

## Evidence-Based Case Report: A Case Series on the Use of Compression Dressing in Post-Total Laryngectomy Pharyngocutaneous Fistula

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### **Abstract**

Pharyngocutaneous fistula (PCF) is among the most troublesome complications after total laryngectomy (TL), being the cause of substantial postoperative morbidity and prolonged hospitalization. The purpose of this study is to assess the clinical benefit of conservative management with compression dressing in patients who developed PCF following TL. **Methods:** This case series was performed via an evidence-based strategy based upon the PICO framework. Structured literature search using PubMed, Cochrane Library, and Google Scholar to identify pertinent studies that support the intervention. Our three patients with post-TL PCF, two of whom obtained complete fistula closure through compression dressing alone. No complications related to treatment were observed; clinical improvement and increased quality of life were apparent. Evidence from the existing literature, while limited, corresponds with these findings. We propose that compression dressing is an effective, cheap, and feasible conservative option for the management of PCF after TL, especially in a resource-limited environment.

**Keywords:** Compression therapy; Conservative management; Pharyngocutaneous fistula; Total laryngectomy

## INTRODUCTION

Pharyngocutaneous fistula (PCF), now defined as an abnormal communication between the pharyngeal lumen and cervical skin, is considered one of the most frequent complications after total laryngectomy (TL)<sup>1</sup>.

Total laryngectomy is still a definitive treatment modality for locoregional advanced laryngeal carcinoma as well as salvage therapy in the case of failure to radiotherapy<sup>2</sup>. After laryngeal resection, repair of the pharynx is necessary to maintain upper aerodigestive tract continuity. Yet despite technical improvements, PCF remains rampant.

PCF can result in longer hospital stays, greater healthcare costs, and a poorer quality of life for patients, but it also poses an increased risk of further surgical intervention<sup>3</sup>.

PCF is an entity with multifactorial etiology, including local factors (tumoral stage, necrosis, and infections of tissue, wound dehiscence) as well as systemic conditions (hemoglobin score level; nutritional status [albumin]; history regarding smoking<sup>4</sup>.

ITGPCF management is challenging and usually entails a multidisciplinary approach encompassing conservative measures, surgical treatment, parenteral nutrition, and rigorous wound care<sup>5</sup>. While conservative modalities have been proposed, compression dressing was suggested as a mechanism to potentially limit salivary infiltration of the fistula tract<sup>6</sup>.

This study intends to report on a case series assessing the outcomes of compression dressing in PCF with associated evidence.

## CASE SERIES

Herein, we describe 3 patients who had undergone total laryngectomy and subsequently developed PCF. All patients received compression dressing management on the otolaryngology-head and neck surgery watch. Details of the clinical progress, application of dressing, and follow-up outcomes were documented.

The clinical question was framed with the PICO framework:

Population: Patients with PCF after TL

Intervention: Compression dressing

Comparison: None

Main Outcome Measures: Fistula closure, clinical improvement, and quality of life

A systematic literature search was conducted in PubMed, Cochrane Library, and Google Scholar using the keywords “pharyngocutaneous fistula,” “total laryngectomy,” and “neck compression.” Studies were included if they met the following criteria: clinical trials, meta-analyses, randomized controlled trials, or systematic reviews published within the last 10 years in full text. Case reports and articles not published in English were excluded.

## RESULTS

Following compression dressing therapy, two-thirds of patients achieved complete fistula closure. The patients showed progressive clinical improvement, less wound discharge, and successful reinstatement of oral feeding, with restoration of quality of life. The third patient was managed surgically for a persistent fistula. No compression dressing-related complication was observed during the treatment period.

**Table 1: Patient Case Characteristics**

No.	Initials/ Age	Sex	Stage	Pathology Anatomy	Time of ECF Appearance (days post-op)	Duration of Pressure Dressing (days)	Clinical Outcome	Quality of Life
1.	D/60y.o	Male	IV	SCC	10	60	Not closing, (further surgery performed)	NGT diet
2.	AR/65y.o	Male	IV	SCC	10	21	Close	Oral Diet
3.	H/63y.o	Male	IV	SCC	10	45	Close	Oral Diet



Figure 1. A. Pressure Dressing; After Pressure Dressing; B Mr. D, C Mr. AR, D Mr. H

