

Background

Surgery is the primary approach for salvage treatment of recurrent oropharyngeal carcinoma (OPC) after initial treatment failure¹. Traditional open approaches, such as a lip-split mandibulotomy, may lead to osteoradionecrosis, nonunion, plate exposure, cellulitis and abscess, especially in patients with a history of radiation². However, **transoral robotic assisted surgery (TORS)** has been shown to be a safe alternative approach for both frontline treatment and salvage surgery. Frontline TORS can offer excellent functional outcomes. In the salvage setting, TORS has been studied in T1-T2 tumors and shown to have improved 2-year recurrence free survival, shorter length of stay and reduced tracheostomy usage and G-tube usage³. Yet, **there is limited data to categorize swallow and speech outcomes in patients with late-stage tumors undergoing TORS salvage surgery.**

Objectives

To describe **postoperative functional outcomes** of a recurrent oropharyngeal cancer population undergoing transoral robotic-assisted salvage surgery.

Methods

Design: Retrospective, observational case series.

Subjects: Consecutive sample of 12 adult patients with late-stage recurrent oropharyngeal carcinoma undergoing transoral robotic-assisted surgery (TORS) at a single tertiary hospital.

Primary Outcome: Functional Oral Intake Scale (**FOIS**) score.

Secondary Outcomes: Disease free survival, gastrostomy tube usage, tracheostomy usage.

FOIS	Description
1	Nothing by mouth
2	Tube dependent with minimal attempts of food or liquid
3	Tube dependent with consistent oral intake of food or liquid
4	Total oral diet of a single consistency
5	Total oral diet with multiple consistencies, but requiring special preparation or compensations
6	Total oral diet with multiple consistencies without special preparation, but with specific food limitations
7	Total oral diet with no restrictions

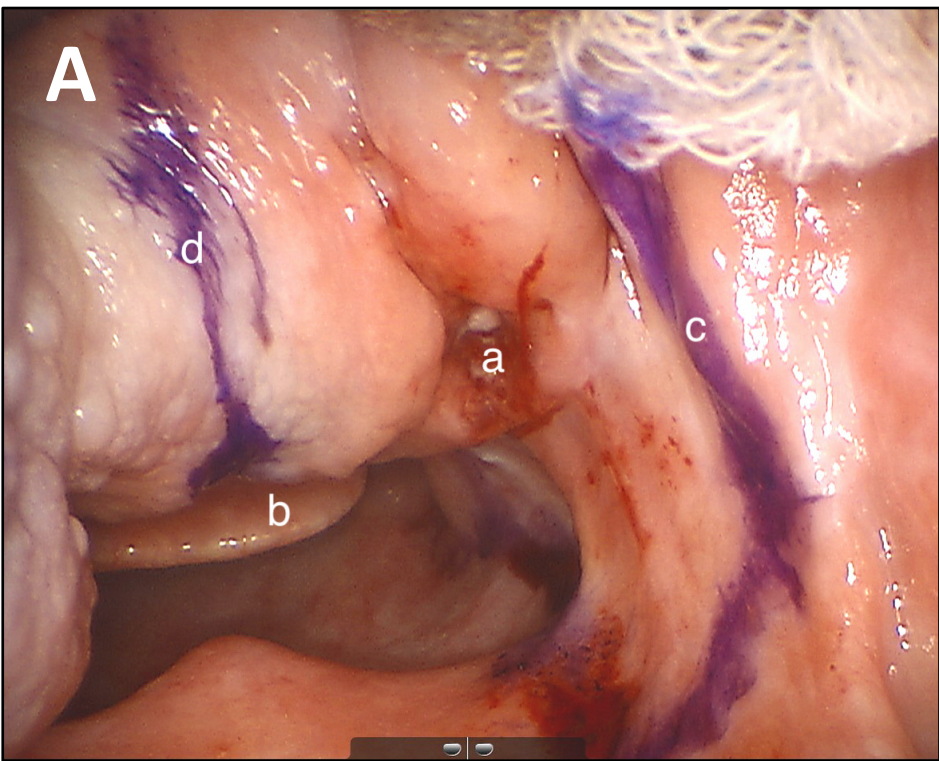
adapted from Crary, M. A., Mann, G. D. C., & Groher, M. E. (2005). Initial psychometric assessment of a functional oral intake scale for dysphagia in stroke patients. *Archives of physical medicine and rehabilitation*, 86(8), 1516-1520

