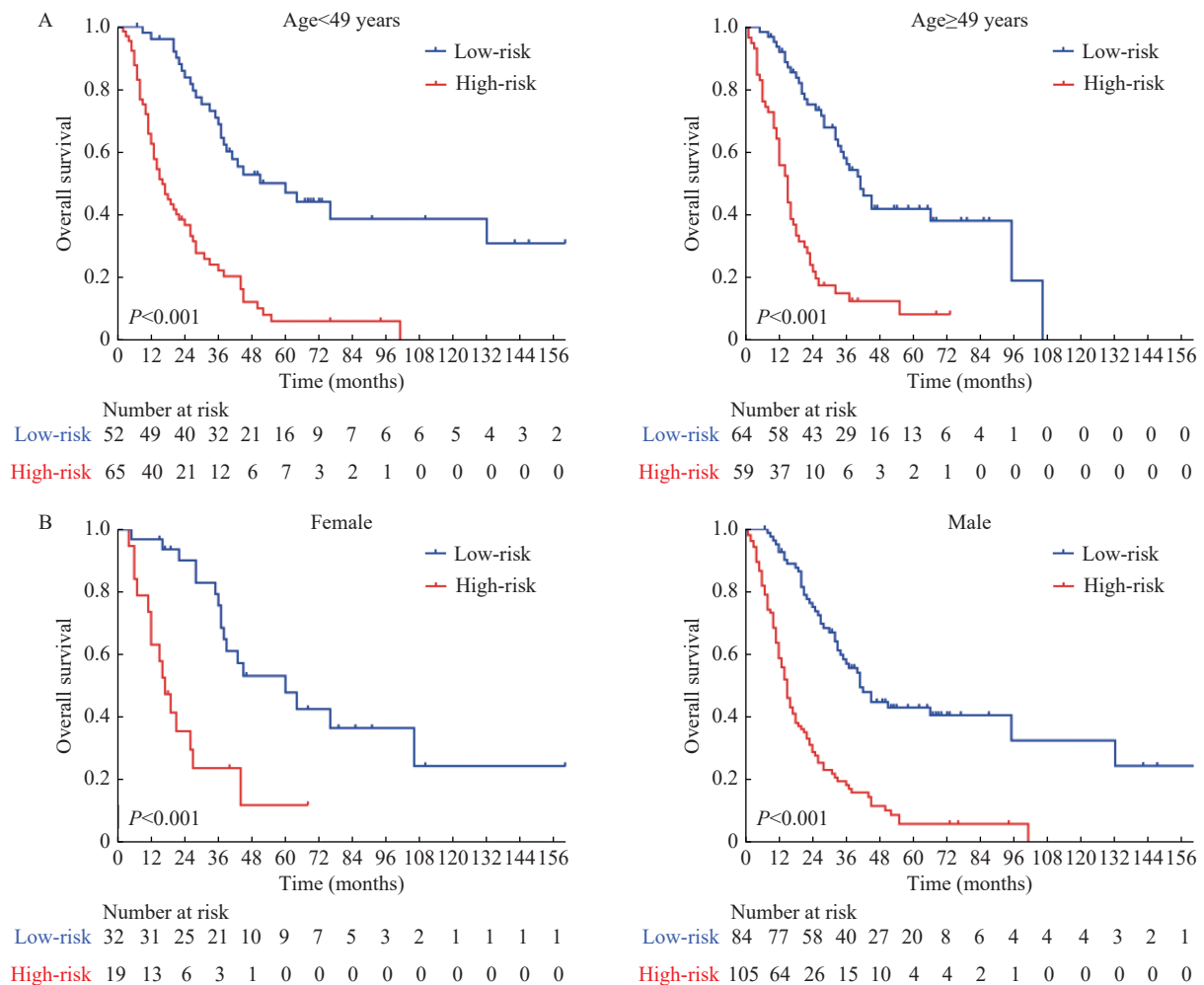
| Variable                  | LT+PCT (n=67) | PCT (n=57) | P-value |
|---------------------------|---------------|------------|---------|
| Age (years) <sup>a</sup>  |               |            | 0.162   |
| <49                       | 39 (58.2)     | 26 (45.6)  |         |
| ≥49                       | 28 (41.8)     | 31 (54.4)  |         |
| Sex                       |               |            | 0.102   |
| Female                    | 7 (10.4)      | 12 (21.1)  |         |
| Male                      | 60 (89.6)     | 45 (78.9)  |         |
| BMI                       |               |            | 0.389   |
| <23                       | 31 (46.3)     | 22 (38.6)  |         |
| ≥23                       | 36 (53.7)     | 35 (61.4)  |         |
| KPS                       |               |            | 0.273   |
| ≤80                       | 30 (44.8)     | 20 (35.1)  |         |
| >80                       | 37 (55.2)     | 37 (64.9)  |         |
| T stage <sup>b</sup>      |               |            | 0.066   |
| T1                        | 4 (6.0)       | 12 (21.1)  |         |
| T2                        | 12 (17.9)     | 10 (17.5)  |         |
| T3                        | 24 (35.8)     | 13 (22.8)  |         |
| T4                        | 27 (40.3)     | 22 (38.6)  |         |
| N stage <sup>b</sup>      |               |            | 0.717   |
| N0                        | 1 (1.5)       | 0 (0.0)    |         |
| N1                        | 21 (31.3)     | 15 (26.3)  |         |
| N2                        | 29 (43.3)     | 28 (49.1)  |         |
| N3                        | 16 (23.9)     | 14 (24.6)  |         |
