DIFFERENT TYPES OF REPAIR OF INCISIONAL HERNIA

ESSAY

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By

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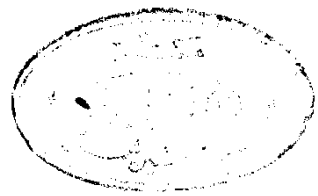

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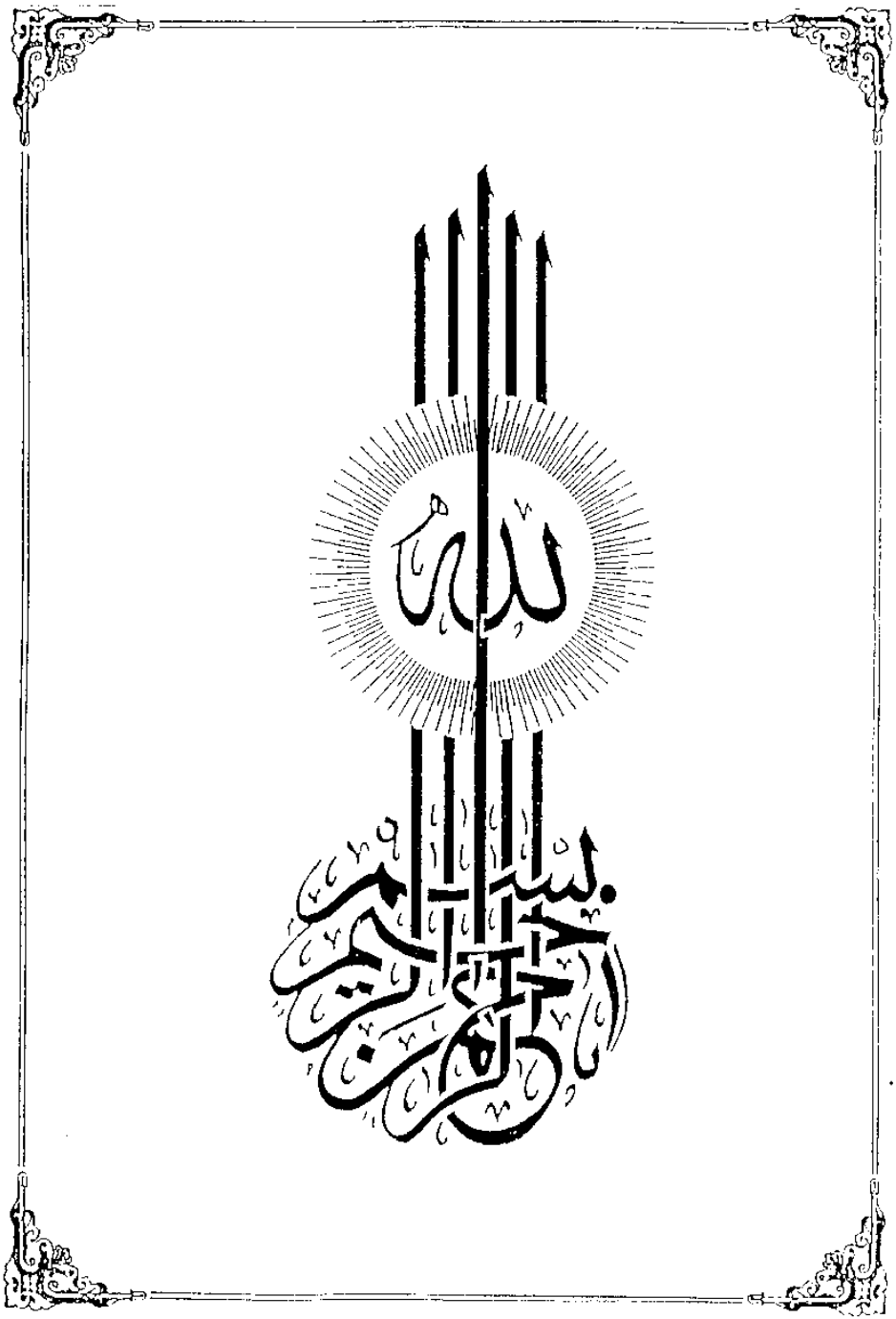

A C K N O W L E D G M E N T

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C O N T E N T S

INTRODUCTION

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Incisional hernia is that which follow operative, or accidental division of anterior abdominal wall. The majority of these are post-operative.

With the evaluation of modern surgery and the development of a knowledge of bacteriology and anaesthesia surgeons could enter the peritoneal cavity with increasing safety and in turn led to increasing numbers of operative procedures and abdominal operations.

Incisional hernia constitutes the second most frequent type of hernias after inguinal hernias (Nyhus,1978). Stanton in 1916 found that the incidence of incisional hernia was 4.8 %. However, this incidence is not constant. Gajraj and George in 1983 found that the incidence of incisional hernias within one year of operation was about 8.4 %, and 5.8 % developed late incisional hernia i.e. incisional hernia apparently continue to appear more than one year after operation.

Incidence of recurrence differs with different techniques in repair of incisional hernia.
Many factors are related to recurrence as the size of the defect, state of subcutaneous tissue and aponeurosis at the time of repair, whether oedematous or not as in strangulated cases, if it reaches the bones and post-operative complications as distension, chest infection and wound sepsis.

Zimmerman found the incidence of recurrence to be about 10 %. Incisional hernia is the true iatrogenic hernia. Many factors are involved in causation of incisional hernia, those may be pre-operative, operative or post-operative. Proper attention to those factors will lower the incidence of incisional hernia, so the principle of treatment of incisional hernia should therefore begin with the principles of prevention.

