سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

سامية محمد مصطفى

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

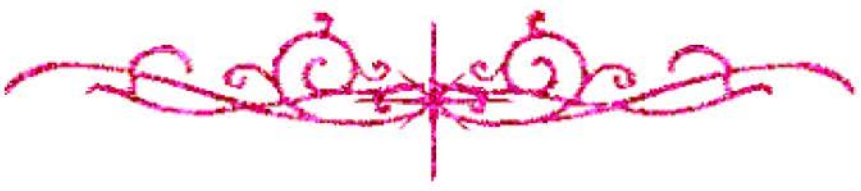
يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

سامية محمد مصطفى

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة



سامية محمد مصطفى

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

The Use of Intraoperative Mitomycin-C In The Treatment and Prevention of Glottic and Subglottic Stenosis

Thesis
Submitted in partial fulfillment for the Master Degree in Otorhinolaryngology

By
Tamer Amin Abdel Salam
M.B;B.CH.

Supervised by

Prof. Dr. Sherif Adly Raafat
Professor of Otorhinolaryngology,
Cairo University

Dr. Louay El Sharkawy
Assistant prof. of Otorhinolaryngology,
Cairo University

Department of Otorhinolaryngology
Faculty of Medicine
Cairo University

2004

ACKNOWLEDGEMENT

I would like at first to express my sincere thanks to ***Prof. Dr. Sherif A. Raafat,*** Professor of ENT, Kasr El-Aini School of Medicine, Cairo University, for his great support, valuable directions and encouragement. His planning, constant guidance and objective criticism, made the accomplishment of this work possible.

I wish also to express my deepest thanks and gratitude to ***Assist. Prof. Dr. Louay El-Sharkawy,*** Assistant professor of ENT, Kasr El-Aini School of Medicine Cairo University for his kind cooperation and unlimited support throughout this work.

Lastly, I feel deeply thankful to all who extended to me a helping hand during this work.

Tamer Amin Abd-Alsalam

CONTENTS

INTRODUCTION

AND AIM OF THE WORK

INTRODUCTION AND AIM OF THE WORK

Treatment of laryngeal and tracheal stenosis remains one of the most difficult and perplexing problems in the area of head and neck surgery. Scar formation and restenosis remains the main cause of failure in the surgical management of airway stenosis.

Modulation of the wound healing process to prevent excessive scar formation can play a major role in improving the success rate and decreasing the need to further surgery. (Rahbar et al., 2000).

Mitomycin-C is a naturally occuring antibiotic derived from *streptomycin caespitosus* that has traditionally been used for intravenous chemotherapy. When given systemically, this compound is believed to exert antitumor activity through it's ability to inhibit the synthesis of DNA at lower concentrations, with the ability to inhibit the synthesis of RNA and proteins at higher concentrations. (Spector et al., 1999).

Mitomycin-C also acts as an antiproliferative agent that can inhibit fibroblast activity and supress fibrosis and scar formation, The exact mechanism by which it exerts an antifibroblast activity is unknown. There is evidence to suggest that the reduction of fibroblast activity may be mediated by apoptosis, which is a gene-directed process causing cell death. Apoptotic cells display a characteristic morphology that includes condensation of the nucleus and cytoplasm, nuclear fragmentation and cytoplasmic blebbing with an intact cell membrane. Lee et al., (1999), showed that mitomycin has antifibroblastic properties in vivo.

Khaw et al., (1993), showed that in vitro, a single application of mitomycin could inhibit fibroblast proliferation. The fibroblast population and collagen formation are substantially increased during the wound healing response that follows a mucosal insult such as a surgical procedure. The rationale of the use of Mitomycin-C is to inhibit the fibroblast proliferation during the postoperative phase without damaging the mucosal or the epithelial growth.

In the field of ophthalmology, Mitomycin-C has gained wide acceptance as a topical agent for procedures in which scarring and lesion reformation are problematic (Khaw et al., 1993) . Some common uses of topical Mitomycin-C include the maintenance of patency after glaucoma filtration surgery (Schmidt-Erfurth et al, 1997 and Scott et al., 1998) and dacryocystorhinostomy (Ugurbas et al., 1997), prevention of pterygia reformation after primary excision (Caliskan et al., 1996), and prevention of scarring after strabismus surgery (Cruz, 1996).

The aim of this study is to evaluate the efficacy of topical intraoperative mitomycin-C as an adjuvant method for the management of glottic and subglottic stenosis.

GLOTTIC AND SUBGLOTTIC STENOSIS

Chronic laryngeal stenosis is a partial or complete cicatricial narrowing of the endolarynx. It may be congenital or acquired. The management of chronic laryngeal stenosis is a difficult problem that challenges the laryngologist. The condition is rare and present multiple problems affecting soft tissue and cartilage. The problems of pediatric patients often have to be managed differently from those of adult patients. Of all layngeal stenoses chronic sublottic stenosis is the most common and the difficult to treat (Robin et al, 1986).

Etiology and Pathophysiology

Congenital laryngeal stenosis

The main cause of congenital stenosis is inadequate recanalization of laryngeal lumen after completion of normal epithelial fusion at the end of the third month of gestation (Smith and Bain, 1965). The final pathologic findings will depend on the degree of recanalization, thus if the laryngeal lumen is not recanalized and remains completey obliterated, it will result in complete laryngeal atresia, whereas if it is partially recanalized and thus partillay obliterated it will result in incomplete atresia, stenosis or web. The cricoid cartilage is usually abnormally developed (Robin et al, 1986).

More rarely congenital stenosis is associated with more generalized cartilaginous dystrophic disorders (Robin et al, 1986).

Acquired laryngeal stenosis

The main causes of acquired chronic laryngeal stenosis are summarized as follows:

1.Trauma

a. External laryngeal injury

1. Blunt neck trauma
2. Penetrating wound of the larynx

b. Internal laryngeal injury

1. Prolonged endotrcheal intubation
2. Postsurgical procedure
3. Postradiation therapy
4. Endotracheal burn
    a. Thermal
    b. Chemical

2. Chronic inflammatory disease

3. Laryngeal neoplasm

Laryngeal trauma:

Trauma is the most common cause in children and adults. The laryngeal spaces are important in the creation of stenosis after injury. Theses spaces are readily distended by blood which is not evacuated. Two pathologic problems may occur: absorption of the hematoma by macrophage invasion or organization with deposition of fibrous tissue. The collagen in