

**Table S1** Eligibility criteria in the robotic parotidectomy group

Inclusion Criteria

- Age between 18 and 80 years
- Tumors in the PG or SMG, necessitating parotidectomy or SMG resection
- Willingness to cooperate and complete the study follow-up and related examination
- Voluntary signing of informed consent

Exclusion Criteria

- Severe cardiovascular or circulatory diseases, or any other conditions contraindicating surgery
- ALT, AST, or urea levels exceeding 1.5 times the normal upper limit
- Platelet count below  $810^{10}/L$
- Tumors with a diameter exceeding 4 cm
- Pregnant or breastfeeding women, or those planning to conceive during the study period
- History of epilepsy or mental illness
- Addiction to alcohol or drugs
- Inability to understand the study requirements or complete the follow-up plans
- Contraindications to general anesthesia
- Requirement for reoperation in the same operative area
- Need deep PG lobectomy for malignant tumors
- Severe gland adhesion to surrounding tissues as identified in preoperative examinations
- Preoperative facial nerve paralysis
- Participation in other clinical trials involving investigational drugs or devices within the last 3 months

PG, parotid gland; SMG, submandibular gland; ALT, alanine aminotransferase; AST, aspartate aminotransferase.

**Table S2** Eligibility criteria in the endoscopic parotidectomy group

Inclusion Criteria

- Age between 16 and 70 years
- Benign parotid gland tumors ( $\leq 5$  cm in diameter)
- T1 and T2 tumors ( $\leq 4$  cm in diameter, no lymph node metastasis, and no facial nerve palsy)
- A minimum of six months follow-up
- Valid contact detail

Exclusion Criteria

- Regional lymph node metastasis
- Extensive malignant tumor
- High-grade malignancy
- Lost on follow-up

**Table S3** Pain scores of patients after robotic surgery

Variables	N (%)
2 hours after surgery, %	
No pain	1 (6.25)
Mild pain	9 (56.25)
Moderate pain	5 (31.25)
Severe pain	1 (6.25)
24 hours after surgery, %	
No pain	1 (6.25)
Mild pain	12 (75.00)
Moderate pain	1 (6.25)
Severe pain	2 (12.50)
72 hours after surgery, %	
No pain	3 (18.75)
Mild pain	11 (68.75)
Moderate pain	2 (12.50)
Severe pain	0 (0)

**Table S4** Preoperative laboratory data of patients underwent robotic head and neck surgery

Variables	N (%)
Neutrophil, %	
Normal	14 (87.50)
Abnormal without clinical significance	2 (12.50)
White blood cell	
Normal	15 (93.75)
Abnormal without clinical significance	1 (6.25)
Hemoglobin	
Normal	14 (87.50)
Abnormal without clinical significance	2 (12.50)
Platelet	
Normal	15 (93.75)
Abnormal without clinical significance	1 (6.25)
Aspartate aminotransferase	
Normal	15 (93.75)
Abnormal without clinical significance	1 (6.25)
Alanine transaminase	
Normal	16 (100)
Abnormal without clinical significance	1 (0)
Urea	
Normal	16 (100)
Abnormal without clinical significance	0 (0)
Creatinine	
Normal	13 (81.25)
Abnormal without clinical significance	3 (18.75)