| DFI (months)              |               |            | 0.694   |
| ≤12                       | 27 (40.3)     | 21 (36.8)  |         |
| >12                       | 40 (59.7)     | 36 (63.2)  |         |
| Lung metastasis           |               |            | <0.001  |
| No                        | 51 (76.1)     | 25 (43.9)  |         |
| Yes                       | 16 (23.9)     | 32 (56.1)  |         |
| Bone metastasis           |               |            | <0.001  |
| No                        | 20 (29.9)     | 35 (61.4)  |         |
| Yes                       | 47 (70.1)     | 22 (38.6)  |         |
| Liver metastasis          |               |            | 0.018   |
| No                        | 49 (73.1)     | 30 (52.6)  |         |
| Yes                       | 18 (26.9)     | 27 (47.4)  |         |
| Distant nodal metastasis  |               |            | 0.005   |
| No                        | 45 (67.2)     | 24 (42.1)  |         |
| Yes                       | 22 (32.8)     | 33 (57.9)  |         |
| No. of metastatic lesions |               |            | 0.311   |
| 1                         | 2 (3.0)       | 1 (1.8)    |         |
| 2–5                       | 19 (28.4)     | 10 (17.5)  |         |
| >5                        | 46 (68.6)     | 46 (80.7)  |         |
| Locoregional recurrence   |               |            | 0.037   |
| No                        | 60 (89.6)     | 43 (75.4)  |         |
| Yes                       | 7 (10.4)      | 14 (24.6)  |         |
| No. of PCT cycles         |               |            | 0.001   |
| <4                        | 50 (74.6)     | 26 (45.6)  |         |
| ≥4                        | 17 (25.4)     | 31 (54.4)  |         |

