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لم ترد بالأصل

Pre-operative Evaluation of Intra-abdominal Malignant Tumors
By Laparoscopy And
Guided Fine Needle Aspiration Cytology

Thesis

Submitted In Partial Fulfilment of M.D Degree

(Surgical Oncology)

By

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1998

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ACKNOWLEDGMENT

First and foremost thanks to God.

I would like to express my gratitude and sincere thanks to ***Prof. Dr. Samy Badawi,*** *Prof. of surgical oncology, NCI, Cairo University, for his valuable supervision, constant support and encouragement in the conduction of this work.*

I extend my most profound gratitude and appreciation to ***Prof. Dr. Magdy Elshahawy*** *Prof. of surgical oncology, NCI, Cairo University, for his generous advise, unfailing guidance and kind help throughout the whole work.*

I am highly grateful to ***Prof. Dr. Monir El Didi,*** *Prof. of cytopathology unit, NCI, Cairo University for his generous cooperation and untiring effort.*

I am indeed indebted to ***Dr. Mohamed Gamil,*** *Ass. Prof. of surgical oncology, NCI, Cairo University who sacrificed his precious time for his great help and sincere care in the preparation of this work.*

Finally, I would like to thank all members of the surgical oncology unit of NCI, for their whole hearted cooperation throughout the conduction of this work.

TABLE OF CONTENTS

INTRODUCTION

Prospective evaluation of patients for the anatomical extent of spread of malignant disease, usually before primary treatment, is termed staging. Advances in both medical and surgical oncology have resulted in situations where treatment will be markedly altered if cancer is shown to have spread to the liver or peritoneum. This determination is usually so critical in treatment selection and prognosis that material histologic evidence is mandatory.

Any test used in cancer staging should have specific consequences if positive. The usual approach is to first order non-invasive tests, and if these are positive to proceed with more invasive procedures by which means diagnostic pathology results might be obtained. It is most common in current practice to stage all intra-abdominal malignancies with computerized tomography (CT), generally acknowledged to be the most accurate method for imaging intra-abdominal contents. The even more expensive magnetic resonance imaging (MRI) is in an early phase of development for use in intra-abdominal disease. Extracorporeal ultrasound (US) seems less accurate than CT overall, but is often used since it is less expensive and sometimes US is used in addition to CT **(Lightdale, 1994).**

Laparoscopy has been used in the diagnosis and staging of intra-abdominal malignancy for several decades. Prior 1990s, the practice was restricted to a few isolated centres and the potential benefits to patient care indicated by the results reported from these institutions were largely ignored. The advent of laparoscopic surgery changed the situation dramatically. Diagnostic and staging laparoscopy is now recognized as invaluable in the management of patients suffering from common intra-abdominal cancers and both ablative and palliative bypass procedures are being practised via the laparoscopic approach in these patients. Retrospective reports have consistently shown that laparoscopy can improve the accuracy of staging of intra-abdominal tumors and can reliably detect inoperability in pancreatic and gastrointestinal cancer. These reports although documenting a high diagnostic yield and instances where unnecessary laparotomy was avoided, information on the crucial issue of how often laparoscopy alters clinical management cannot be ascertained from the results of these studies **(Cuschieri, 1995).**

The aim of this prospective study is to assess the accuracy of visual laparoscopic diagnosis and to determin the management benefit from diagnostic laparoscopy in intra-abdominal malignant tumors.

LAPAROSCOPIC EQUIPMENT AND INSTRUMENTATION

Diagnosis and intervention mediated by optical and video technology have been successful in many medical and surgical arenas. As medicine has developed, certain specialties have successfully "adopted" these modalities more quickly and easily than others.General surgery, however, is a conservative discipline, an attribute that once served it well. General surgeons also tend to trust their visual and tactile senses more than "technology." The combination of these factors has caused the treatment of many disease states to slip, beyond the province of general surgery (polypectomy via colonoscopy, sphincterotomy via duodenoscopy, etc.).

The growing popularity of a single endoscopic procedure, laparoscopic cholecystectomy, appears destined to usher general surgeons into a new phase of therapeutic technology. For most general surgeons, this will require a significant paradigm shift. We will now be required to trust an image produced on a two-dimensional video screen rather than our three-dimensional vision. We will be required to manipulate and "feel" tissue from a distance of 18 inches. We will need to readjust our senses and develop hand-eye coordination when viewing our movements on a video monitor. All of this will require us to familiarize ourselves with and be dependent on new types of equipment and instruments.

PLANNING

The sophisticated equipment necessary to perform laparoscopic surgery is expensive.Some key factors other than cost must be considered when planning to purchase equipment and instruments. Many problems can be avoided by ensuring that all equipment is compatible and uniform so that the instruments will fit through the cannulas and the various cables will connect with one another. It is recommended that the surgeon use as many instruments from the same supplier as possible to avoid this problem. Disposable laparoscopic trocars and sheaths are available with converters that can be attached to the cannula, allowing different sized instruments to be used without loss of pneumoperitoneum. (Fig. 1)

EQUIPMENT

The technology of endoscopic video equipment is moving forward quickly. In future years we can expect to see new designs with enhanced capacities not yet imagined. Imaging systems incorporating high-definition video cameras and monitors (resolution greater than 1200 lines per inch) are already being field-tested.

