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| Supplementary Table S1. Comparison Outcome of Tumors in Isthmus and Non-isthmus | | | | |
|  |  | Non-isthmus (n=105) | Isthmus (n=21) | p |
| General Information |  |  |  |  |
|  | Gender |  |  | 0.186 |
|  | Male | 27 (25.7%) | 9 (42.9%) |  |
|  | Female | 78 (74.3%) | 12 (57.1%) |  |
|  | Age(years) | 42.02±10.30 | 45.05±9.17 | 0.213 |
|  | Thyroid diseases (%) |  |  | 0.652 |
|  | Hashimoto's thyroiditis | 4 (3.8%) | 1 (4.8%) |  |
|  | Hyperthyroidism | 4 (3.8%) | 0 (0.0%) |  |
|  | Laboratory studies |  |  |  |
|  | fT3 (mean±SD） | 4.66±0.57 | 4.92±0.75 | 0.077 |
|  | fT4 (mean±SD） | 15.26±1.90 | 16.17±1.98 | 0.049 |
|  | TSH(mean±SD） | 2.42±2.31 | 2.03±1.36 | 0.466 |
| Tumor Characteristics |  |  |  |  |
|  | Size |  |  |  |
|  | Preoperative maximal diameter,cm (mean±SD） | 0.67±0.17 | 0.68±0.20 | 0.753 |
|  | Preoperative volume,ml (mean ±SD) | 0.11±0.08 | 0.14±0.12 | 0.246 |
|  | Margin (%) |  |  | 0.872 |
|  | Well-defined | 45 (42.9%) | 10 (47.6%) |  |
|  | Ill-defined | 60 (57.1%) | 11 (52.4%) |  |
|  | Echo (%) |  |  | 0.085 |
|  | Hypoechoic | 97 (92.4%) | 20 (95.2%) |  |
|  | Isoechoic | 0 (0.0%) | 1 (4.8%) |  |
|  | Hyperechoic | 1 (1.0%) | 0 (0.0%) |  |
|  | Heterechoic | 7 (6.7%) | 0 (0.0%) |  |
|  | Vascularity (%) |  |  | 0.873 |
|  | Present | 55 (52.4%) | 10 (47.6%) |  |
|  | Absent | 50 (47.6%) | 11 (52.4%) |  |
|  | Calcification (%) |  |  | 1 |
|  | Present | 47 (44.8%) | 10 (47.6%) |  |
|  | Absent | 58 (55.2%) | 11 (52.4%) |  |
| Treatment Variables |  |  |  |  |
|  | Ablation Time , s (mean ±SD) | 253.42±107.44 | 240.19±132.30 | 0.622 |
|  | Power, w (%) |  |  | 0.885 |
|  | 20 | 77 (73.3%) | 16 (76.2%) |  |
|  | 30 | 28 (26.7%) | 5 (23.8%) |  |
|  | Energy, J (mean ±SD) | 5819±2882 | 5888±3631 | 0.925 |
|  | Hydrodissection, ml (mean ±SD) | 36±23 | 38±26 | 0.697 |
|  | Injection times, (%) |  |  | <0.001 |
|  | 0 | 13 (12.4%) | 0 (0.0%) |  |
|  | 1 | 83 (79.0%) | 12 (57.1%) |  |
|  | 2 | 9 (8.6%) | 9 (42.9%) |  |
|  | Post-ablation Tumor Size |  |  |  |
|  | Maximal Diameter, cm (mean ±SD) | 1.86±0.46 | 1.68±0.33 | 0.093 |
|  | Volume, ml (mean ±SD) | 1.96±1.19 | 1.39±0.76 | 0.039 |
|  | Monitoring time (day) , (mean±SD) | 0.85±0.53 | 0.67±0.48 | 0.152 |
| Complication |  |  |  |  |
|  | Hoarse (%) | 1 (1.0%) | 0 (0.0%) | 1.00 |
|  | Voice change (%) | 1 (1.0%) | 0 (0.0%) | 1.00 |
|  | Coughing (%) | 0 (0.0%) | 1 (4.8%) | 0.167 |
|  | Hyperthyroidism (%) | 1 (1.0%) | 0 (0.0%) | 1.00 |
|  | Mild fever (%) | 9 (8.6%) | 0 (0.0%) | 0.353 |
|  | Pain with oral analgesics (%) | 8 (7.6%) | 2 (9.5%) | 0.672 |
| Recurrence and Metestasis |  |  |  |  |
|  | Recurrence |  |  |  |
|  | PTMC | 4 | 0 | 0.82 |
|  | LNM | 0 | 0 | 1.00 |
|  | Distance Metastasis | 0 | 0 | 1.00 |
|  | Disease-specific Mortality | 0 | 0 | 1.00 |
| Volume after Ablation |  |  |  |  |
|  | Volume , ml (mean±SD) |  |  |  |
|  | 1month | 1.07±0.52 | 0.93±0.74 | 0.391 |
|  | 3month | 0.65±0.57 | 0.25±0.11 | 0.074 |
|  | 6month | 0.25±0.23 | 0.31±0.28 | 0.492 |
|  | 9month | 0.08±0.12 | 0.12±0.21 | 0.517 |
|  | 12month | 0.09±0.12 | 0.10±0.11 | 0.813 |
|  | 18month | 0.07±0.12 | 0.02±0.01 | 0.309 |
|  | 24month | 0.05±0.08 | 0.01±0.01 | 0.412 |
|  | 30month | 0.05±0.08 | 0.01±0.01 | 0.398 |
|  | 36month | 0.04±0.07 | 0.01±0.01 | 0.397 |
|  | VRR , % (mean±SD) |  |  |  |
|  | 1month | 0.43±0.22 | 0.37±0.25 | 0.366 |
|  | 3month | 0.69±0.20 | 0.65±0.29 | 0.627 |
|  | 6month | 0.85±0.13 | 0.82±0.10 | 0.493 |
|  | 9month | 0.95±0.08 | 0.94±0.06 | 0.803 |
|  | 12month | 0.96±0.06 | 0.93±0.10 | 0.358 |
|  | 18month | 0.96±0.05 | 0.99±0.01 | 0.229 |
|  | 24month | 0.98±0.04 | 0.99±0.01 | 0.503 |
|  | 36month | 0.98±0.03 | 1.00±0.01 | 0.475 |
|  | Resolved, (n%) | 52 (49.5%) | 7 (33.3%) | 0.264 |
| VRR: volume reduction rate Monitoring time: days after ablation and before discharge. | | | | |