Study Population

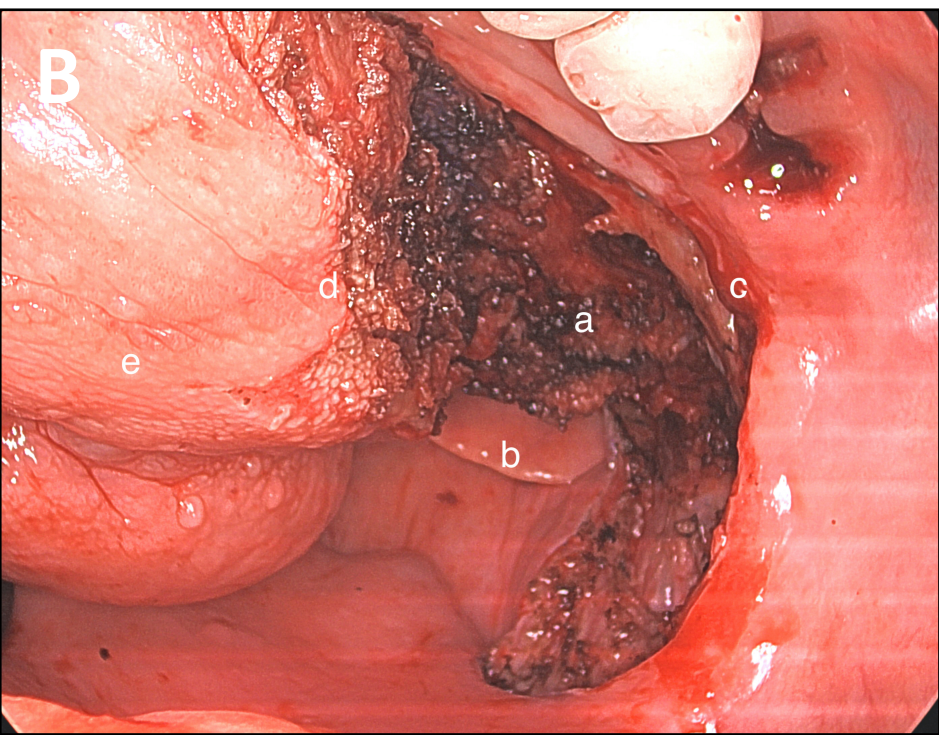
12 patients met study criteria. Most patients were **male** with a mean age of **68 years** at the time of surgery (Table 1). Initial primary tumors involved the **base of tongue** (75%) or **tonsil** (25%) and were staged predominantly as **T3 or T4**. All patients received definitive radiotherapy, with 83% of patients receiving concurrent chemotherapy with curative intent. Mean time to local recurrence was 2.6 years after initial treatment, and most recurrences occurred within 12 months.

Surgical Approach

All patients underwent surgical resection of the recurrent tumors via **TORS alone** (4/12 patients) or combined with a **transcervical lateral pharyngotomy** (8/12 patients). 67% of cases involved **free flap** reconstruction due to involvement of the base of tongue or tonsil.



A) Base of tongue tumor, prior to resection, seen via robotic camera view during TORS with resection margins marked in purple: a) tumor b) epiglottis c) lateral resection margin d) medial resection margin on tongue



B) Defect remaining after base of tongue tumor resection, prior to free flap inset: a) area of tumor resection b) epiglottis c) lateral resection margin d) medial resection margin e) remaining tongue.