<sup>a</sup>Age at diagnosis of distant metastasis. <sup>b</sup>According to the 8th UICC/AJCC staging system. LT: local treatment of metastases; PCT: palliative chemotherapy; BMI: body mass index; KPS: Karnofsky performance score; DFI: disease-free interval; No.: number.

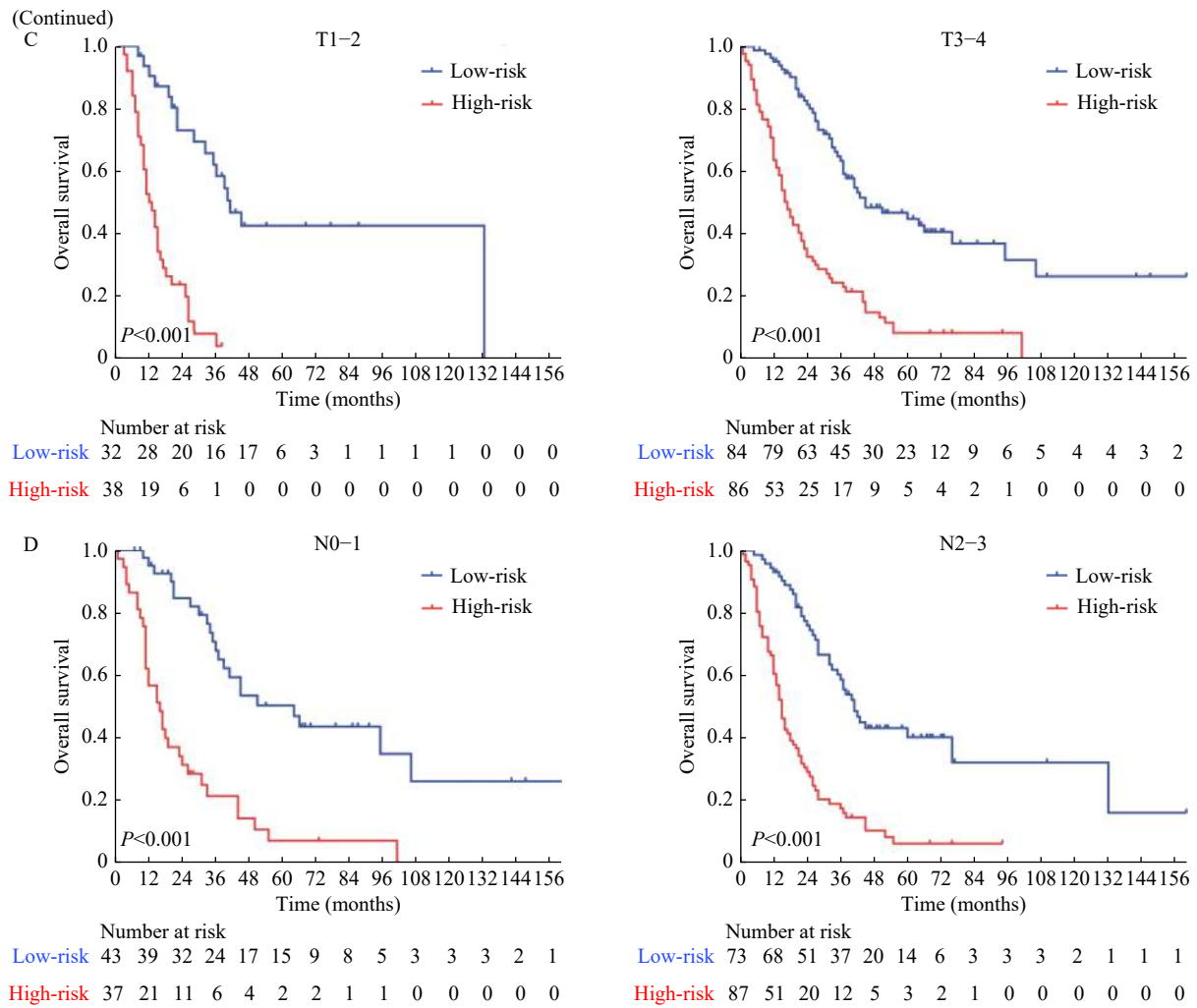
**Supplementary Table 4 Overall survival of patients in low- and high-risk groups**

| Overall survival        | Low-risk          | High-risk        |
|-------------------------|-------------------|------------------|
| Total patients          | (n=116)           | (n=124)          |
| Median (months, 95% CI) | 45.0 (28.3–6.7)   | 15.0 (12.9–17.1) |
| 1-year rate             | 93.9%             | 59.4%            |
| 3-year rate             | 62.1%             | 18.8%            |
| 5-year rate             | 44.1%             | 6.4%             |
| LT + PCT                | (n=79)            | (n=57)           |
| Median (months, 95% CI) | 76.0 (29.1–122.9) | 15.0 (11.6–18.4) |
| 1-year rate             | 94.9%             | 56.2%            |
| 3-year rate             | 67.3%             | 18.9%            |
| 5-year rate             | 57.0%             | 7.2%             |
| PCT                     | (n=37)            | (n=67)           |
| Median (months, 95% CI) | 37.0 (34.7–39.3)  | 16.0 (13.2–18.8) |
| 1-year rate             | 91.9%             | 63.2%            |
| 3-year rate             | 53.1%             | 18.8%            |
| 5-year rate             | 21.7%             | 5.6%             |

LT: local treatment of metastases; PCT: palliative chemotherapy; CI: confidence interval.



(Continued)



**Supplementary Fig. 1** Kaplan-Meier survival curves of patients with metastatic nasopharyngeal carcinoma in different risk groups stratified by different clinical parameters. Overall survival of patients in low- and high-risk groups stratified by (A) age ( $\geq 49$  or  $< 49$  years), (B) sex (female or male), (C) T stage (T1-2 or T3-4), and (D) N stage (N0-1 or N2-3).