DIFFERENT MODALITIES IN MANAGEMENT OF TRACHEAL STENOSIS

Essay

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By

Mahmoud Eid Abd El-Mohsen Ali El-Shazly
(M.B.; B.Ch.)

Supervised By

Prof. Dr. Ashraf El-Sebaiey
Assistant Professor of General Surgery,
Faculty of Medicine, Cairo University

Prof. Dr. Mahmoud El-Batawy
Professor of Cardiothoracic Surgery,
Faculty of Medicine, Cairo University

Dr. Ashraf Abou-Elfotooh
Lecturer of General Surgery,
Faculty of Medicine, Cairo University

Faculty of Medicine
Cairo University

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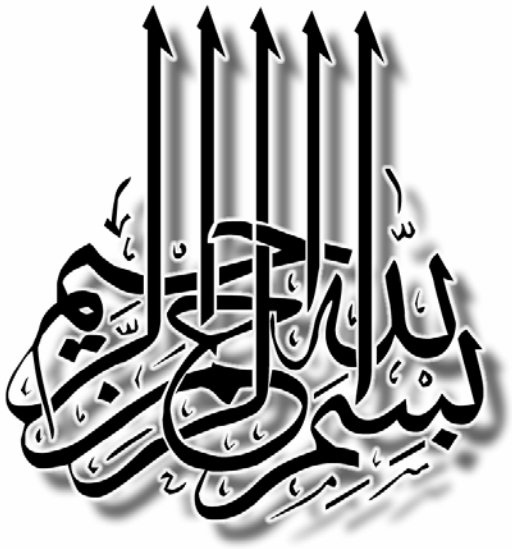

" قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم "

صدق الله العظيم
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TO MY FAMILY

ABSTRACT

This essay deals with the problem of tracheal stenosis. Discussing some important anatomical, embryological, and histological features of the trachea. Give an idea about causes of tracheal stenosis and their clinical presentation we also discussing the diagnostic techniques for tracheal lesion and different modalities in management of tracheal stenosis.

Keywords:

Tracheal stenosis - Tracheal reconstruction - tracheal stenting - Laser therapy – brachytherapy

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Abbreviations

LMB	:	Left main bronchus
RMB	:	Right main bronchus
C.T	:	Connective tissue
CT	:	Computed tomography
MRI	:	Magnetic resonance imaging
YAG laser	:	Yettrium/Admium/Gullin Laser
LDR	:	Low dose rate
HDR	:	High dose rate
^{195}Ir	:	Radioactive iodine

INTRODUCTION

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The concept of surgery of the trachea until recently was almost identified with the performance of small operations in its cervical portion, tracheostomy in the first place. In lesions of the thoracic portion and the bifurcation, surgical manipulations remained hardly practicable for a long time due to considerable hazards of severe respiratory disturbance and the difficulty of restoring the respiratory tract **(Grillo, 1978)**.

The advent of endotracheal intubation and general anesthesia in the mid-1800s awakened surgeons to the possibility of attacking the airway and the pulmonary parenchyma, however it was more than a century before clinical and laboratory attempts were made to resect and reconstruct the trachea.

The principle clinical manifestations of tracheal stenosis are dyspnea, stridulous breathing, cough, sometimes cyanosis and disturbances of lung ventilation. Chronic disturbance in pulmonary ventilation in stenosis of trachea leads to hypoxia and pathological changes in various organs and tissues. That is why reconstructive surgery of the tracheal lesions is essential for the complete recovery of the patient **(Andrews and Pearson, 1973)**.

Throughout the past years various attempts at partial resection and tracheoplasty, limited resection, primary repair, and replacement have been attempted with little success. Resection generally failed because of flawed technique, inadequate anesthesia and limited knowledge of tracheal anatomy. Laboratory research and clinical pioneering by Grillo, Pearson and Cooper defined the problems and provided the answers for modern tracheal surgical endeavors. Early anatomic studies by Miura and Grillo defined the blood supply of the trachea in 1966. Further elucidation by Salassa and associates clarified the all important lateral longitudinal blood supply of the trachea. Basic surgical technique and principles of tracheal mobilization were delineated by Grillo and coworkers in both the clinical and laboratory theaters. These accomplishments of the early and mid-1960s made tracheal surgery a reality.

Currently tracheal surgery is performed for the management of congenital, traumatic, iatrogenic, and neoplastic lesions of the trachea. The severity of the tracheal stricture is the major factor in deciding which

method of treatment to be used. Severe strictures in which the diameter of the tracheal lumen is reduced to 5mm or less, tend to be treated surgically since there is no evidence that they can be managed effectively by dilatation. Although dilatation is usually used to maintain a satisfactory airway while waiting for the optimum time for surgical interventions **(Grillo et al., 1996)**.

Endoscopic diathermy - coagulation is usually needed as therapy supplementary to dilatation or operative treatment. It seems to be effective mainly in resectable lesions narrowing the trachea. Endoscopic laser therapy has been advocated for a number of benign and malignant conditions of the respiratory tract.

Most of tracheal defects can be repaired primarily by end-to-end anastomoses. Some however can not be repaired by this technique because too much of the trachea must be resected or adequate tracheal mobilization is not possible. Various types of autogenous free grafts and pedicled flaps have been used to reconstruct partial tracheal defects.

Even though the superiority of using the patient's own tissue for tracheal reconstruction is acknowledged. The degree of tracheal disease, the decrease in elasticity of the airway, and the extent of fibrosis from previous surgical procedures may preclude primary repair. Under these circumstances, it is imperative to use a prosthesis to restore airway continuity **(Hermes C Grillo, 2003)**.

AIM OF THE WORK:

The aim of this work is to review the literature discussing different etiology, pathology, and clinical presentations of tracheal lesions requiring reconstruction.

Also the methods of diagnosis, the indications of tracheal reconstruction and the different surgical techniques including their complications and results will be studied.

REVIEW OF LITERATURE