Introduction and Aim of the Work

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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 is the first place. In lesions of the thoracic portion and the bifurcation, surgical manipulations remained hardly practicable for a long time due to conciderable hazards of severe respiratory disturbance and the difficulty of restoring the respiratory tract.

The advent of endotracheal intubation and general anesthesia in the mid-1800's 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.

If the lumen of the trachea is reduced by more than one third of its diameter the remaining lumen is not sufficient to guarantee satisfactory oxygenation. That is why reconstructive surgery of tracheal lesions is essential for the complete recovery of the patient.

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 Salssa and associates clarified the all important lateral longitudinal blood supply of the trachea. Basic surgical technique and principles of the tracheal mobilization were delineated by Grillo and coworkers in both the clinical and laboratory theaters. These accomplishments of the early and mid-1960's made tracheal surgery a reality. Currently tracheal surgery is performed for the management of the congenital, traumatic, iatrogenic, and neoplastic lesions of the trachea. The severity of the tracheal stricture is the major factor in deciding which methods 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.

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 the 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 through the superiorty of using the patients own tissue for tracheal reconstruction is acknowledged. The degree of tracheal disease, the decrease in elasticity of the airway, and the extent of the fibrosis from

previous surgical procedures may preclude primary repair. Under these circumstances, it is imperative to use a prosthesis to restore airway continuity.