



ANAESTHETIC MANAGEMENT OF A CASE WITH PHARYNGOCUTANEOUS FISTULA POSTED FOR LARYNGEAL RECONSTRUCTION

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ABSTRACT The responsibility of the anaesthesiologist is to secure the airway and provide adequate ventilation to the anaesthetised patient. Anaesthesiologists play a role in the management of a patient with pharyngocutaneous fistula undergoing laryngeal reconstruction. Patient presented with Montgomery T tube in situ and was replaced with Portex tracheostomy tube preoperatively. Following induction, the tracheostomy tube was replaced with a flexometallic armored endotracheal tube and general anaesthesia was administered. After the end of surgery, the flexometallic endotracheal tube was replaced with Portex tracheostomy tube. At the end of 5th postoperative day tracheostomy tube was removed.

KEYWORDS : Montgomery T tube, flexometallic tube, laryngeal reconstruction

INTRODUCTION

Pharyngocutaneous fistula is a communication between the pharynx and cervical skin around the surgical incision or less frequently around the stoma of the tracheostomy. Pharyngocutaneous fistula is the most common non fatal complication following total laryngectomy^{2,3}. It usually appears around 3rd to 8th postoperative day. The reported incidence is extremely variable ranging from 3.6% to 65%⁴⁻⁶. Pharyngocutaneous fistula can be managed conservatively in the majority of the cases. However, small number of these will remain patent. Persistent fistula requires surgical correction. This article discusses the successful management of a patient with pharyngocutaneous fistula undergoing surgical reconstruction.

CASE REPORT

A 55 year old male patient weighing 60 kg was admitted to the hospital for pharyngocutaneous fistula repair. Patient had a history of blunt injury neck followed by stridor one month back, for which tracheostomy was done. Patient had laryngeal cartilage injury. Under general anesthesia laryngeal cartilage repair was done. Patient shifted to the intensive care unit with tracheostomy tube in situ. From 5th post operative day there was salivary discharge from the operated site diagnosed to be pharyngocutaneous fistula. On 7th post operative day, Montgomery T tube was inserted.

He was planned for elective pharyngocutaneous fistula repair. He was investigated with routine blood investigation, ECG, ECHO, chest Xray, X ray lateral view neck and pulmonary function test. Videolaryngoscopy showed normal posterior 1/3rd of tongue, vallecula, epiglottis and right arytenoid. Left arytenoid and vocal cord could not be visualised. CT neck showed deep neck space emphysema involving bilateral carotid, submanubular and supramediastinal space. There was no evidence of tracheal injury. There was a high chance of rent at the level of left false cord. The size could not be measured. He was assessed under ASA III with high risk informed consent. Consent for post operative ventilator support was also obtained. Adequate blood was reserved.



Figure 1. Patient with Montgomery T tube

After more than 8 hours of fasting, patient was reassessed in pre-operative room. After securing intravenous line, the patient was premedicated with Injection Glycopyrrolate 0.2 mg and Injection Ranitidine 50 mg intramuscularly. Patient was shifted to the operation theatre and positioning was done with a sand bag behind the shoulder to provide adequate neck extension. Monitors were connected to the patient and baseline parameters were recorded. Montgomery T tube was removed and 7.5 size Portex tracheostomy tube was inserted. Bilateral air entry ensured. Premedication with Injection Midazolam

2mg and Injection Fentanyl 100mcg were given intravenously. As the patient was on 7.5 size Portex tracheostomy tube, Bains circuit was connected to it and preoxygenation was provided for 5 minutes. Induction was done with Injection Propofol 120 mg and Injection Vecuronium 6 mg. After confirming adequate relaxation and hypnosis, the Portex tracheostomy tube was removed and a 7.5 size cuffed reinforced flexometallic tube was inserted through the tracheostomy port. Cuff was minimally inflated just enough to prevent leak. The flexometallic tube was sutured to the anterior chest wall. Bilateral air entry was confirmed. ETCO2 monitor was connected. Maintenance of anaesthesia was provided with nitrous oxide oxygen mixture (50:50) along with 1% to 1.5 % sevoflurane. Muscle relaxation was given by intermittent doses of Injection vecuronium. The surgery proceeded for 2 hours. Fistula tract was found between aryepiglottic fold and cervical skin and the same was excised. Thyroid cartilage reconstruction was done. After securing complete hemostasis, wound was closed in layers. The flexometallic endotracheal tube was then removed and 7.5 size Portex tracheostomy tube was inserted.