Insufflation Equipment

Visualization within the peritoneal cavity requires "space" in which to shine light and maneuver. In a standard laparotomy this space is created by opening the abdomen and allowing room light and air into the cavity. In laparoscopic procedures this is accomplished by filling the peritoneal cavity with a gas that distends the abdominal wall and provides an area for light and manipulation, a process termed pneumoperitoneum . CO_2 is the standard gas used for pneumoperitoneum. It can be injected directly into the bloodstream in volumes up to 100 ml/min without serious metabolic effect. It also suppresses combustion and appears to be relatively innocuous to the tissues of the peritoneum. Not only is it the safest gaseous medium currently in use, but it is also readily available, inexpensive, and easy to use (**Mark and Thomas,1992**).

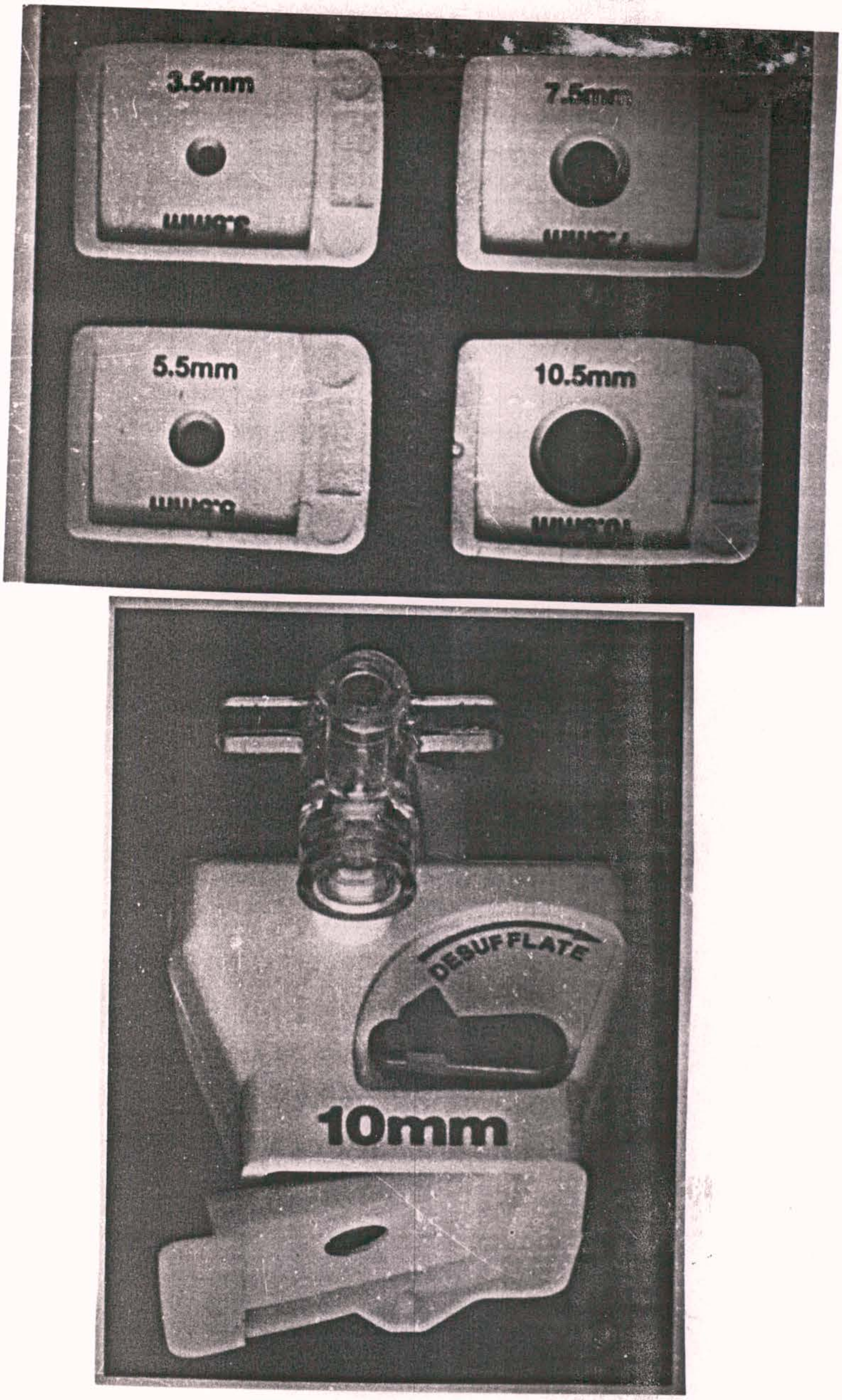

Fig. 1: Laparoscopic trocar and sheath with convertors for different sized instruments.

A means must also be devised for safely initiating and maintaining pneumoperitoneum. It is critical to the safety of the patient that the pressure within the abdomen not risc above 12 to 14 mm Hg to prevent hemodynamic instability.Now sophisticated equipment has been developed that automatically delivers CO_2 from a high-pressure tank, through a regulator, and into the patient at predetermined flow rates. These machines constantly monitor the intra-abdominal pressure, stop the flow once a certain intra-abdominal pressure is reached, indicate the rate of flow of CO_2 into the abdomen, and record the total volume of gas delivered from the machine. Rapid CO_2 insufflation into the abdomen is often necessary when a smoke or a laser plume is being evacuated from the abdomen . CO_2 is also lost through leaks around valves and gaskets and during the exchange of instruments. Therefore in laparoscopic general surgery a high-flow insufflator capable of delivering at least 6 L of gas per minute is necessary, but a flow rate of 8 or 10 L/min is preferable (**Mark and Thomas,1992**).

Insufflators are available in various styles and formats, depending on the manufacturer. (Fig. 2)

In addition to the above-mentioned features, the machine should have a clearly readable and understandable set of gauges so that the operating team can observe the intra-abdominal pressure and the gas flow rate continuously.