

Table S1 More detailed clinical data of the patients

| Patient number | Operation time (hours) | Length of stay (days) | ASA scoring (1, 2, 3, 4, 5) | Intraoperative blood loss (mL) | Gender (female 0, male 1) | Age (years) | BMI (kg/m ²) | Hypertension (no 0, yes 1) | Diabetes (no 0, yes 1) | Preoperative LDH (U/L) | Preoperative creatinine (μmol/L) | Preoperative neutrophils (x10 ⁹ /L) | Preoperative hemoglobin (g/L) | Tumor side (left 0, right 1) | Surgical operative methods (open surgery 0, laparoscopic surgery 1) | Tumor thrombus | Clavien-Dindo grading (grade I 0, grade II/III 1) | Lymphatic metastasis (non-metastasis 0, metastasis 1) | Perirenal adipose tissue invasion (non-invasion 0, invasion 1) | Pathological type (ccRCC 0, non-ccRCC 1) | Tumor diameter (mm) | Postoperative targeted therapy (no 0, yes 1) | Outcome (alive 0, dead 1) | OS (months) |
|----------------|------------------------|-----------------------|-----------------------------|--------------------------------|---------------------------|-------------|--------------------------|----------------------------|------------------------|------------------------|----------------------------------|------------------------------------------------|-------------------------------|------------------------------|---------------------------------------------------------------------|----------------|---------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------|------------------------------------------|---------------------|----------------------------------------------|---------------------------|-------------|
| 1 | 4.7 | 16 | 2 | 2,000 | 1 | 61 | 23.1 | 0 | 0 | 139 | 94 | 4 | 155 | 1 | 0 | III | 1 | 0 | 0 | 0 | 90 | 0 | 1 | 91 |
| 2 | 4.1 | 12 | 2 | 1,000 | 0 | 71 | 29.1 | 1 | 0 | 153 | 86 | 5.8 | 94 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 1 | 21 |
| 3 | 5.1 | 17 | 2 | 200 | 0 | 61 | 19.3 | 1 | 0 | 202 | 49 | 2.9 | 86 | 0 | 0 | IV | 0 | 0 | 0 | 0 | 50 | 1 | 0 | 95 |
| 4 | 4.4 | 22 | 2 | 2,400 | 1 | 62 | 27 | 1 | 0 | 383 | 124 | 6 | 158 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 60 | 0 | 1 | 35 |
| 5 | 1.6 | 7 | 2 | 50 | 1 | 58 | 24.3 | 1 | 1 | 173 | 64 | 5.6 | 137 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 55 | 0 | 0 | 64 |
| 6 | 3.3 | 12 | 2 | 4,500 | 1 | 65 | 21.5 | 0 | 0 | 175 | 76 | 5 | 135 | 0 | 0 | III | 1 | 0 | 1 | 1 | 50 | 0 | 0 | 60 |
| 7 | 3.3 | 15 | 1 | 2,000 | 1 | 21 | 23.1 | 0 | 0 | 217 | 84 | 3.3 | 123 | 1 | 0 | II | 1 | 0 | 0 | 1 | 145 | 1 | 0 | 57 |
| 8 | 3.9 | 7 | 2 | 1,200 | 1 | 59 | 24.7 | 1 | 0 | 176 | 79 | 6.1 | 136 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 73 | 0 | 0 | 56 |