After adequate respiratory efforts, the patient was reversed with Injection Neostigmine 2.5mg and Injection Glycopyrrolate 0.4mg. Patient was comfortable, had good respiratory efforts and was maintaining saturation of 98% on room air with tracheostomy tube in situ. Patient was shifted to intensive care unit for observation. Vigilant postoperative monitoring was continued. On the 5th postoperative day patient was shifted to operation theatre and tracheostomy tube removed. Tracheostomy site was closed. Post extubation, the patient was comfortable with saturation of 97 to 98% in room air.

DISCUSSION

Technical limitations to deliver anaesthesia and to provide adequate ventilation in perioperative and postoperative period for laryngeal reconstructive procedures can now be overcome by careful preoperative delineation of the surgical site, close intraoperative communication amongst the anaesthesiologist and the surgeon, improved anaesthetic management techniques and meticulous postoperative care.

Pharyngocutaneous fistula is the most commonly reported postoperative complication in total laryngectomy patients. Pharyngocutaneous fistula significantly increases morbidity, length of hospitalization, and cost of care, in addition to delaying the start of indicated adjuvant therapy⁷. Salivary fistulae also predispose patients to neck large vessel injuries and cause considerable discomfort as patients have to be fed through nasogastric tubes⁸. Factors related to the incidence of Pharyngocutaneous fistula include age, gender, smoking and alcohol consumption during the disease, liver function, anemia, previous radiotherapy, previous tracheostomy, neck dissection, comorbidities (diabetes, decompensated congestive heart failure, malnutrition, chronic bronchitis) and even postoperative vomiting. The factors known to be associated with increased incidence are inadequate surgery, and hematoma of the surgical wound.

The conservative treatment of the Pharyngocutaneous fistula aims to preserve and restore the injured region. Wound healing can be delayed

by several intrinsic factors (age, pre-existing medical diseases, radiotherapy, poor nutrition, low hemoglobin) which should be identified in order to promote the continuity of the treatment process. Silicon septal button is described as a temporary management of selected Pharyngocutaneous fistula which are not more than 1 cm in size and the cases cannot be repaired in a reasonable period of time. Decrease salivation by injection of Botulinum Toxin (BTX) – Injecting BXT into the parotid and submandibular glands, if not resected with neck dissection, in both sides under ultrasonographic guidance have given good results.

Surgical management is indicated in cases where conservative management fails and fistula persists, exposing the patient to continuous salivary leak with inherent risks of infection, aspiration, carotid artery exposure and even rupture.

Pharyngocutaneous fistula have been classified according to source of tissue used in reconstruction to three types :

Type 1 fistula is that where both tissue surfaces can be provided locally.

Type 2 fistula, one tissue surface can be provided locally and the other from a distance.

Type 3 fistula, is a fistula that requires both surfaces from distance.

Many options are available for reconstruction of Pharyngocutaneous fistula which includes Primary closure of pharyngocutaneous fistula is rarely possible but may be considered in small fistula in cases in which there is minimal surrounding soft tissue loss and the mucosa seems healthy and adequate for closure.

Loco-Regional Flaps such as Myocutaneous Flaps, Muscle Flaps, Sternocleidomastoid Muscle Flap , Radial Forearm Free Flap, Dorsalis Pedis Flap can be used.

In our case Pharyngocutaneous fistula developed in 5th postoperative day in the patient who was operated for blunt injury neck. To promote salivary drainage and to maintain airway, Montgomery T tube was inserted. Patient was posted for elective primary closure. Preoperative evaluation included detailed history regarding smoking, ability to clear secretions, exercise tolerance, and symptoms when lying supine. Meticulous attention to the airway include neck mobility, size of mouth opening, and assessment of the ability to mask ventilate⁹.

Through investigations including Chest X-Ray, Linear tomography, fluoroscopy, computed tomography, pulmonary functions tests, spirometry and videolaryngoscopy was done. During the procedure, a slight head down tilt helped to minimize aspiration of blood and secretions. Intermittent sighs helped prevent bronchiolar obstruction and atelectasis. A high FIO₂ was used¹⁰ as oxygen filled functional residual capacity permitted a few extra minutes to correct relatively common episodes of airway obstruction or tube displacement. Ventilation was continuously monitored by pulse oximetry, capnography, auscultation and observation of chest movements and arterial blood gas analysis. Several different sizes of endotracheal tubes were kept available for use throughout the procedure.

In this case we resorted to initial passage of an endotracheal tube through the tracheostomy site distal to the area of laryngeal reconstruction and this was followed by tracheostomy tube replacement at the end of surgery. Utmost care was taken to prevent aspiration of blood and secretions.

CONCLUSION

The experience with this patient suggests that successful outcome is possible with careful preoperative planning, safe and efficient intraoperative measures along with good postoperative therapy. However patients need intensive monitoring in the intraoperative and postoperative period.

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