

## Case report

# A Novel Technique for Repair of Postoperative Pharyngocutaneous Fistula: A Case Report

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## Abstract

Pharyngocutaneous fistula (PCF) is the most feared complication postlaryngectomy with a reported incidence varying from 3% to 65%. Some of the factors such as prior radiotherapy, poor nutritional status, and preoperative tracheostomy significantly increase the risk of developing a PCF. The development of a PCF leads to prolongation of hospital stay, increases financial burden, and delays the commencement of any further adjuvant therapy. Although literature mentions the management of PCFs with multiple local and free flaps, none is considered as the standard therapy. We are reporting the use of two flaps, pectoralis major myofascial flap and deltopectoral flap, for the successful repair of a case of PCF at our center.

**Keywords:** Sebaceous Gland Carcinoma; Eyelid Tumors; Lid Switch; Buccal Mucosal Graft.

## Introduction

Pharyngocutaneous fistula (PCF) is the utmost worrisome difficulty following total laryngectomy for laryngeal cancer. The reported incidence of PCF varies from 3% to 65% [1, 2]. PCF leads to a significant morbidity to the patients, with impact on clinical, oncological, and functional outcomes. The impact on clinical outcomes of the patient is in the form of pain, need for a redo surgery, and need for prolonged antibiotics and prolonged feeding through nasogastric tube and a significant increase in the hospital stay [3]. In addition, there is chance of injury to major neck vessels which could be potentially life threatening. This highlights the importance of an early and a precise closure of a PCF. Although literature describes various treatment strategies, the ideal method for closure of a PCF remains controversial. Free flaps are considered to be the most reliable methods for PCF closure [4]. But, in majority of the centers, there is a lack of expertise and the equipments required for the surgery. In our center, we have successfully repaired a case of PCF with pectoralis major myofascial flap (PMMF) and deltopectoral flap (DPF).

## Case Report

A 65-year-old gentleman presented to us with the history of persistent PCF of 3 months duration. He had undergone an upfront total laryngectomy for glottis cancer at some other center and developed a PCF on the fifth post operative day. The PCF had not healed in spite of conservative management for 3 months. On examination, the fistula was about 8 × 3 cm in size started from a marginal distance away from the base of tongue and was about 8 ×

3 cm in size. There was complete necrosis of overlying skin of the neck. The width of the posterior wall of pharynx was 6 cm, and the edges were granulating. As the expertise of a plastic surgeon for free flap was not available at our center, we planned for a pedicled flap closure. As adequate width of the mucosa was available, the neopharynx was closed primarily. The closure was reinforced with a PMMF harvested through an inframammary crease incision. The DPF was also harvested taking into account the width of the skin defect in the neck (Figure 1). The intra- and postoperative course were uneventful. The patient was discharged on postoperative day 10 on oral diet. Three weeks after the index surgery, the DPF was divided and donor area closed. The patient was disease free 6 weeks after the second surgery and discharged on full oral diet.

## Discussion

PCF is the most feared complication of total laryngectomy. The reported incidence varies from 2% to 3% after primary laryngectomy when compared with the surgery performed postradiotherapy, which is around 10%–12% [5]. Prior radiotherapy, poor nutritional status, hypopharyngeal primary, prior tracheostomy, and positive resection margins are considered as the most common risk factors for the development of PCF after laryngectomy [5, 6]. Use of vascularized tissue at the time of pharyngeal closure in the form of pectoralis major flap is one of the common strategies adopted to reduce the incidence of PCF.

