

EP-001

두경부 유리피판 재건에서 단측 문합과 단단 문합을 이용한 미세혈관 문합 방법 비교: 후향적 100례 연구

Comparative Outcomes of End-to-Side vs. End-to-End Microanastomosis in Head and Neck Free Flap Reconstruction: A Retrospective 100-Case Study



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Purpose:

Free flap reconstruction in head and neck oncology has become a standard practice following tumor excision. Previous studies based on large cohort datasets have reported that approximately 30% of cases used the End-to-Side (ETS) technique for vessel microanastomosis offering satisfactory outcomes, with safety and efficacy comparable to End-to-End (ETE) anastomosis. This study aims to evaluate whether ETS anastomosis is associated with a lower incidence of flap complications requiring reoperation in contrast to traditional expectations.

Methods:

In this retrospective analysis, 100 cases of head and neck tumor excision followed by free flap reconstruction by a single surgeon were reviewed from January 2021 to February 2026. The study evaluated the percentage of ETS and ETE techniques for microanastomosis across all cases, along with the incidence of flap complications necessitating reoperation.

Results:

Among the 103 arterial and 114 venous microanastomoses, 89.3% of arteries and 78.8% of veins were anastomosed using ETS technique. A total of 14 complications requiring reoperation were observed, including necrosis (28.6%), hematoma (21.4%), venous congestion (21.4%), arterial insufficiency (14.3%), and infection (14.3%). Of the 30 microanastomosed vessels in the 14 complication cases, ETE anastomosis was performed in 13 out of 30 vessels (43.3%), which is significantly higher compared to the overall ETE anastomosis rate of 16.6%.

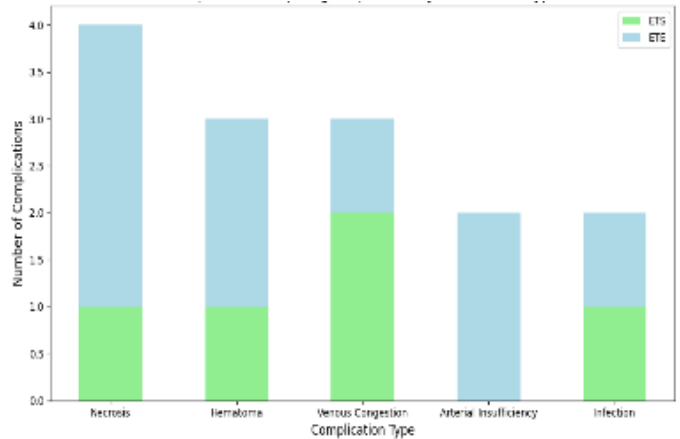


Fig. 1. Complications Requiring Reoperation by Anastomosis type

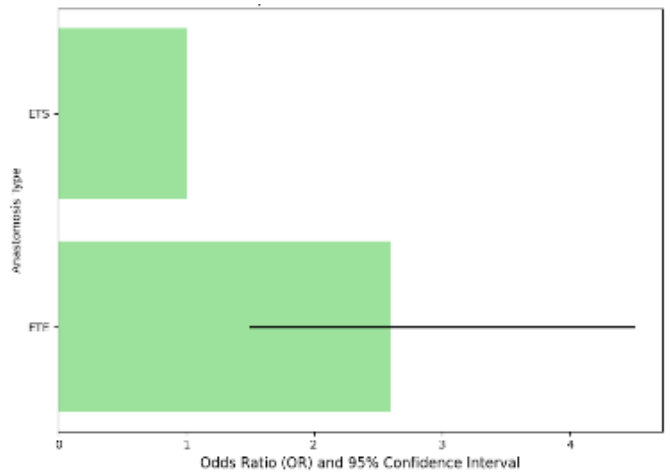


Fig. 2. Odds of Complications for ETS vs ETE Anastomosis

In contrast, ETS anastomosis was used in 17 out of 30 vessels (56.7%), demonstrating that despite a higher proportion of ETS anastomoses, the complication rate was lower in the ETS group compared to ETE. The odds of complications requiring reoperation were significantly higher in the ETE group compared to the ETS group (OR 2.60 [95% CI, 1.50 to 4.50]; $P < 0.05$), indicating that ETS anastomosis may result in fewer reoperation cases despite its higher usage in microanastomoses.

Conclusion:

This study suggests that ETS anastomosis may offer significant advantages over ETE anastomosis, including lower complication rates, particularly in head and neck reconstruction following tumor excision. Further studies with larger cohorts are warranted to validate these findings and solidify ETS as a preferred method in microsurgical head and neck reconstruction.