FOIS Scores

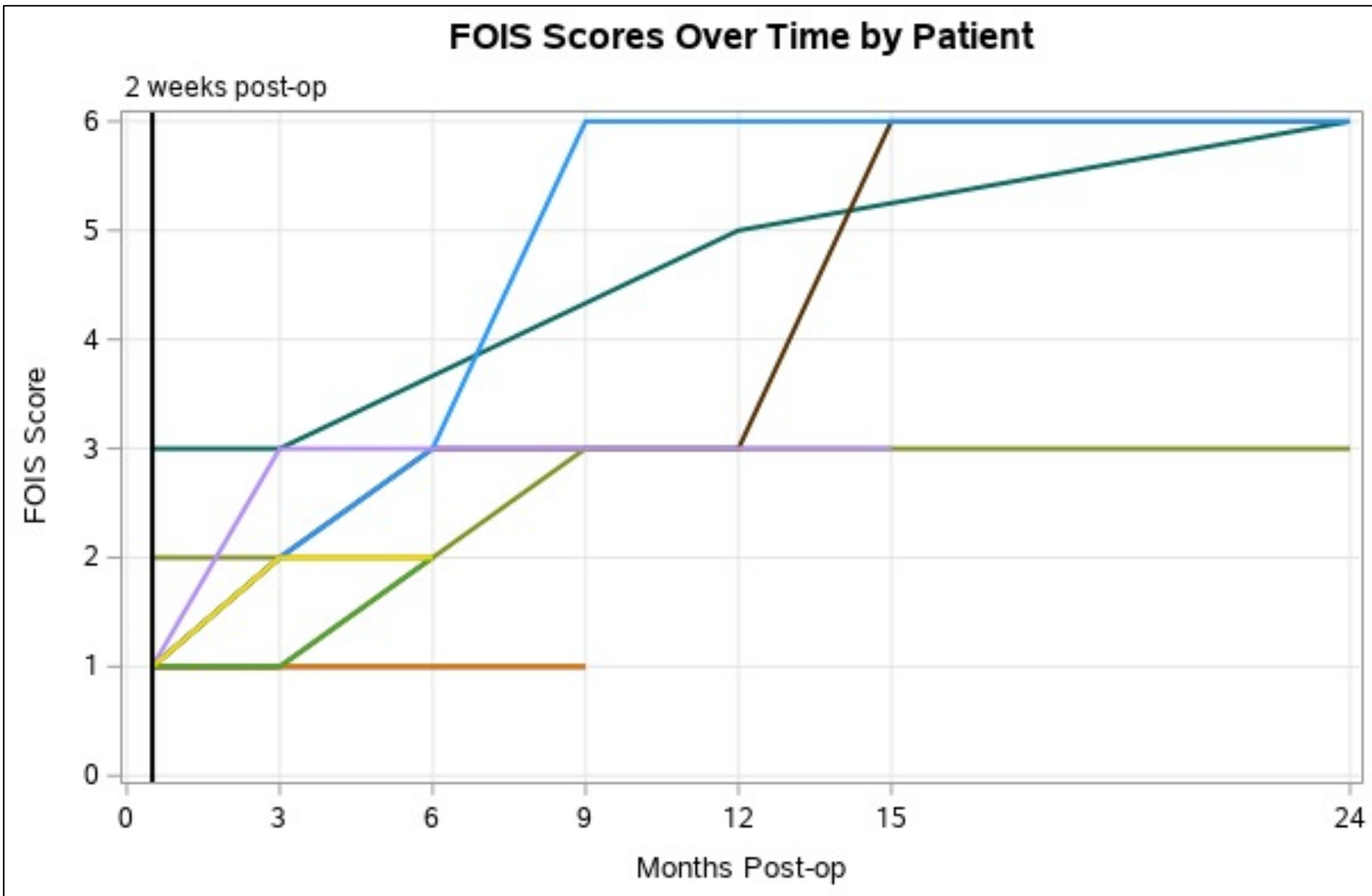
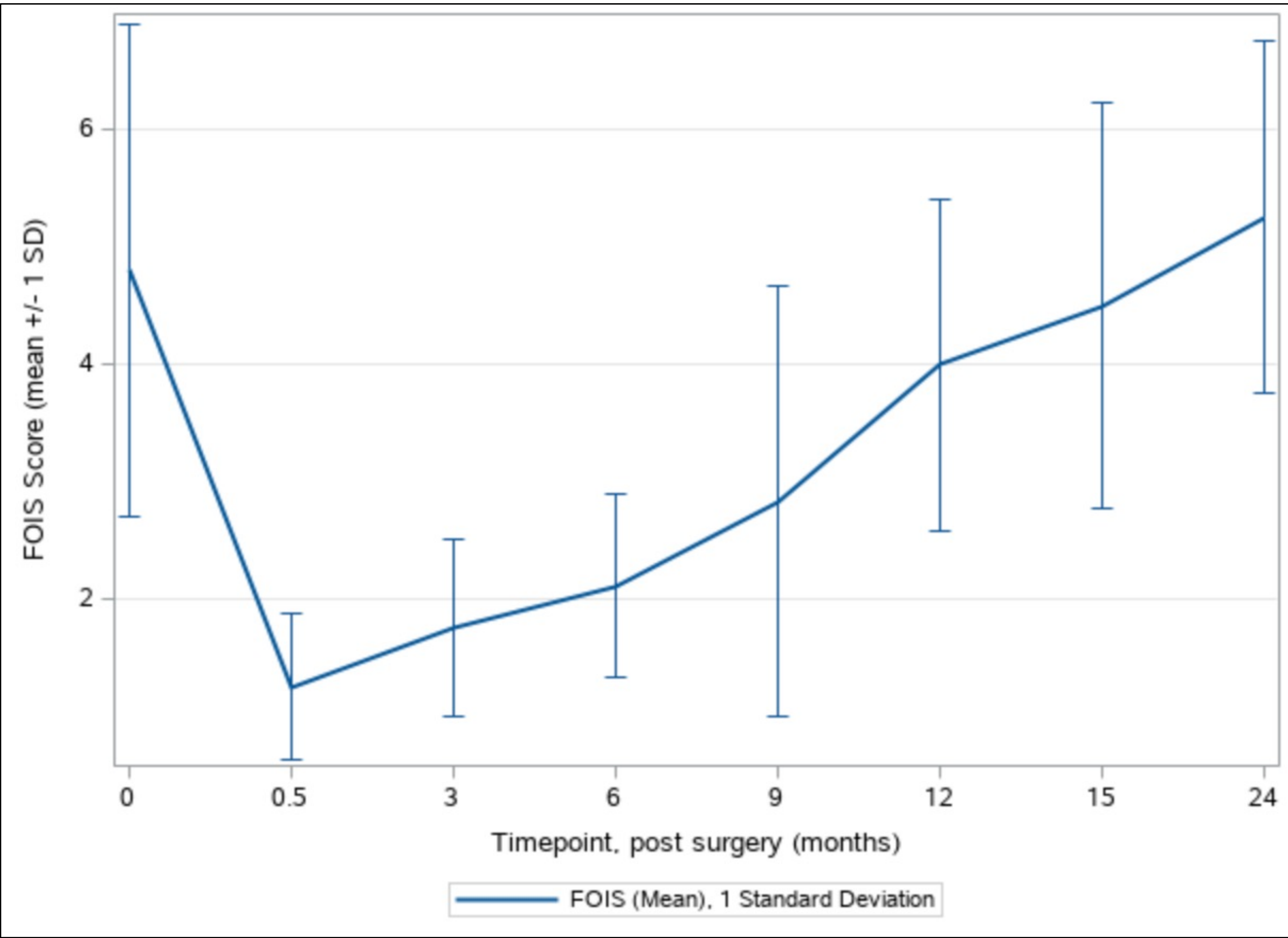
Mean FOIS Score decreased by 3.5 from baseline to 2 weeks postoperatively. Mean FOIS Score increased by the same amount from 2 weeks to 24 months. Among subjects with baseline FOIS and follow up of at least 15 months (N=4), **FOIS scores were not significantly changed from baseline** (p= 0.215). There was no difference between patients with or without free flaps.

