

CASE REPORT

Functional Outcome of Abbe-Estlander Flap in Lower Lip Carcinoma with Commissural Extension: A Case Report

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ABSTRACT

Background: Reconstruction of lip defects following oncologic resection is a demanding task, as both functional and aesthetic outcomes must be preserved. When the oral commissure is involved, regional flaps such as the Abbe-Estlander remain important tools in achieving reliable reconstruction.

Case Presentation: A 35-year-old male laborer with a history of smoking presented with a progressively enlarging lower lip lesion of seven months' duration. Biopsy confirmed well-differentiated squamous cell carcinoma extending to the oral commissure. The patient underwent wide local excision with a 1-cm margin and supra-omohyoid neck dissection, followed by commissural reconstruction using an Abbe-Estlander flap. The immediate post-operative course was uneventful. At two weeks, mild microstomia was noted, though oral continence and speech were preserved. Final histopathology confirmed well-differentiated squamous cell carcinoma with tumor-free margins. On follow-up at 3, 6, and 12 months, the patient maintained satisfactory function and cosmesis.

Conclusion: The Abbe-Estlander flap remains a dependable reconstructive method for lip carcinoma involving the commissure. It offers oncological safety while restoring oral competence, articulation, and symmetry with minimal morbidity. Despite advances in microsurgical techniques, this flap continues to be an effective and practical option, particularly for medium-sized commissural defects.

KEYWORDS:

- Abbe-Estlander Flap • Lip Reconstruction • Oral Commissure • Squamous Cell Carcinoma • Head and Neck Reconstruction

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INTRODUCTION

Reconstruction of lip defects is a complex challenge because of the functional and aesthetic significance of the lips in speech, mastication, expression, and oral competence. Defects involving one-third to two-thirds of the upper or lower lip, particularly when extending into the commissure, require meticulous planning to achieve satisfactory outcomes. The **Abbe-Estlander flap**, first described by Robert Abbe in 1898 and later modified by Estlander, represents a time-tested solution for such cases. It is a cross-lip transposition flap, based on the labial artery, incorporating skin, muscle, and mucosa, thereby replacing "like with like" tissue. The flap not only restores continuity of the orbicularis oris muscle but also provides a good match in color, texture, and thickness, ensuring acceptable functional and cosmetic results. Although the advent of microsurgical

free flaps has expanded reconstructive options, the Abbe-Estlander flap remains relevant, particularly for medium-sized commissural defects and in settings where free tissue transfer is not feasible (1-3).

CASE

A 35-year-old man presented with a complaint of a lower lip lesion persisting for seven months. He had a history of chronic smoking and was a laborer by profession. An incisional biopsy revealed **well-differentiated squamous cell carcinoma**. After obtaining informed consent, the patient underwent **wide local excision with a 1 cm margin** (Figure 1 and Figure 2), along with **supra-omohyoid neck dissection and reconstruction using an Abbe-Estlander flap**, as the tumor involved the oral commissure. Specimen removed in toto (Figure 3).

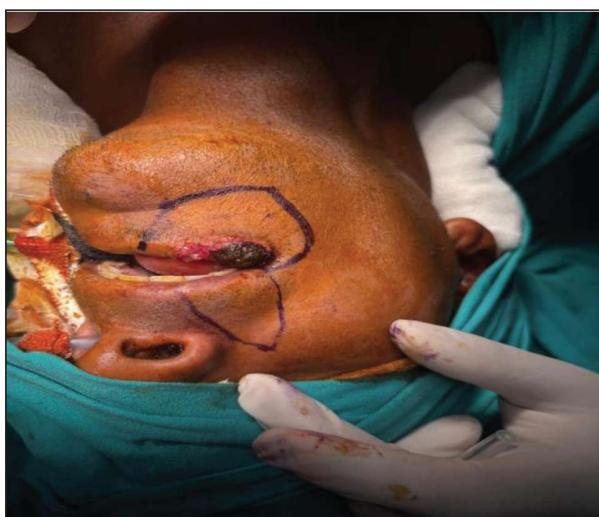


Figure 1: Lower lip lesion involving anterior commissure



Figure 2: Defect after wide local excision



Figure 3: Specimen removed in toto after wide local excision



Figure 4: Post Op day 15 (reconstruction done with Abbe-Estlander flap) showing microstomia

The immediate postoperative period was uneventful. At 15 days postoperatively, the patient developed **mild microstomia**, but there was **no drooling of saliva or spillage of food or liquids** while eating or drinking (figure 4). Final histopathology confirmed **well-differentiated squamous cell carcinoma** with adequate margins. The patient has been under regular follow-up at 3 months, 6 months, and 1 year, with satisfactory functional and cosmetic outcomes.

DISCUSSION

The **Abbe-Estlander flap** is particularly indicated for commissural and lateral lip defects involving up to two-thirds of the lip width. Its strength lies in the robust vascularity of the labial artery, which ensures reliable perfusion. In comparison to advancement or rotation flaps, it restores oral competence by preserving orbicularis oris continuity, thereby maintaining speech and mastication functions.⁴

A recognized drawback of the technique is its **two-stage nature**, as the pedicle division is typically performed 2–3 weeks later. This may delay rehabilitation but is generally well tolerated. Complications reported include microstomia, vermillion mismatch, bulkiness, and commissural asymmetry, though refinements such as careful flap thinning and secondary commissuroplasty can optimize results.^{5,6}

Recent comparative studies highlight both the strengths and limitations of the Abbe-Estlander flap. A prospective evaluation contrasting it with the **Fujimori gate flap** found superior mouth opening and speech intelligibility in the latter, though lip competence and scar outcomes were similar, underscoring that while the Abbe-Estlander remains reliable, it may not provide optimal functional results in every parameter.⁷ Modifications such as the **extended Estlander flap** have been described for larger upper lip and commissural defects, demonstrating versatility of design and expansion of indications.⁸

Despite the rise of microvascular reconstruction, especially for near-total or total lip loss, the Abbe-Estlander flap retains clinical value. It is particularly suited for medium-sized commissural defects, for

patients with comorbidities, and in resource-constrained environments. When combined with other techniques, such as Karapandzic or free tissue flaps, it can even contribute to complex reconstructions of subtotal lip loss.⁹ Overall, its simplicity, reliability, and tissue match continue to secure its place in modern reconstructive practice.

CONCLUSION

Reconstruction of lip carcinoma defects involving the commissure requires a balance between oncologic safety, functional restoration, and aesthetic acceptability. The Abbe-Estlander flap, by providing well-vascularized tissue with appropriate color, texture, and thickness, remains an effective option in selected cases. In the present patient, it enabled satisfactory oral competence and cosmesis, with only minimal microstomia as a manageable drawback. This case underscores the enduring utility of the Abbe-Estlander flap as a dependable technique in modern reconstructive practice, particularly for medium-sized commissural defects where free tissue transfer may not be essential.

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Contributions

All author contributed to this study. Manuscript was written by TG & AA. patient work up was done by VK. Proof reading of manuscript was done by TG, SY.

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