PREVENTION OF POST-SURGICAL ADHESIONS BY OXIDIZED , REGENERATED CELLULOSE ABSORBABLE BARRIER

THESIS
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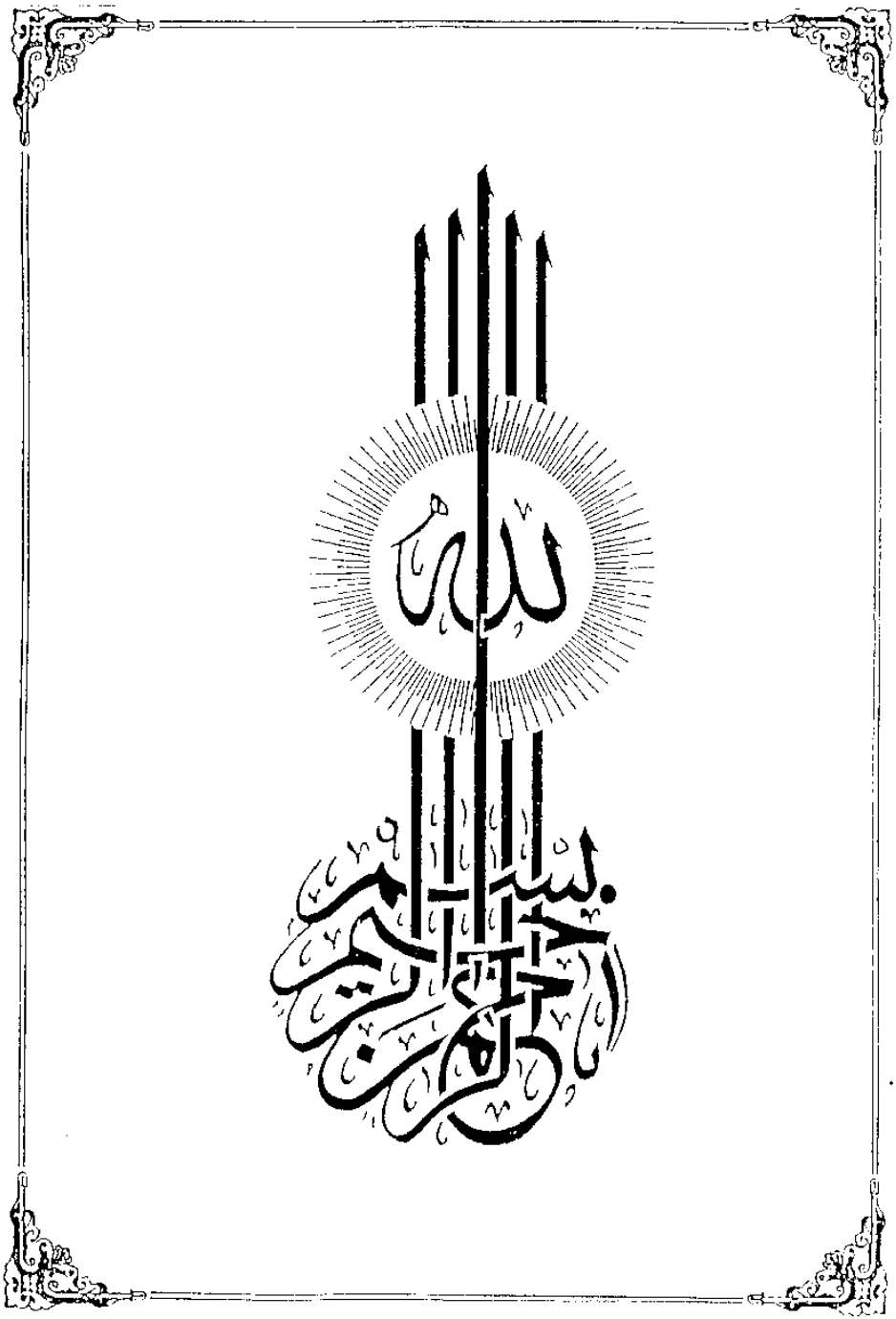
By
Manal Mohamed Ahmed
M.B., B.Ch.

