LAPAROSCOPIC SURGERY

An Essay

Submitted for Partial Fulfillment of

Master Degree in General Surgery

By

Ali Ahmed El-Seddique

M.B.B.Ch.

Supervised by

Pro. Dr. Emam Fakhr

Prof. of General Surgery,

Ain Shams University, Faculty of Medicine

Dr. Ismail Abd El-Hakieme Radwan

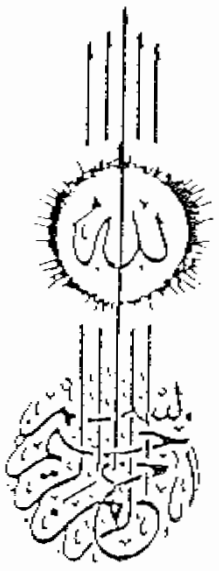
Ass. Prof. of General Surgery,

Ain Shams University, Faculty of Medicine

Faculty of Medicine

Ain Shams University

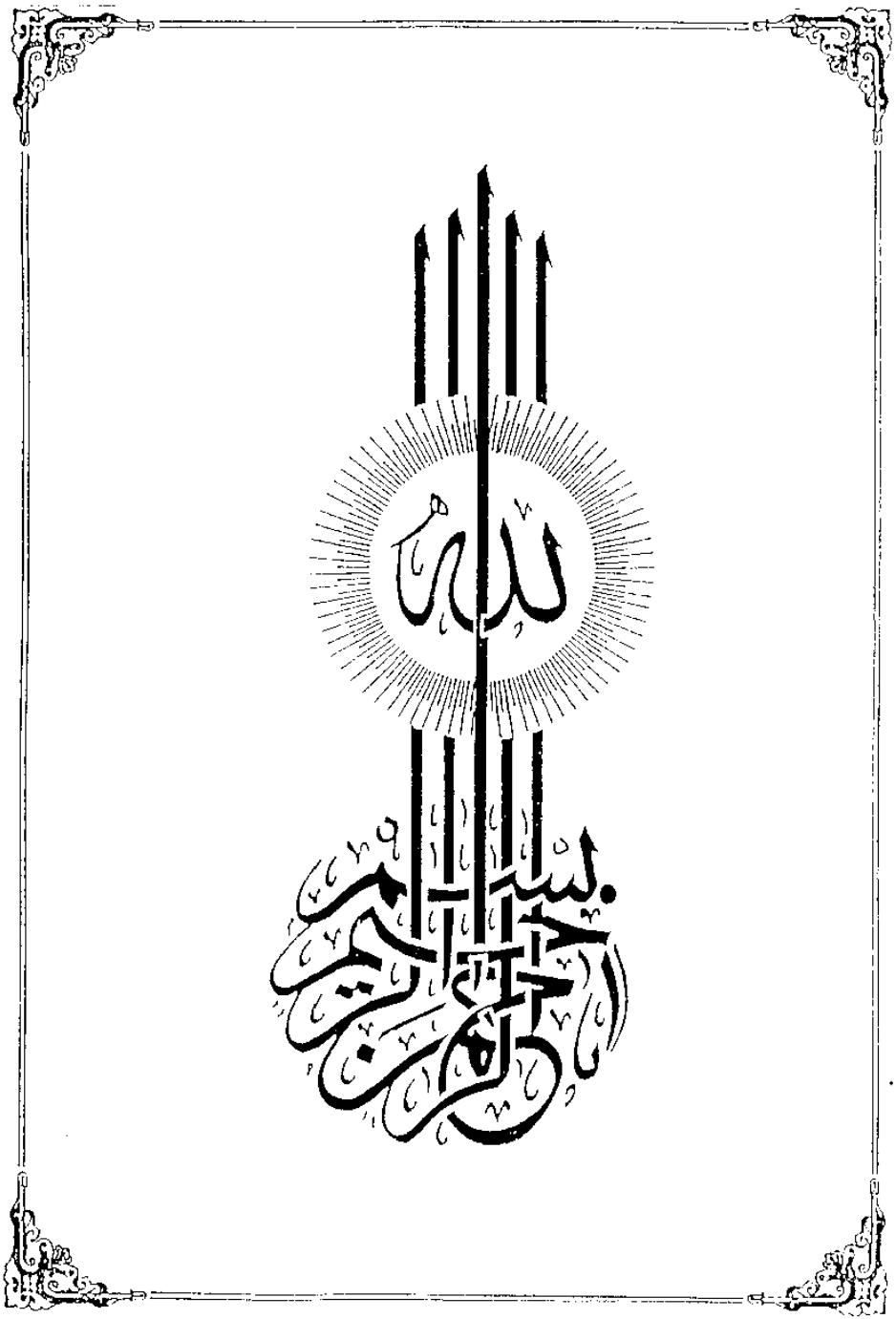
1993



سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم

صدق الله العظيم

سورة البقرة آية ٣٢



Acknowledgement

I find great pleasure to express my indebtedness and gratitude toward all those who sincerely participated in preparing this work.

