

Figure S1. ROC curve of best diagnostic cutoff value for nasopharyngeal squamous cell carcinoma. CTCs, circulating tumor cells; ROC, receiver operating characteristic.

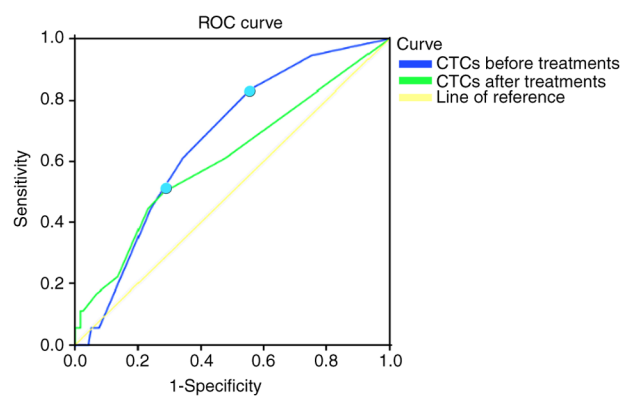


Figure S2. ROC curve of best diagnostic cutoff value for hypopharyngeal squamous cell carcinoma. CTCs, circulating tumor cells; ROC, receiver operating characteristic.

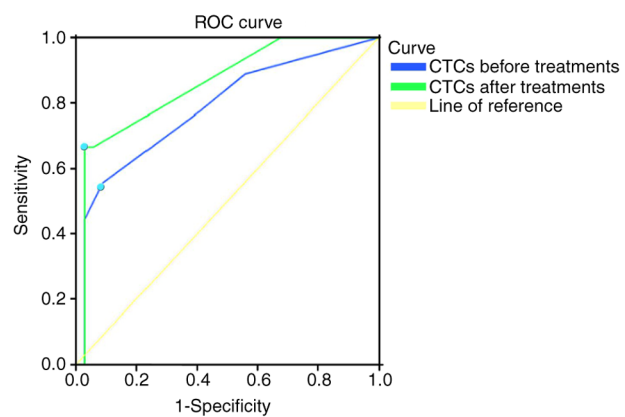


Figure S3. Progression-free survival of all patients with ≥ 2 and ≥ 3 CTCs compared with those with <2 and <3 CTCs before and after treatment. CTCs, circulating tumor cells.

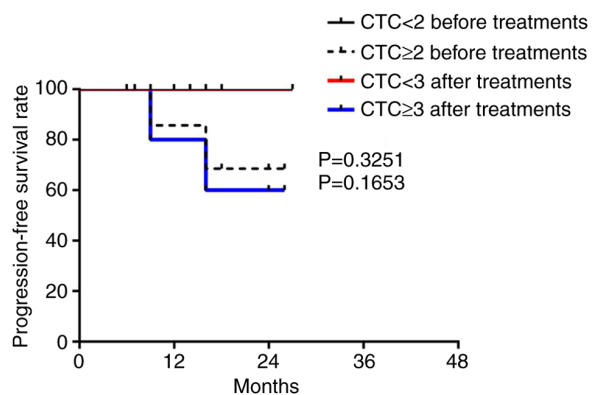


Figure S4. Overall survival of all patients with ≥ 2 and ≥ 3 CTCs compared with those with < 2 and < 3 before and after treatment. CTCs, circulating tumor cells.

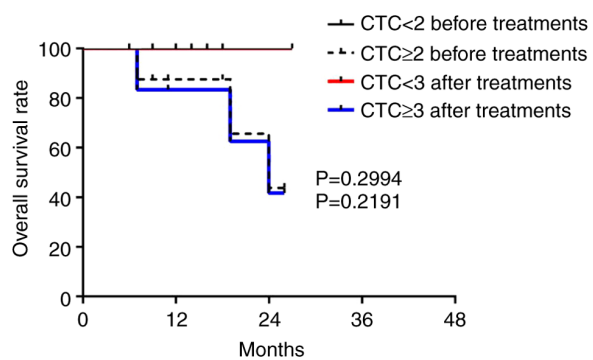


Figure S5. Overall survival of patients with nasopharyngeal squamous cell carcinoma with ≥ 2 CTCs compared with those with < 2 before and after treatment. CTCs, circulating tumor cells.

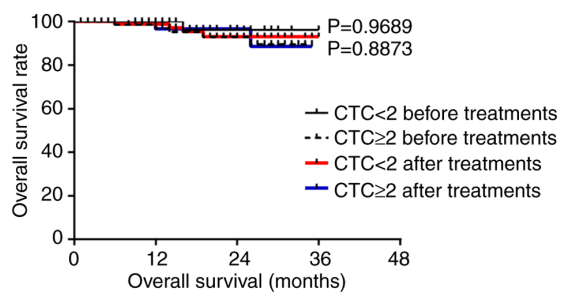


Figure S6. Progression-free survival of patients with baseline negative CTCs or patients whose CTCs changed from positive to negative compared with patients with baseline positive CTCs or patients whose CTCs changed from negative to positive ($P=0.0241$). CTCs, circulating tumor cells.