Complications and Survival

Disease specific survival at 6 months was 73% (8/11). Post-operative recovery was generally **uncomplicated** and median length of stay was **8.5 days**. There was 1 case of free flap failure. In this patient, post-operative hemorrhage occurred from donor vessels, which were heavily radiated. This patient underwent revision with a pectoralis flap and was ultimately discharged after a 31 day hospitalization.

Results

Table 1. Population Characteristics	
Characteristic	N (%)
Primary Site of Recurrence	
Base of Tongue	9 (75)
Tonsil	3 (25)
Surgery	
Neck Dissection	8 (67)
Free Flap, total*	8 (67)
Radial	3
ALT	4
Fibula	1
Size of Free Flap, Mean cm ² (Range)*	122 (48- 216)
Complications, post-operative	
Hemorrhage	1
Flap Failure	1
Fistula	1
Gastrostomy Usage	
At the time of surgery	12 (100)
6 months	9/10 (90)
12 months	3/5 (60)
Tracheostomy Usage	
At the time of surgery	10 (83)
6 months	3/9 (33)
12 months	0/5 (0)
Survival Outcomes at 6 months	
No Evidence of Disease	8
Evidence of Recurrence or metastasis	2
Died of Disease	1
Died of other causes	1



Conclusions

For selected patients with recurrent OPC, a transoral alone or combined transoral-transcervical lateral pharyngotomy with free-flap reconstruction provides a high rate of locoregional control and good functional outcomes with the opportunity to minimize postoperative complications and **return towards baseline swallow function.**

References

- Röösli C, Studer G, Stoeckli SJ. Salvage treatment for recurrent oropharyngeal squamous cell carcinoma. Head & neck. 2010;32(8):989-996
- Dai TS, Hao SP, Chang KP, Pan WL, Yeh HC, Tsang NM. Complications of mandibulotomy: midline versus paramidline. Otolaryngol Head Neck Surg. Jan 2003;128(1):137-41. doi:10.1067/mhn.2003.28
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