Supplementary material

Supplementary figures

Figure S1. Forest plot of relative factors associated with sBM occurrence. OR (odds ratio), 95%CI (confidence interval).

| Factor                                | OR    | 95%CI       | P    |
|---------------------------------------|-------|-------------|------|
| HGB                                   |       |             |      |
| <110g/L                               | 3.909 | 1.067-14.324| 0.040|
| 110-160g/L                            | 1     |             |      |
| ALP                                    |       |             |      |
| >150U/L                               | 2.666 | 1.391-5.111 | 0.003|
| ≤150U/L                               | 1     |             |      |
| Lymph node metastasis                 |       |             |      |
| YES                                   | 4.332 | 1.831-10.249| 0.001|
| NO                                    | 1     |             |      |
| Intrahepatic tumor size               |       |             |      |
| ≤5cm                                  | 0.486 | 0.252-0.936 | 0.031|
| >5cm                                  | 1     |             |      |

Figure S2. Forest plot of relative factors associated with mBM occurrence. OR (odds ratio), 95%CI (confidence interval).

| Factor                                | OR    | 95%CI       | P    |
|---------------------------------------|-------|-------------|------|
| Intrahepatic tumor numbers            |       |             |      |
| Single                               | 0.449 | 0.204-0.987 | 0.046|
| Multiple                             | 1     |             |      |
| Alcohol-drinking history              |       |             |      |
| YES                                   | 0.354 | 0.142-0.886 | 0.027|
| NO                                    | 1     |             |      |
| PLT                                    |       |             |      |
| <100                                  | 2.893 | 1.053-7.949 | 0.039|
| 100-300                               | 1     |             |      |
| HGB                                    |       |             |      |
| <110g/L                               | 17.627| 3.787-82.041| 0.000|
| 110-160g/L                            | 1     |             |      |
| Extrasosseous metastases             |       |             |      |
| YES                                   | 3.769 | 1.284-11.060| 0.016|
| NO                                    | 1     |             |      |
| Blood type                            |       |             |      |
| AB                                     | 3.239 | 1.167-8.989 | 0.024|
| O                                      | 1     |             |      |
| Gender                                 |       |             |      |
| Male                                  | 12.132| 1.744-84.401| 0.012|
| Female                                | 1     |             |      |
Figure S3. Overall survival analysis of HCC patients with BM according to vascular tumor thrombus.

Log rank Chi-square=4.543, P=0.033
Supplementary tables

Table S1. The localization of extraosseous metastatic sites.

| Localization                      | Number of extraosseous | Percentage |
|-----------------------------------|-------------------------|------------|
| Lung                              | 18                      | 53.0%      |
| Adrenal gland                     | 3                       | 8.8%       |
| Abdominal wall                    | 3                       | 8.8%       |
| Peritoneum and retroperitoneum    | 5                       | 14.7%      |
| Chest wall                        | 2                       | 5.9%       |
| Spleen                            | 2                       | 5.9%       |
| Brain                             | 1                       | 2.9%       |
| Total                             | 34                      | 100%       |

Table S2. The distribution of spinal metastasis after HCC diagnosis in mBM group.

| Spine     | Total occurrences | Time after HCC diagnosis(months) |
|-----------|-------------------|----------------------------------|
|           | N=64              | 6      | 6-12  | 12-24 | >24   |
|           |                   | 6      | 6-12  | 12-24 | >24   |
| Cervical  | 5                 | 1(20.0%) | 1(20.0%) | 2(40.0%) | 1(20.0%) |
| Thoracic  | 23                | 16(69.6%) | 3(13.0%) | 1(4.4%) | 3(13.0%) |
| Lumbar    | 21                | 13(61.9%) | 2(9.5%) | 3(14.3%) | 3(14.3%) |
| Sacrum    | 15                | 10(66.7%) | 2(13.3%) | 2(13.3%) | 1(6.7%) |