Under Supervision Of
Dr.Sobhi Khalil Mohamed Abo-Louz
Professor OF Obstetrics & Gynaecology
Faculty Of Medicine
Ain-Shams University

Dr.Alaa El-Din Abd El-Aziz El-Gendy
Lecturer Of Obstetrics & Gynaecology
Faculty Of Medicine
Ain-Shams University

Faculty Of Medicine
Ain Shams University
1995



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INTRODUCTION

Postoperative peritoneal adhesions depend upon the nature of the operation , the previous conditions and the convalescence . The most common causes of adhesions are postoperative suppurations and leaving raw areas or oozing surface (Bonney ., 1947) .

Myomectomy is often associated with adhesion formation , most of adhesions are found between the uterine incision and omentum or intestine (Tulandi et al ., 1989) .

Postoperative adhesion formation is a major cause of failure in gynaecologic pelvic reconstructive procedures , a number of antiadhesive adjuvants have been used during surgery , an oxidized regenerated cellulose absorbable barrier which is fabric has been designed as surgical adjuvant to reduce the formation of postoperative adhesions (Azzis et al ., 1989) .

This new material Interceed (Johnson & Johnson patient care inc. New Brunswick , NJ) was completely absorbed from the peritoneal cavity in less than 28 days and promote negligible tissue response .

AIM OF THE WORK

This work aims at evaluation of Interceed as an effective surgical barrier that can be used safely following pelvic surgery to prevent adhesions .

REVIEW OF LITERATURE

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Anatomy of Peritoneum

The peritoneum is the largest and most complexly arranged serous membrane in the body . In the female the free ends of the uterine tubes open into the peritoneal cavity , the part which lines the abdominal wall is named the parietal portion of the peritoneum and that which is reflected over the contained viscera constitutes the visceral portion of the peritoneum . The free surface of the membrane is smooth , covered with a layer of flattened mesothelium and kept moist by a small quantity of serous fluid (Warwick and Williams , 1973) .

The parietal abdominal peritoneum passes directly into the lesser pelvis over the margins of the superior aperture . It covers the superior surfaces of the pelvic organs and dipping between them forming peritoneal pouches and fossae , anteriorly and posteriorly the arrangement of this peritoneum is virtually identical in the two sexes , but it differs in the intermediate region because of the presence of the large genital septum and its contained structures in the female . The postero-superior surface of the lesser pelvis is covered with peritoneum down to the second piece of the sacrum , except where the medial limb of the sigmoid mesocolon is attached , inferior to this the rectum intervenes between the sacrum and the peritoneum . The peritoneum covers the front and sides of the upper part of the rectum ,

but leaves it by turning forwards from the anterior surface of its middle third to run upward over the genital septum . Thus , the peritoneum forms the recto-uterine pouch between the rectum and the contents of the genital septum . Then , the peritoneum in the median plane passes from the recto-uterine pouch to the superior part of the posterior vaginal wall then covers the superior surfaces of the cervix and body of the uterus and turns over the fundus to cover the inferior surface of the body of the uterus on this surface , at the junction of the body and cervix , the peritoneum bends forwards over the superior surface of the bladder , thus forming the uterovesical pouch of the peritoneum . It continues forwards on the bladder and passes directly to the posterior surface of the anterior abdominal wall .

Lateral to the uterus , the peritoneum passes :

1-From the cervix as the recto-uterine fold on the uterosacral ligament.