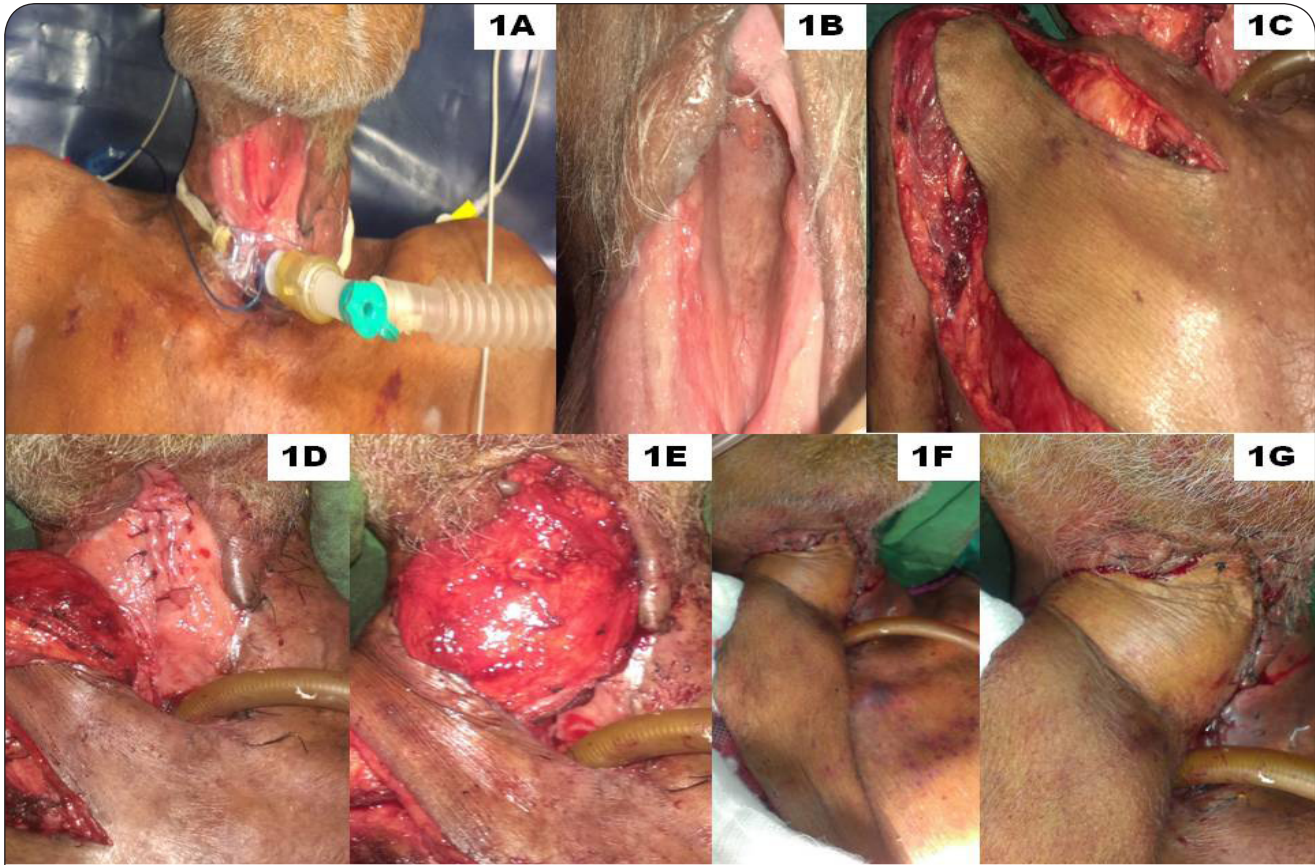
Most PCFs respond well to the conservative management, which consists of local wound care, debridement of slough, nasogastric feeding, and antibiotics. In general, >80% PCF after primary surgery and 60% PCF after prior radiotherapy heal spontaneously with conservative management [7–9]. Persistent PCF even after

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**Figure 1:** A, Patient profile showing a large PCF; B, PCF extending superiorly upto the base of tongue with granulation tissue at the edge of the defect; C, deltopectoral flap harvested; D, primary closure of the remnant pharyngeal mucosa; E, reinforcement of neopharynx with PMMF; f and g, closure of the skin defect with deltopectoral flap.

1 month of conservative management requires surgical repair, although many authors do wait up to 3 months [10]. There is no consensus on the choice of an ideal flap for repair of PCF. The method adopted largely depends on diameter of the fistula and prior radiotherapy.

Local flaps that have been described in literature include rhomboid flaps, lateral cervical flaps, and rotation and transposition flaps [11]. Disadvantage of these flaps lies in the random pattern of the vascular supply, which increases the risk of flap necrosis. Sternocleidomastoid muscle flaps have been used for closure of nonmalignant fistulas such as those resulting from the spine surgery [12]. Local flaps based on sub mental artery involving lower lip and that based on superficial temporal artery have been sparingly used in the repair of PCF. However, both are associated with visible donor site morbidity [13, 14]. Free flaps are considered as the most reliable modes of repair of a PCF. Free radial forearm flap, island trapezius flap, and free jejunal interposition are those that are commonly being used [15, 16]. Among these, the free jejunal interposition is mainly used for circumferential defects. However, these free flaps need considerable expertise to get the best results.

In this case, we used PMMF and DPF to provide a vascular reinforcement for the neopharynx and to cover the skin defect.

Unlike pectoralis major myocutaneous fascial flap, PMMF does not increase the bulk of the flap. It even provides a good vascularized tissue that promotes the healing of neopharynx. DPF, also known as Bakamjian flap, is based on the cutaneous branches from the intercostals arteries. Previously, use of one of these flaps alone was being described in the management of a PCF. The purpose of combining these two was to improve the healing of fistula and to provide a good esthesia to the neck.

### Conclusion

PMMF with DPF are reasonable alternatives to free flaps for closure of large PCFs in a resource-limited setting.

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