| 9 | 2.3 | 6 | 2 | 50 | 1 | 60 | 24.2 | 0 | 0 | 178 | 99 | 3.6 | 145 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 60 | 0 | 0 | 50 |
| 10 | 4.5 | 8 | 2 | 1,600 | 1 | 33 | 24.4 | 0 | 0 | 176 | 77 | 2.9 | 129 | 1 | 0 | III | 1 | 0 | 0 | 1 | 100 | 1 | 0 | 24 |
| 11 | 3.0 | 15 | 3 | 4,500 | 1 | 54 | 27.1 | 1 | 1 | 259 | 125 | 7.7 | 97 | 0 | 0 | III | 1 | 0 | 0 | 0 | 55 | 0 | 0 | 31 |
| 12 | 3.0 | 14 | 2 | 800 | 1 | 67 | 27.8 | 1 | 1 | 287 | 120 | 3.5 | 119 | 0 | 0 | III | 1 | 1 | 1 | 1 | 100 | 1 | 1 | 6 |
| 13 | 2.6 | 11 | 2 | 1,000 | 0 | 69 | 23.6 | 1 | 0 | 353 | 129 | 5.3 | 73 | 1 | 0 | II | 0 | 0 | 1 | 0 | 100 | 1 | 1 | 38 |
| 14 | 3.2 | 18 | 2 | 1,100 | 1 | 65 | 23.3 | 0 | 0 | 189 | 84 | 4.8 | 155 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 70 | 0 | 0 | 52 |
| 15 | 1.8 | 10 | 2 | 1,000 | 1 | 49 | 21.8 | 0 | 0 | 163 | 55 | 4.5 | 150 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 110 | 1 | 1 | 44 |
| 16 | 2.6 | 8 | 2 | 3,500 | 1 | 70 | 21.8 | 0 | 0 | 202 | 101 | 5.4 | 110 | 1 | 0 | II | 0 | 0 | 0 | 0 | 70 | 0 | 1 | 27 |
| 17 | 4.9 | 12 | 2 | 800 | 1 | 48 | 24.6 | 0 | 0 | 185 | 60 | 2.9 | 135 | 0 | 0 | I | 1 | 0 | 0 | 1 | 65 | 1 | 0 | 25 |
| 18 | 2.2 | 8 | 2 | 3,000 | 1 | 52 | 24.7 | 0 | 0 | 141 | 123 | 3.7 | 93 | 0 | 0 | III | 1 | 0 | 0 | 0 | 75 | 1 | 0 | 24 |
| 19 | 2.5 | 17 | 2 | 3,400 | 1 | 56 | 28.2 | 0 | 0 | 156 | 89 | 5.3 | 111 | 0 | 0 | II | 1 | 0 | 0 | 0 | 40 | 0 | 0 | 23 |
| 20 | 2.5 | 15 | 2 | 2,500 | 1 | 58 | 22.7 | 0 | 0 | 188 | 110 | 8 | 72 | 0 | 0 | IV | 1 | 1 | 0 | 0 | 160 | 0 | 1 | 9 |
| 21 | 2.0 | 9 | 2 | 200 | 1 | 45 | 21.7 | 0 | 0 | 204 | 69 | 6 | 111 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 75 | 1 | 1 | 16 |
| 22 | 3.7 | 12 | 2 | 100 | 1 | 57 | 28.4 | 0 | 0 | 198 | 86 | 3.2 | 161 | 1 | 1 | I | 0 | 0 | 0 | 0 | 70 | 1 | 0 | 68 |
| 23 | 3.6 | 7 | 2 | 300 | 1 | 51 | 19.8 | 0 | 0 | 177 | 72 | 4.9 | 145 | 1 | 0 | I | 0 | 0 | 0 | 0 | 100 | 1 | 0 | 99 |
| 24 | 4.0 | 15 | 3 | 50 | 1 | 84 | 30 | 1 | 1 | 305 | 105 | 6.3 | 103 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 80 | 1 | 1 | 20 |
| 25 | 4.3 | 11 | 2 | 100 | 1 | 43 | 22.6 | 0 | 0 | 139 | 77 | 4.8 | 142 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 45 | 1 | 0 | 114 |
| 26 | 2.0 | 21 | 2 | 1,000 | 1 | 51 | 29.9 | 0 | 1 | 165 | 133 | 3 | 137 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 30 | 1 | 0 | 120 |
| 27 | 5.7 | 17 | 2 | 50 | 1 | 57 | 23.5 | 0 | 1 | 379 | 56 | 3.8 | 117 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 1 | 25 |