Choice of treatment for incisional hernia depends upon: the size of hernia, symptoms produced, presence or absence of complications and the general condition of the patient. However, the method of repair depends mainly on the size of hernia as follows :

1) Hernias in which edges of parietal wall can be approximated or imbricated without undue tension are repaired anatomically.

2) Those which have preclude edge to edge contact but with only 2 - 3 cm of separation can be repaired anatomically with those release incisions.

3) Those hernias in which the ring or separation in the wall is so large that no method of suture can adequately close the opening, are repaired by fascial or skin graft, but recently prosthetic materials have played an important role in attempts to replace portions of abdominal wall.

There are many methods of repair, one hopes to throw light on different aspects of such methods.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Gredy in 1836 was the first who successfully repaired incisional hernia, while Mayoll in 1886 could repair incisional hernia in anatomical layers. However, the transverse overlapping technique was performed by Mayo in 1899 for repairing of umbilical hernia, a step which has been adopted successfully for repairing incisional hernia.

The use of flaps consisting of peritoneum, muscle, fascia and scar tissue to be overlapped over the similar on the opposite side was described by Judd in 1912. Gibson in 1920 described the use of releasing incisions in the anterior rectus sheath to decrease tension at suture line, however, the operation of midline sub-umbilical repair of incisional hernia was performed by Nuttall in 1937.

For large diffuse incisional hernia, Maingot's Keel operation was recommended in 1940, however Chobach was thought to be the first who performed such operation in 1887. Wells in 1956 described a method of repair by using reflected flaps of anterior rectus sheath to close the defect.

Loewe in 1913, was the first who used cutis graft

in repairing incisional hernia, while whole thickness skin graft was used by George Maire in 1944.

In 1921 Gallie used fascia lata strips as darns, while it was used as inlay graft by Burnton in 1959 for repairing incisional hernia.

Silver mesh was used by Witzel and Goepel in 1900 for repairing of large abdominal wall defects, while in 1948, tantalum gauze was used by Koontz and Throckmorton. In 1958 Usher and colleagues used the marlex mesh in repair of incisional hernia. Since that time Usher used a number of methods for implantation of marlex mesh.

Cerise (1975) used the mersilene mesh in repair of hernia. But still the marlex has more popular use, and the last method for use the marlex mesh deep to the musculofascial layer was used in 1978 by Usher.

Browes in(1979) use the marlex mesh in reinforcement the repair by using reflected flaps of anterior rectus sheath to close the defect.

Anatomy of the Anterior Abdominal Wall in Relation to Abdominal Incisions:

The anterior abdominal wall is bounded by the costal margins and xiphoid process above, and the iliac crest, inguinal ligaments and the pubis below.

It is composed of six layers of tissues as follows:

1- Skin.

2- Superficial fascia.

3- Muscle layer.

4- Transver salis fascia.

5- Extraperitoneal fat.

6- Peritoneum.

1- SKIN

This varies in texture being thin in front, thick behind.

The natural lines of cleavage of skin are very constant and of great importance to the cosmetic appearance of healed incision.

An incision along a cleavage line will tend to heal as a hair line scar.

An incision across these lines will tend to heal with a wide scar.

These skin creases from below upwards are as follows :

- Holden's Line:

The constant skin crease of hip joint starts medially just below the pubic tubercle, runs laterally and slightly upwards but in a generally transverse direction to fade out near the region of the greater trochanter(it is the line of fusion of membraneous layer of superficial fascia with the fascia lata of thigh).

- Interspinous Crease:

This begins laterally at or about the level of anterior superior iliac spine, and runs medially with a gentle downward curve to cross the suprapubic area and ascend to the opposite anterior superior iliac spine. This skin crease, separates the skin and subcutaneous tissues,forming the bulk of groin and mons pubis, from the abdominal skin above and thigh skin below.

There is one or more skin creases above the interspinous skin crease (Burnett, 1978).

2- SUPERFICIAL FASCIA

It is composed of a superficial fatty layer , much thickened in females.

The fat of which is contained in loculi whose fibrous wall is connected with the overlying dermis on one side and then condensed into a thin but strong membrane on the other side forming the membraneous layer of the superficial fascia. It is also called the fascia of scarpa.

Scarpa's fascia allows subcutaneous fat to slide freely over the underlying rectus sheath and the external oblique aponeurosis, so the skin of anterior abdominal wall is loosely attached to the deep structures except at the umbilicus where it is firmly attached. There is no deep fascia in anterior abdominal wall to allow free movement during respiration (Last, 1981).

3- MUSCLE LAYER

Muscles of anterior abdominal wall are; the external oblique, internal oblique, transversus abdominis and rectus abdominis (the pyramidalis muscles are frequently absent.

In general; the first three of these arise at the side of trunk from the lower ribs, lumbar fascia ,or iliac crest.

As they traverse the front of abdomen, they become aponeurotic and are inserted mainly into the linea alba; a band of fibrous tissue extending in the midline from xiphoid process to pubis. Before they reach the linea alba they

combine to form a sheath for the rectus muscle.

- External Oblique:

It runs mainly downwards, forwards and medially, but its upper fibres are nearly horizontally directed, its lower ones (inserting into iliac crest) nearly are vertical. Its lower free border forms the inguinal ligament which stretches from the anterior superior iliac spine to the pubic tubercle.

- Internal Oblique:

It runs mainly in a slightly upward direction , but its lower fibres which descend to pubis are nearly vertical.

- Transversus Abdominis:

It runs mainly horizontally, but its lower fibres run downwards along with those of internal oblique. Its deep surface is lined by transversalis fascia. Between this and the peritoneum there is a thin layer of extraperitoneal fat.

- Rectus Abdominis:

It lies alongside the linea alba, stretching from the front of pubis to xiphoid process and to the 5th, 6th and 7th costalcartilages. Its substance is traversed by three horizontal tendineous intersections;one opposite