# COMPLICATIONS OF TOTAL LARYNGECTOMY OPERATION IN ALEXANDRIA MAIN UNIVERSITY HOSPITAL

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## INTRODUCTION

**A. Laryngeal Anatomy**

1. Cartilages: unpaired (thyroid, cricoid and epiglottis), paired (arytenoid, corniculate and cuneiform).
2. Joints: Cricoarytenoid & Cricothyroid.
3. Ligaments and membranes.

- Extrinsic and intrinsic ligaments. - Vocal and Vestibular folds.

Musculature: Intrinsic and Extrinsic Laryngeal muscles

Innervation: Superior laryngeal nerve, Recurrent laryngeal nerve, AnsaGaleni.

**B. Laryngeal Carcinoma**

1. Second most common head and neck cancer.
2. Surgical management: Conservative, Total laryngectomy, Extended totallaryngectomy.

**C. Total Laryngectomy: * Indications:**

1- T3, T4 carcinomas. 2- Cartilage invasion or extra laryngeal spread.
3 - Involvement of Posterior commissure, arytenoids, or cricoarytenoid joint.
4- Completion laryngectomy after failure of conservative surgery.
5- Recurrence after radiotherapy or chemoradiation.
6- Complications or Contraindication to conservative therapy.
7- Hypopharyngeal tumors. 8- Thyroid tumors invading the larynx.

*** Complications:**

*1- Intraoperative*: Bleeding, Injury of thoracic duct, Nerve or vessels injury, Pneumothorax, Air embolism.

*2-Postoperative : a-* Early: - Pharyngo-cutaneous fistula. - Chyle leak.
- Bleeding, hematoma. - Wound complications. - Flap congestion & necrosis.
- Respiratory complications. - Carotid blow out.

*b-Late:* - Recurrence. - Stomal complications - Dysphagia.
- Complications of voice prothesis. - Hypocalcemia and hypothyroidism.

## AIM OF THE WORK

To assess the complications of total laryngectomy operation done in the otorhinolaryngology department in Alexandria main university hospital for patients suffering from laryngeal carcinoma over two years period.

## PATIENTS AND METHODS

**PATIENTS:** A prospective study carried on 55 patients undergoing total laryngectomy with or without neck dissection.

**METHODS:** ** Pre-operative assessment:*

1. Full history Taking. 2. History of the present condition:Onset, duration, preoperative staging
3. Examination:

- General examination. - Indirect laryngoscopy. - Neck examination.

** Investigations:*

a. Laboratory tests. b. CT scan of the neck with contrast.
c. Plain X-ray chest. d. Direct Laryngoscopy and biopsy.

**Operative assessment:*

1. Surgical technique: - Tracheostomy (pre or intraoperative).
- Extent of resection. - Neck dissection type and side if present.
2. Operative steps: - Apron or transverse cervical incision.
- Elevation of subplatysmal flaps. - Neck node dissection.

-Suprahyoid release and cut of suprahyoid muscles, skeletonization of the hyoid bone.
-Cut the inferior constrictor muscle at the posterior border of thyroid cartilage with dissection of pyriform fossa mucosa.
- Ligation of inferior thyroid arteries if thyroid gland will be removed.
- Preserve the inferior thyroid artery on side the thyroid lobe will be preserved.
- Anterior pharyngotomy and exposure of supraglottic larynx.
- Inferior tracheal incision. - Excision of the larynx.
- Closure of pharynx in three layers. - Cricopharyngeal myotomy.
-Closure of the wound. - Detection of any intraoperative complications.

** Post-operative assessment*:

1. General and local examination of head and neck daily.
2. Pathological staging of the tumor.
3. Barium swallow.
4. Detection of any post-operative complication.

## RESULTS

**Table 1:** Distribution of the studied cases according to late post-operative complications.

| Complications | No. | % |
|---|---|---|
| **Late postoperative (n=55)** | | |
| Negative | 43 | 78.2 |
| Positive | 12 | 21.8 |
| **Late postoperative type (n=12)** | | |
| Malignant fistula | 1 | 1.8 |
| Esophageal Stenosis & dysphagia | 6 | 10.9 |
| Esophageal perforation | 1 | 1.8 |
| Recurrence | 6 | 8.10 |

**Table 2:** Distribution of the studied cases according to early post-operativecomplications

| Complications | No. | % |
|---|---|---|
| **Early postoperative (n=55)** | | |
| Negative | 39 | 70.9 |
| Positive | 16 | 29.1 |
| **Early postoperative type (n=16)** | | |
| ***Vascular complications*** | 5 | 9.1 |
| Hematoma | 3 | 5.5 |
| Stomal bleeding | 2 | 3.6 |
| Flap hemorrhage | 1 | 1.8 |
| Hematemesis | 1 | 1.8 |
| Carotid blowout | 1 | 1.8 |
| IJV hemorrhage | 1 | 1.8 |
| ***Respiratory complications*** | 3 | 5.5 |
| Chest infection | 1 | 1.8 |
| Pneumothorax | 1 | 1.8 |
| Surgical emphysema in chest | 1 | 1.8 |
| ***Deep vein thrombosis (DVT)*** | 1 | 1.8 |
| ***Wound complications*** | 11 | 20.0 |
| Surgical wound infection and dehiscence | 11 | 20.0 |
| Abdominal wound dehiscence | 1 | 1.8 |
| ***Leak of chyle*** | 1 | 1.8 |
| ***Pharyngo-cutaneous fistula (PCF)*** | 11 | 20.0 |
| ***Flap Necrosis*** | 2 | 3.6 |

## CONCLUSIONS

1. Wound complications and pharyngo-cutaneous fistula are considered the most common complication in our study.
2. Preoperative chemoradiotherapy, space invasion and extra-laryngeal spread are considered the main predisposing factors for development of post operative complications, Preoperative chemoradiotherapy had a strong relation with development of wound complications and pharyngo-cutaneous fistula, extra-laryngeal spread, space and cartilage invasion had a strong relation with development of postoperative recurrence.