| 28 | 3.8 | 7 | 2 | 750 | 1 | 53 | 27 | 1 | 0 | 170 | 83 | 2.5 | 128 | 1 | 1 | II | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 19 |
| 29 | 2.3 | 10 | 2 | 500 | 0 | 63 | 24.2 | 0 | 0 | 145 | 72 | 2.8 | 106 | 1 | 0 | III | 1 | 0 | 0 | 1 | 105 | 0 | 0 | 20 |
| 30 | 3.2 | 21 | 3 | 2,300 | 1 | 65 | 20.3 | 0 | 0 | 259 | 125 | 3 | 121 | 1 | 0 | III | 1 | 1 | 1 | 1 | 95 | 0 | 1 | 4 |
| 31 | 2.5 | 7 | 2 | 300 | 0 | 28 | 17.8 | 0 | 0 | 166 | 66 | 4.6 | 77 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 100 | 0 | 0 | 53 |
| 32 | 2.4 | 16 | 2 | 600 | 1 | 61 | 23 | 0 | 0 | 205 | 87 | 5.7 | 97 | 1 | 0 | II | 1 | 0 | 0 | 0 | 110 | 1 | 1 | 43 |
| 33 | 3.0 | 29 | 2 | 1,200 | 0 | 73 | 27.9 | 0 | 0 | 197 | 92 | 5.6 | 102 | 0 | 0 | II | 1 | 0 | 1 | 0 | 140 | 0 | 1 | 48 |
| 34 | 2.5 | 13 | 2 | 1,300 | 1 | 67 | 21.2 | 1 | 0 | 208 | 77 | 1.2 | 90 | 1 | 0 | III | 1 | 0 | 0 | 0 | 40 | 0 | 0 | 49 |
| 35 | 5.0 | 17 | 2 | 2,000 | 1 | 65 | 23.2 | 0 | 1 | 178 | 82 | 5.8 | 118 | 0 | 1 | IV | 1 | 0 | 1 | 1 | 70 | 1 | 1 | 12 |
| 36 | 3.5 | 16 | 2 | 800 | 1 | 77 | 21.4 | 0 | 0 | 148 | 134 | 3.9 | 132 | 0 | 0 | III | 1 | 0 | 0 | 0 | 60 | 1 | 1 | 69 |
| 37 | 3.5 | 14 | 2 | 2,000 | 1 | 52 | 27.9 | 1 | 0 | 257 | 145 | 7.1 | 126 | 0 | 0 | II | 0 | 1 | 1 | 0 | 90 | 1 | 0 | 19 |
| 38 | 3.2 | 9 | 3 | 2,100 | 1 | 58 | 22.4 | 1 | 0 | 159 | 109 | 4.2 | 104 | 1 | 0 | III | 0 | 0 | 1 | 0 | 85 | 1 | 1 | 6 |
| 39 | 3.3 | 7 | 2 | 200 | 0 | 54 | 28 | 0 | 0 | 165 | 66 | 3.8 | 129 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 24 |
| 40 | 2.3 | 7 | 3 | 50 | 1 | 79 | 20.8 | 1 | 0 | 81 | 89 | 2.9 | 81 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 95 | 1 | 1 | 6 |
| 41 | 3.3 | 9 | 3 | 900 | 0 | 69 | 21.1 | 0 | 0 | 164 | 73 | 3 | 157 | 1 | 0 | II | 1 | 0 | 0 | 0 | 130 | 1 | 0 | 28 |
| 42 | 3.3 | 28 | 2 | 2,600 | 1 | 85 | 24.2 | 0 | 0 | 169 | 127 | 2.8 | 89 | 1 | 0 | II | 1 | 0 | 0 | 0 | 62 | 1 | 0 | 34 |
| 43 | 2.8 | 16 | 2 | 100 | 1 | 53 | 31.2 | 1 | 1 | 149 | 97 | 3.7 | 135 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 45 | 1 | 0 | 33 |
| 44 | 2.8 | 8 | 2 | 1,400 | 0 | 62 | 18.1 | 0 | 0 | 165 | 87 | 6.8 | 92 | 1 | 0 | III | 1 | 0 | 1 | 0 | 95 | 1 | 0 | 35 |
| 45 | 3.9 | 5 | 2 | 200 | 1 | 54 | 24.3 | 1 | 0 | 192 | 75 | 4.7 | 110 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 81 | 0 | 0 | 41 |
| 46 | 3.1 | 10 | 3 | 1,500 | 1 | 57 | 22.8 | 0 | 0 | 268 | 104 | 4.4 | 121 | 1 | 0 | III | 1 | 0 | 1 | 0 | 77 | 1 | 0 | 42 |
| 47 | 2.0 | 7 | 2 | 100 | 0 | 68 | 23.5 | 0 | 0 | 233 | 53 | 2.7 | 147 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 55 | 0 | 0 | 45 |
| 48 | 7.8 | 11 | 1 | 2,500 | 1 | 36 | 29.1 | 0 | 0 | 211 | 118 | 3.6 | 120 | 0 | 1 | II | 1 | 0 | 0 | 0 | 90 | 1 | 0 | 59 |