The greatest credit must go to Professor Dr. Emam Fakhr, Prof. of General Surgery, Ain Shams University, whose observations garnish almost every page of this work. To him I offer my Thanks.

The deepest thanks must extend up to Dr. Ismail Abd El-Hakieme Radwan, Ass. Prof. of General Surgery, Ain Shams University, for his cooperation while preparing this work.

I would like to express my gratitude to all staff members of Department of General Surgery at El-Sahel Teaching Hospital.

CONTENTS

LIST OF FIGURES

INTRODUCTION

INTRODUCTION

The discipline of surgery is changing, traditional concepts and approaches to treatment of surgical diseases are giving way to a new type of operative intervention variously referred to as minimally invasive surgery, limited exposure surgery or laparoscopic surgery.

In the summer of 1987, Moruet and his colleagues performed the first laparoscopic cholecystectomy in Lyon, France.

Laparoscopic surgery is rapidly becoming a popular alternative to some traditional operative procedures such as appendectomy, inguinal hernia repair, and truncal and selective vagotomy.

Clearly, it is the patient who will benefit from those new procedure, as laparoscopic surgery is associated with diminished pain and cosmetic disfigurement, as well as quicker resumption of normal activities.

Successful treatment of complicated diseases and the expeditious return of the patient to society as a functioning member should be our goal.

We shall go to discuss the advantages, disadvantages, and operative procedures which can be done by surgical laparoscope.

REVIEW OF LITERATURE

HISTORICAL REVIEW

HISTORICAL REVIEW

HISTORICAL MILESTONES.

The importance of performing an internal examination of the many compartments of the human body has been recognized for several centuries. The Arabian physician Abulkasim (936-1013) is often credited with being the first to use reflected light to inspect an internal organ, the cervix. Instruments have been subsequently developed to examine the nasal recesses and the urinary bladder with the aid of artificial light and mirrors. Endoscopy, as we know it today, was not developed until the problem of the thermal injury caused by the illuminating source was solved (Filipi et al., 1991).

In 1901 a celioscopy has been used to inspect the peritoneal cavity of a dog after insufflation with air by Killing.

In 1910 Jacobaeus used this procedure in man. Trocar and cystoscopes have been introduced directly into the peritoneal cavity. It was another 30 years before pneumoperitoneum was used prior to insertion of the first cannula. Goetz and later

Veress developed an insufflation needle for the safe introduction of gas into the abdomen (Filipi et al., 1991).

In 1964 Kurt Semm in Keil, Germany, developed an automatic insufflation device that monitored abdominal pressure and gas flow. Prior to this time air was introduced into the peritoneal cavity by means of a syringe.

With the development of safer insufflation needle as well as instruments for controlling gas flow during pneumoperitoneum, complication such as bowel perforations and injuries to retroperitoneal vessels were significantly reduced.

The introduction of fibroptic (cold) light source in the early 1960s eliminated the risk of bowel burns caused by incandescent lighting.

Bowel injuries related to unipolar coagulation, however, remained a problem. Professor Kurt Semm played a vital role in the development of surgical laparoscopy. His pioneering work resulted in a series of technologic advances that led to more complicated therapeutic laparoscopic procedure. To provide accurate

and easy transection of tissues, he invented the hook scissors, which minimized the problems of using this scissors without the advantages of depth perception.

In the early years of operative pelviscopy, inadequate hemostasis often necessitated conversion to laparotomy. The prettied suture loop (Roeder loop) alleviated some of these problems. Semm also perfected intra- and extra-corporeal Knot-tying techniques and the instruments required to perform these maneuvers. As more difficult operative procedures were undertaken, it become evident that a high volume irrigation system to evacuate clots and obtain a clear operative field was desirable. As a result, he developed an irrigation/ aspiration apparatus with design modification to prevent tube clogging. He also, facilitates laparoscopic training by creating the pelvitrainer designed to teach surgeons the hand eye coordination and suture-tying techniques required for operative laparoscopy (Semm, 1989).

Many other instruments such as needle holders, cone-shaped trocars, microscissors, clip appliers, and atraumatic forceps were conceptualized, created, and first utilized at the university of Keil (Filipi et al., 1991).

Laparoscopic visualization of the abdominal cavity was once restricted to the individual directing the operative procedure, and participation by other members of the surgical teams was thus limited. Therefore, complicated operative procedures proved to be tedious because of the inability of the assistant (s) to effectively interact with the surgeon. Although articulated attachments containing a series of mirrors could split the laparoscopic image, these proved to be cumbersome and ineffective.

In 1986, however, this problem was solved with the development of a computer chip T.V. camera attached to the laparoscope. This began the era of video-guided surgery in which laparoscopic surgical technique could be used for more complicated gastro-intestinal procedures.

Rapid developments in the area of video imaging have resulted in higher resolution video monitors affording greater clarity and definition as well as improved magnification of the operative field, making fine dissection of tissue planes easier.

The first laparoscopic procedure performed by general surgeon appears to have been liver biopsies guided under direct vision. In 1986, laparoscopy has been utilized for staging of pancreatic carcinoma (Warshaw et al., 1986).