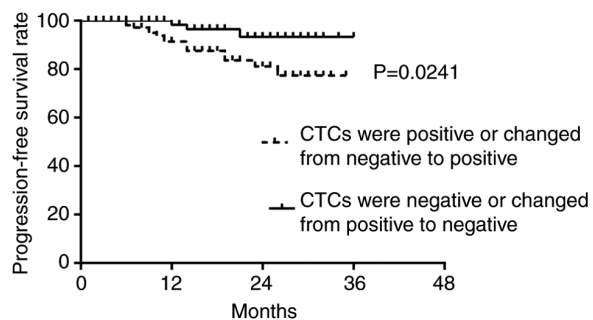


Figure S7. Overall survival of patients with baseline negative CTCs or patients whose CTCs changed from positive to negative compared with patients with baseline positive CTCs or patients whose CTCs changed from negative to positive ($P=0.0296$). CTCs, circulating tumor cells.

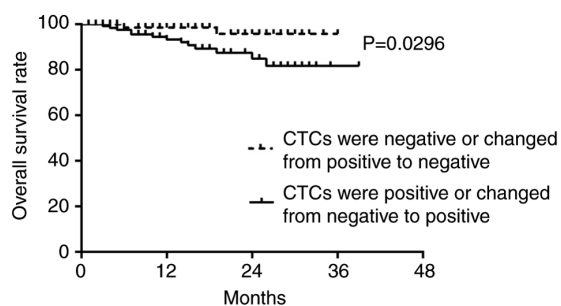


Figure S8. Progression-free survival of patients whose CTC counts increased compared with those whose CTC counts decreased or remained unchanged ($P<0.0001$). CTC, circulating tumor cell.

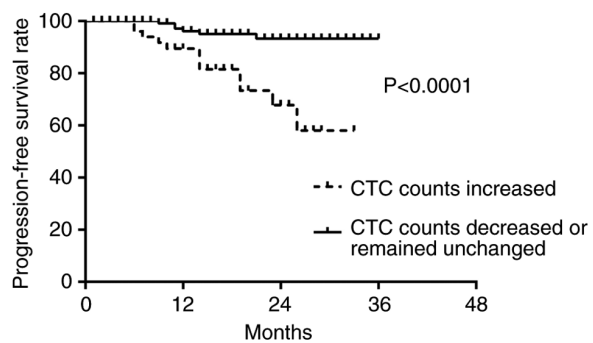


Figure S9. Overall survival of patients whose CTC counts increased compared with those whose CTC counts decreased or remained unchanged ($P=0.0301$). CTC, circulating tumor cell.

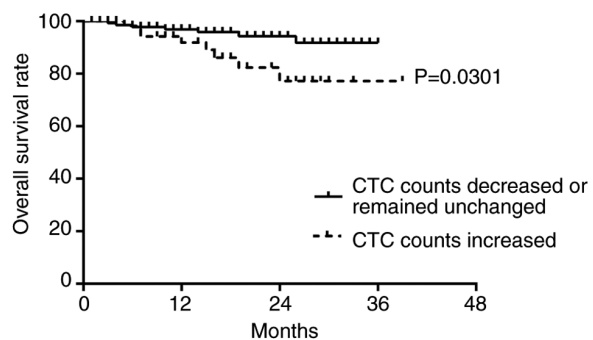


Table SI. Youden's index of nasopharyngeal squamous cell carcinoma best diagnostic cutoff value.

Analysis	Cut-off value (more than or equal to will cause disease)	Sensitivity	1-Specificity	Specificity	Youden's index
CTCs before treatment	-1	1	1	0	0
	0.5	0.944	0.752	0.248	0.192
	2	0.833	0.556	0.444	0.277
	2.5	0.611	0.342	0.658	0.269
	3.5	0.444	0.239	0.761	0.205
	4.5	0.278	0.171	0.829	0.107
	5.5	0.056	0.077	0.923	-0.021
	6.5	0.056	0.051	0.949	0.005
	7.5	0	0.043	0.957	-0.043
	9	0	0.034	0.966	-0.034
	10.5	0	0.017	0.983	-0.017
	12.5	0	0.009	0.991	-0.009
	15	0	0	1	0
	-1	1	1	0	0
CTCs after treatment	0.5	0.611	0.479	0.521	0.132
	2	0.5	0.282	0.761	0.261
	2.5	0.222	0.137	0.863	0.085
	3.5	0.167	0.068	0.932	0.099
	4.5	0.111	0.026	0.974	0.085
	6	0.111	0.017	0.983	0.094
	8	0.056	0.017	0.983	0.039
	12.5	0.056	0.009	0.991	0.047
	17	0.056	0	1	0.056
	19	0	0	1	0

Text in bold indicates the best cut-off value.

Table SII. Youden's index of hypopharyngeal squamous cell carcinoma best diagnostic cutoff value.

Analysis	Cut-off value (More than or equal to will cause disease)	Sensitivity	1-Specificity	Specificity	Youden's index
CTCs before treatments	-1	1	1	0	0
	0.5	0.889	0.559	0.441	0.33
	1.5	0.778	0.412	0.588	0.366
	3	0.556	0.088	0.912	0.468
	4	0.444	0.029	0.971	0.415
	5.5	0.333	0.029	0.971	0.304
	12.5	0.111	0.029	0.971	0.082
	20.5	0	0.029	0.971	-0.029
	23	0	0	1	0
	-1	1	1	0	0
CTCs after treatments	0.5	1	0.882	0.118	0.118
	1.32	1	0.676	0.324	0.324
	1.82	0.667	0.059	0.941	0.608
	3	0.667	0.029	0.971	0.638
	3.5	0.444	0.029	0.971	0.415
	4.5	0.222	0.029	0.971	0.193
	6.5	0.111	0.029	0.971	0.082
	12.5	0	0.029	0.971	-0.029
	18	0	0	1	0

Text in bold indicates the best cut-off value.