| 49 | 6.4 | 21 | 4 | 4,500 | 0 | 72 | 27.8 | 1 | 0 | 257 | 73 | 3.2 | 127 | 1 | 0 | IV | 1 | 0 | 1 | 0 | 120 | 1 | 1 | 43 |
| 50 | 2.6 | 15 | 2 | 1,400 | 1 | 69 | 22.7 | 0 | 0 | 162 | 70 | 2.1 | 148 | 1 | 0 | III | 1 | 0 | 1 | 0 | 80 | 1 | 1 | 16 |
| 51 | 4.3 | 10 | 3 | 200 | 1 | 64 | 28.3 | 1 | 1 | 150 | 85 | 4.5 | 120 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 119 |
| 52 | 6.8 | 30 | 2 | 1,200 | 0 | 72 | 20.4 | 1 | 0 | 159 | 68 | 5.7 | 88 | 1 | 1 | III | 1 | 0 | 1 | 0 | 80 | 0 | 1 | 49 |
| 53 | 5.0 | 10 | 3 | 1,200 | 1 | 54 | 17.6 | 0 | 0 | 131 | 75 | 5.29 | 127 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 80 | 1 | 1 | 29 |
| 54 | 4.0 | 17 | 4 | 700 | 1 | 54 | 18.6 | 0 | 0 | 95 | 93 | 6.4 | 89 | 1 | 0 | II | 0 | 0 | 0 | 0 | 90 | 1 | 1 | 56 |
| 55 | 4.0 | 15 | 2 | 500 | 1 | 66 | 22 | 0 | 0 | 153 | 138 | 2.4 | 138 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 1 | 0 | 117 |
| 56 | 6.5 | 10 | 1 | 1,300 | 1 | 21 | 20 | 0 | 0 | 198 | 90 | 3.88 | 119 | 1 | 0 | I | 1 | 1 | 0 | 1 | 120 | 0 | 1 | 48 |
| 57 | 6.0 | 21 | 2 | 3,000 | 1 | 39 | 24.8 | 0 | 0 | 190 | 92 | 4.1 | 102 | 1 | 0 | III | 1 | 0 | 0 | 0 | 80 | 1 | 0 | 120 |
| 58 | 2.3 | 7 | 2 | 1,400 | 0 | 74 | 22.9 | 0 | 0 | 180 | 90 | 3.7 | 122 | 1 | 0 | I | 1 | 0 | 0 | 0 | 35 | 0 | 0 | 44 |
| 59 | 4.0 | 14 | 3 | 2,000 | 1 | 63 | 18.6 | 0 | 0 | 128 | 66 | 8.3 | 84 | 1 | 0 | I | 0 | 0 | 0 | 0 | 130 | 1 | 1 | 33 |
| 60 | 2.6 | 18 | 2 | 1,000 | 0 | 40 | 21.2 | 0 | 0 | 153 | 65 | 3.1 | 129 | 1 | 0 | I | 0 | 0 | 1 | 0 | 80 | 1 | 1 | 40 |
| 61 | 2.8 | 16 | 2 | 3,000 | 1 | 65 | 24.5 | 0 | 1 | 121 | 95 | 3 | 92 | 0 | 0 | I | 1 | 0 | 1 | 0 | 90 | 0 | 1 | 36 |
| 62 | 5.7 | 25 | 2 | 5,500 | 1 | 51 | 24.2 | 0 | 0 | 112 | 123 | 5.6 | 99 | 1 | 0 | III | 0 | 0 | 0 | 0 | 170 | 1 | 1 | 5 |
| 63 | 3.7 | 8 | 3 | 3,000 | 1 | 69 | 18 | 0 | 0 | 135 | 137 | 5.7 | 88 | 0 | 0 | III | 0 | 0 | 1 | 0 | 80 | 0 | 1 | 18 |
| 64 | 5.6 | 20 | 2 | 800 | 0 | 58 | 21.2 | 0 | 0 | 168 | 62 | 5.4 | 92 | 0 | 0 | III | 1 | 0 | 0 | 0 | 27 | 1 | 1 | 118 |
| 65 | 3.0 | 15 | 2 | 1,000 | 0 | 76 | 19.8 | 1 | 0 | 113 | 103 | 7.7 | 86 | 0 | 0 | II | 0 | 1 | 1 | 0 | 60 | 0 | 1 | 21 |
| 66 | 3.5 | 17 | 2 | 2,200 | 0 | 46 | 24 | 0 | 0 | 204 | 81 | 5 | 113 | 0 | 0 | II | 0 | 0 | 1 | 0 | 110 | 0 | 1 | 24 |
| 67 | 8.5 | 18 | 2 | 800 | 0 | 64 | 18.4 | 0 | 0 | 128 | 52 | 4.8 | 96 | 1 | 0 | II | 1 | 0 | 1 | 0 | 100 | 0 | 1 | 13 |
| 68 | 3.4 | 10 | 2 | 50 | 1 | 59 | 25.8 | 0 | 0 | 147 | 71 | 3.4 | 158 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 1 | 44 |
| 69 | 2.5 | 22 | | | | | | | | | | | | | | | | | | | | | | |