COLLATERAL CIRCULATION "VARICEAL AND CAUDAL" IN PORTAL HYPERTENSION IN EGYPTIAN PATIENTS

THESIS

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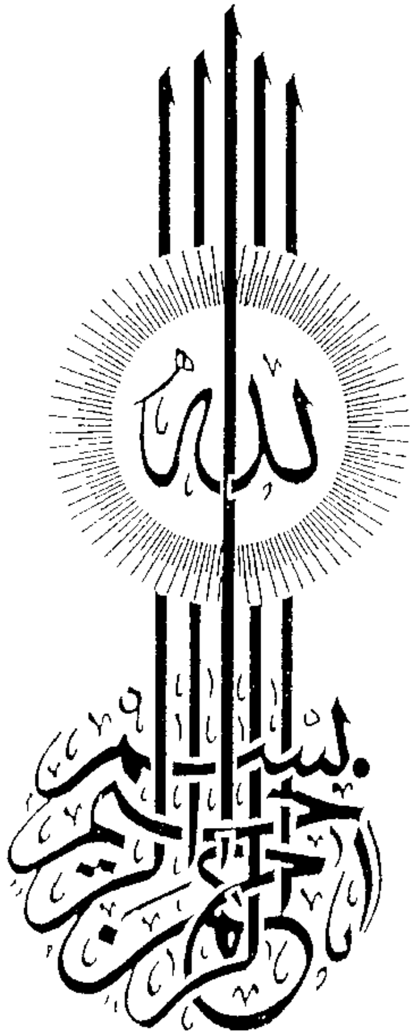
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INTRODUCTION AND AIM OF THE WORK

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When the portal circulation is obsructed, within or outside the liver, a remarkable collateral circulation develops to carry portal blood into the systemic veins. The most important develops at the cardia of the stomach where the left gastric (coronary) vein and/or the short gastric veins anastomose with the intercostal, diaphragmo-oesophageal, azygos and hemiazygos veins of the caval system. Deviation of blood into these channels leads to varices in the subucosa of the aesophagus and upper part of the stomach. On the whole, endoscopy is the most reliable method of demonstrating them **(Sherlock, 1985)**.

On the other hand, caudal (non-oesophago-gastric or non-variceal) collaterals are the most charchteristic and specific laparoscopic features of portal hypertension **(Beck et al., 1970 and El-Shazli et al., 1988)**.

Laparoscopy not only permits the demonstration or exclusion of partal hypertension but it is also possible with this method to distinguish various types of portal blocks **(Beck et al., 1970)**.

The pattern of development of collateral circulation varies from patient to patient. This may be due to genetically determined factor **(Okuda, 1976)**, type of portal hypertension "hepatic pathology" **(El-Shazli 1984)** or differences in portal pressure **(Abdel Salam, 1983)**. The prediction of when oesophageal varices will bleed and why is difficult. The larger the varices, the more likely are they to bleed, intra-variceal pressure is less important **(Lebrec et al., 1980)**. The rarity of bledding in patients with truely pure hepatic schistosomiasis was attributed to genetically determined factor, large capacity of collateral circulation sufficient to decompress the portal system or differences in portal pressure **(Ghaffar et al., 1984 and El-Shazli et al., 1988)**.

The aim of the present study is to investigate the relation between :

(1) The liver pathology and the type of collaterals.

(2) The development of caudal and variceal collaterals.

(3) The presence and extent of caudal collaterals and occurrence of variceal bleeding.

REVIEW OF LITERATURE

LAPAROSCOPY

History:

The first reported attempt to inspect the abdominal cavity through a stab incision by introducing a cystoscope was reported by **Kelling** in **1901** in the dog. **Jacobeus** gave an account of his first satisfactory examination of the abdomen in 1910 in patients with ascites. One year later, he had performed 115 cases with one serious complication (bleeding) requiring exploration. **Korbsch** extended the indication for its use to include other intra-abdominal disorders in 1922. In 1933, **Fervers** recommended changing from room air to oxygen or CO_2 as an insufflating agent, while in 1938, **Veress** invented his spring-loaded needle, which became the instrument of choice to create pneumoperitoneum (**Berci and Cuschieri, 1986**).

H. Kalk, a hepatologist in Germany, devised a new lens system for oblique viewing (135°) and he was the first to advocate the dual tracar technique in **1929**. He can be considered the founder of the German school of laparoscopy for the diagnosis of liver and gall bladder diseases. **The American internist John J. Ruddock** made a major contribution, in 1934, he described a good optic system including a built-in biopsy forceps with electrocoagulation capacity. In 1952, **Hopkins** and **Kapamy** introduced the fibre-optic to the field of endoscopy (**Hulka, 1985**). In the USA, **Berci and Gaisford** have been instrumental in demonstrating the therapeutic potential of laparoscopy in general surgical practice and in patients with hepatobiliary disorders. Francis Stock was the first surgeon in the UK to use laparoscopy routinely in general surgical practice (Berci and Cuschieri, 1986).