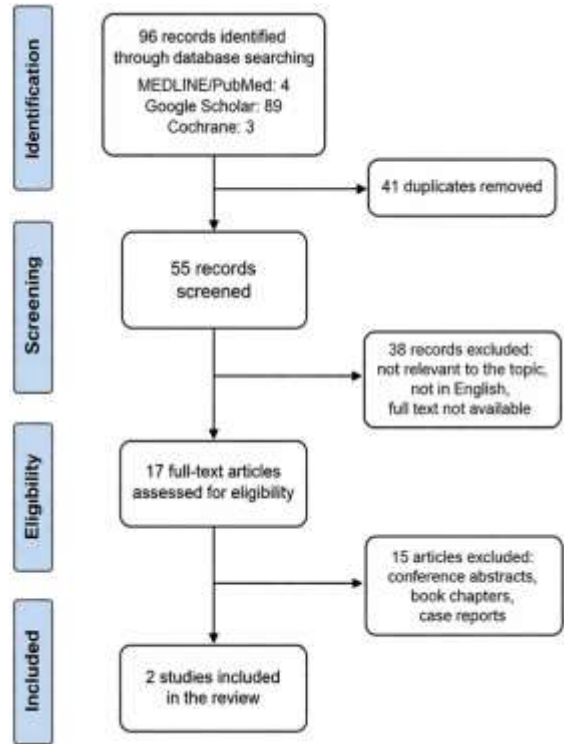


Figure 2. Critical Evaluation Flowchart (Generated with ChatGPT)

**Table 2. Article Summary**

No.	Author/Year	Title	Conclusion
1.	Locatello LG, Licci G, Maggiore G, Gallo O. 2021  doi: 10.3390/jcm11010100.	Non-Surgical Strategies for Assisting Closure of Pharyngocutaneous Fistula after Total Laryngectomy: A Systematic Review of the Literature.	There is still limited data, but the success of non-surgical measures remains promising.
2.	Molteni G, Sacchetto A, Sacchetto L, Marchioni D. 2020  doi: 10.2147/AS.S198038	Optimal Management of Post-Laryngectomy Pharyngo-Cutaneous Fistula.	Conservative measures come first before other measures. Individualization of the preferred treatment for FEK may depend on several factors, including the status of the fistula (size, location, local skin and mucosal condition), the patient's general condition, and previous treatments.

The literature search identified limited but relevant studies supporting conservative management approaches, including compression therapy, in promoting fistula closure<sup>8,15</sup>.

## DISCUSSION

The main reason of persistence for PCF is continuous salivary leakage from the fistulous tract that delays wound healing. It is believed that preventing exposure of saliva to the internal opening of the fistula aids in approximation of tissues and allows for spontaneous closure<sup>7</sup>.

A compression dressing is a conservative therapeutic choice that reduces dead space and salivary contamination while encouraging wound healing. Although this approach is cheap and also easy to apply, it needs to be closely monitored as proper wound care will need to be provided in order to prevent complications like an infection<sup>8</sup>.

Fistulas stayed closed only after keeping silicone feeding tubes in place throughout the study period. Every fourteen days, doctors tested whether patients could swallow small amounts by mouth. When fluid kept seeping out, caregivers flushed the area with saltwater solution first. After rinsing, they covered the site again - layers of cloth padding held tight under stretchy wraps.

When signs of infection showed up, treatment included ciprofloxacin along with metronidazole. Results matched what Qureshi et al.<sup>9</sup> found - about 81% of PCF cases got better without surgery, yet 18% needed an operation. More than half healed by day 14 if antibiotics were given; others gradually improved over the next few weeks.

The time course of conservative management prior to surgical treatment varies. Other studies suggest observation periods from 3 weeks (Busoni et al.<sup>11</sup>; Sun et al.<sup>12</sup>), 4 weeks (Sumarroca et al.<sup>13</sup>), and as long as 5–18 weeks (Huang et al.<sup>14</sup>). All the cases in this series were handled adequately prior to undertaking further intervention.

Our results correlate with previous studies similarly advocating for conservative management,

including compression dressing, as a reasonable option in select cases.<sup>8,10</sup> However, the small sample size and absence of a comparison group limit the generalizability of these results.

## CONCLUSION

Compression dressing represents a feasible and effective conservative approach for the management of pharyngocutaneous fistula following total laryngectomy, particularly in resource-limited settings. Further well-designed studies are required to establish standardized treatment protocols and to evaluate long-term outcomes.

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