2-From the body of the uterus as a double layer (superior and inferior) enclosing the connective tissue of the septum (parametrium), the round ligament of the uterus , the ligament of the ovary and the uterine tubes in its free anterior margin . The broad ligament of the uterus is thickened laterally where the utero-sacral ligament passes posteriorly and the round ligament of the uterus curves anteriorly , its superior layer of peritoneum covers the ovary close to the attachment of the ligament to the lateral pelvic wall . The part of the broad ligament lateral to the ovary is the suspensory ligament of the ovary ,

the part between the ovary and the uterine tube is the mesosalpinx (mesentery of the tube) , while the remainder is mesometrium (mesentery of the uterus) . Thus , the uterus and parametrium lie in a transverse peritoneal fold with a free anterior margin . This allows it to expand upwards into the abdominal cavity during pregnancy without disturbing its supporting structures which are composed of the connective tissue in the base of the broad ligament . This holds the cervix to the walls of the pelvis and is especially thickened (transverse ligaments of the cervix) around the uterine arteries as the uterosacral ligament , anterior to the broad ligament and lateral to the bladder , the peritoneum passes forwards as the floor of a shallow paravesical fossa on each side . This is limited laterally by the ridge produced by the round ligament curving forwards to the deep inguinal ring , and has the obliterated umbilical artery passing forwards in its floor (Romanes , 1977) .

The pelvic peritoneum is reflected from the lateral borders of the uterus to form on either side a double fold of peritoneum known as the broad ligament . This is not a ligament but a peritoneal fold and it does not support the uterus . The fallopian tubes run in the upper free edge of the broad ligament as far as the point at which the tube opens into the peritoneal cavity , the part of the broad ligament which is lateral to the opening is called the infundibulo-pelvic fold , and in it the ovarian vessels and nervous pass from the side wall of the pelvis to lie between the two layers of the broad ligament . The

portion of the broad ligament which lies above the ovary is known as the mesosalpinx and between its layers the wolffian reminants are seen may be present below the ovary , the base of the broad ligament widens out and contains a considerable amount of loose connective tissues called the parametrium , the ureter is attached to the posterior leaf of the broad ligament at this point , the ovary is attached to the posterior layer of the broad ligament by a short mesentery (mesovarium) through which the ovarian vessels and nervous enters the hilum , the vagina does not have any peritoneal covering infront or behind , it is in contact with the rectovaginal pouch for about 2 cm , where the vagina is separated from the abdominal cavity only by the peritoneum and then fascia . The peritoneal cavity can be opened by posterior colpotomy at this point

Three points should be emphasized with particular reference to the female peritoneum first , although in the male , the peritoneum is a completely closed sac , in the female the free ends of the fallopian tubes open directly into the peritoneal cavity thus providing a conduct to the external environment . Second , the pelvic peritoneum in women is considerably more irregular than in men because of its numerous folds , fossae , recesses and pouches , these complexes are excellent sites for the development of infections , adhesions and foci of endometriosis and metastatic carcinoma . Finally , the relationship of the peritoneum to the female genitalia themselves should be considered

Peritoneal Fluid

Normally , the peritoneal cavity contains only few milliliters of serous fluid to serve as lubricant for the viscera that slide over one another . Very few cells are in normal peritoneal fluid , the normal cell count is between 2000 - 2500 /mL (Fitts , 1983) .

The fluid layer which covers the peritoneal surfaces contains water , electrolyte and other solutes derived from the interstitial fluid of the neighbouring tissue and from the plasma of adjacent blood vessels , it also contains proteins and a variety of cell types (Carr , 1967) .

The later vary in their numbers , morphology and type in different pathological conditions and they are hence of diagnostic importance . Normally the cells consist of desquamated flat mesothelial elements derived from the peritoneal surfaces , and of wandering macrophages , mast cells , fibroblasts , lymphocytes and small numbers of other leucocytes . Some of these cells particularly macrophages can migrate freely between the peritoneal cavity and the surrounding connective tissue .

Particulate material injected intraperitonealy may therefore be ingested by these cells and transported to various other sites in the body (Warwick and Williams , 1973) .

Eosinophils are another normal constituent of the cell population of peritoneal fluid (Milligand and Raftery , 1974) .

Inflammatory macrophages recently have been shown to be involved in the physiology of the peritoneal fluid and are greatest in number around the time of menstruation (Halme et al ., 1984) .

Lymphocyte in the fluid provide both cellular and humoral immunological defense mechanisms (Warwick and Williams , 1973) .