INSTRUMENTATION

I. The telescope:

Nitze, a general practioner, invented the telescope in 1875 and produced the first cystoscope for the examination of the urinary bladder. It was formed of small lenses with air interspaces acted as a relay, transmitting the image from the interior of the organ to the eye of the examiner. For illumination (before Edison's invention of the electric light bulb) he employed a glowing platinum wire to light up the interior, but later replaced this cumbersome system with a miniature low-voltage electric bulb **(Berci and Cuschieri, 1986)**.

The Nitze system had many disadvantages, which resulted in a dim unsatisfactory image as well as the inability to make permanent film records. Those disadvantages were overcome by the invention of the Hopkins rod-lens providing increased light transmission, increased viewing angle and allowing the production of smaller telescopes and photographic documentation **(Berci and Cuschieri, 1986)**.

II. The light source:

Prior to the 1960's endoscopy used small, hot tungesten bulb inside body cavities. These bulbs did not emit high-frequency (blue) light waves, so they conveyed a red colour to all attempts at photography **(Hulka, 1985)**.Nowadays, for routine examination, a

150W halogen bulb with a mirror is sufficient. High-intensity units are needed for laparoscopy, video recording and when a teaching attachment is used. Quartz, merury or xenon light units are available **(Berci and Cuschieri, 1986).**

III. The fibro-optic light cable:

It is an incoherent fibro-optic cable plugged in at one end of the light source, while the other end is connected to the fibres surrounding the telescope. In this way, the light energy is transmitted into the body cavity. The fibre-optic cable, though convenient, is very inefficient in light transmission because it absorbs approximately 80% of the input. The blue part of the colour spectrum is not well transmitted and the red part of the light spectrum is comprssed. This is one of the reasons why some organs look brown or yellowish **(Berci and Cuschieri, 1986).**

The recent fluid cable, although less flexible than the glass fibre bundle, has less light absorption and the entire colour spectrum is transmitted providing natural colour display and is better for documentation **(Berci and Cuschieri, 1986).**

IV. The pneumoperitoneum needle:

In 1933, Janos Veress of Hungary described a new needle for inducing pneumothorax (for the treatment of tuberculosis) which is now the most frequently used for creation of pneumoperitoneum

(**Hulka, 1985**). It has a blunt spring-loaded tip that protrudes beyond the sharp bevel of the needle, after sharp penetration of the abdominal wall and passing through the peritoneum, to prevent visceral injury. The veress cannula is 120 mm length and 2.1 mm diameter (**Berci and Cuschieri, 1986**).

V. The examinaing trocar and cannula:

The medium-size variety, with an outside diameter of 7mm is the preferred one. The rotational valve type is easier to handle and maintain than the trap door or trumpet valve type. There are two types of sharp trocar: a round concical shape and one with a sharp triangle or pyramid cutting configuratin. The latter type is preferred because the resistance of abdominal wall tissue layers is more readily appreciated. Penetration of the abdominal wall is achieved by a controlled drilling-pressing action. The stylet is hallow and fitted with a side hole near its tip. The hissing noise of escaping gas through this side hole confirms safe entry into the peritoneal cavity. A stopcock below the valve is necessary to provide gas inflow during the procedure (**Berci and Cuschieri, 1986**).

VI. Surgical instruments:

A scalpel with a No. 11 blade is used for the stab incisions. A few curved mostiquito and larger. Kelly forceps are useful for enlarging the stab incisions. A 10 ml syringe with a 22 gauge needle filled with 5 ml of saline and another 10 ml syring with 10 cc, 1% lignocaine (lidocaine) solution are required. The saline syringe is used for trial aspiration. One pair of scissors and two of Allis tissue-holding forceps are required to secure the gas-carrying tube and the fibro-optic cable to the drapes **(Berci and Cuschieri, 1986).**

VII. Special accessories:

1. The desufflation key: This is inserted into the trocar when it incorporates a trapdoor system, to allow the gas to excape quickly from the abdominal cavity at the end of the procedure.

2. Teaching attachment: A teaching attachment is in essence a beam splitter, which double the visual image, one going to the operator, the other to the second observer. For routine work a rigid teaching attachment is sufficient. There is a more sophisticated teaching attachment available which consists of an articulated optical arm. It has several advantages. Owing to the articulation, it is more convenient to use during certain manoeuvers and furthermore it permits photographic documentation.

VIII. Other sterile accessories:

1. A sterile water container: it has a built-in lead bottom, which minimizes accidental spillage. This is filled with warm, sterile saline. The telescope is inserted for a few minutes and is pre-warmed to above body temperature. It is removed, quickly dried and inserted into the trocar. This will avoid fogging during insertion.