

# **PROLENE MESH PLUG REPAIR IN VENTRAL HERNIAS**

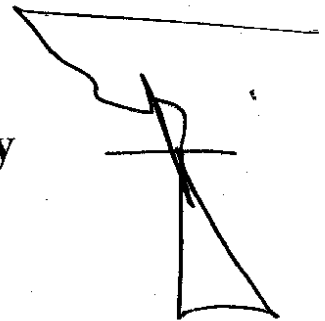
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By

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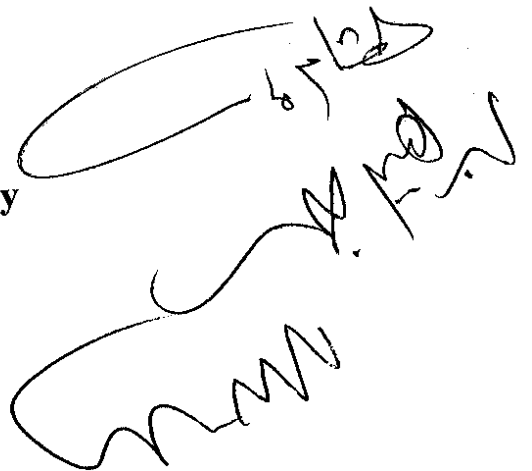
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A large, stylized handwritten signature in black ink, likely belonging to Prof. Dr. Hesham Mahmoud Salah El Din Amer, written over a horizontal line.

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*Khaled Adly Al-Attar*

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

( وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا )

سورة الإسراء آية (٨٥)

## **INDEX**

• INTRODUCTION & AIM OF THE WORK.....	1
• REVIEW OF LITERATUR.....	3
I. Embryology of the Anterior abdominal wall.....	3
II. Anatomy of the Anterior Abdominal wall.....	5
III. Surgical Physiology.....	53
IV. Pathophysiology of Wound Healing.....	54
V. Incidence & Etiology of the Ventral Hernias.....	65
VI. Approaches to Ventral Hernia Repair.....	77
VII. Mesh Plug Repair.....	94
• PATIENTS & METHODS.....	98
• RESULTS .....	107
• DISCUSSION .....	118
• SUMMARY .....	137
• CONCLUSION .....	139
• REFERENCES .....	140
• ARABIC SUMMARY .....	150

## **List of Figures**

Figure (1): Various regions of the anterior abdominal wall.....	6
Figure (2): The two layers of the superficial fascia of the abdominal wall.....	10
Figure (3): The diverse origin of the arterial supply to the abdomen.....	11
Figure (4): Venous drainage and cutaneous innervation of the abdominal wall.....	16
Figure (5): Course of the thoracoabdominal nerves.....	19
Figure (6): External abdominal oblique muscle and aponeurosis & inguinal ligament.....	26
Figure (7): Aponeurosis of the external oblique, superficial inguinal ring and the inguinal ligament.....	27
Figure (8): Deep inguinal ring, epigastric vessels, and the structures that passes posterior to the inguinal ligament.....	28
Figure (9): Direction of the fibers of the external and internal abdominal oblique muscle.....	30
Figure (10): Fibers of the internal abdominal oblique muscle and aponeurosis in relationship to the rectus abdominis muscle.....	31
Figure (11): Patterns of lamination of the rectus sheath.....	32
Figure (12): Transverse abdominis muscle and aponeurosis.....	34
Figure (13): Cross section of the posterolateral abdominal wall showing the external and internal abdominal oblique, transverse abdominis, and the thoracolumbar fascia.....	35
Figure (14): Proximal and distal attachments of the rectus abdominis.....	36
Figure (15): Rectus abdominis muscle in relation to the transverse abdominis and superficial fascia of the abdomen.....	37

Figure (16): Posterior layer of the rectus sheath, arcuate line of Douglas, internal abdominal oblique and transverse abdominis.....	38
Figure (17): Course of a hernial sac in the indirect inguinal hernia. Observe the inguinal canal, inferior epigastric vessels and the protruding hernial sac.....	41
Figure (18): Rectus abdominis muscle and rectus sheath.....	46
Figure (19): <b>A</b> and <b>B</b> . Transverse sections through anterior abdominal wall, traditional view: <b>A</b> , immediately above umbilicus. <b>B</b> , below arcuate line. <b>C-E</b> , Schematic transverse sections through ventral abdominal wall, showing bilaminar aponeurosis, external oblique, internal oblique, transverses abdominis, and sites of linear decussation that compacted from linea alba.....	49
Figure (20): Dead space in wound.....	60
Figure (21): Phase of wound healing.....	63
Figure (22): <b>A</b> , Section through normal umbilicus. <b>B</b> , Section through umbilical hernia. <b>C</b> , Lateral view of hernia. Dashed line, line of incision.....	72
Figure (23): <b>A</b> , Transverse section through normal linea alba. <b>B</b> , Transverse section through hernia of linea alba.....	73
Figure (24): Computed tomography (CT) scan of the lower abdomen in a patient showing a large left spigelian hernia.....	75
Figure (25): <b>A</b> , Sites of spigelian hernia. Sections through normal body wall above and below umbilicus shows semilunar zone of Spieghel. <b>B</b> , Relation of a spigelian hernia to inguinal structures. <b>C</b> , Section through spigelian hernia.....	76

Figure (26): Mayo's repair vest over pants .....	80
Figure (27): Simple fascial closure.....	81
Figure (28): Keel repair .....	82
Figure (29): <b>A.</b> port placement, <b>B.</b> inserting sutures at laparoscopic mesh repair (broken line shows abdominal wall defect).....	83
Figure (30): Polypropylene mesh (4× magnification).....	89
Figure (31): Onlay technique.....	91
Figure (32): Inlay technique.....	92
Figure (33): Retrorectus underlay technique.....	92
Figure (34): Intraperitoneal graft.....	93
Figure (35): Sandwich technique.....	93
Figure (36): Cuff technique.....	93
Figure (37): <b>(a)</b> incision; <b>(b)</b> dissection of the sac and outline of the defect; <b>(c)</b> contents reduced along with the empty sac; <b>(d)</b> mesh plug created; <b>(e)</b> mesh plug in-situ.....	95
Figure (38): <b>A)</b> Cone-shaped plug. <b>B)</b> Hernia repair with secured plug.....	97
Figure (39): Umbilical hernia with apron of fat.....	99
Figure (40): Hernial sac after dissection.....	100
Figure (41): Opening the hernial sac.....	100
Figure (42): Omentectomy.....	101
Figure (43): Divercation of recti.....	102
Figure (44): Showing the mesh plug fashioned from a flat prolene mesh.....	103
Figure (45): <b>A, B&amp;C</b> : The shape of the mesh plug is maintained by using a prolene suture at the apex of the cone.....	104
Figure (46): <b>A&amp;B</b> The mesh plug ( <i>single</i> ) in the hernia defect and anchored to adjacent rectus sheath using No. one prolene.....	105

Figure (47): The defect is invaginated by the hand to allow fixing the cone of the plug within a tridimensional defect.....	106
Figure (48): The mesh plug ( <i>multiple</i> ) in the hernia defect, Also showing re-enforcing continuance running prolene stitches used to fortify the interrupted sutures.....	106
Figure (49): <b>a,b,c&amp;d.</b> Dynamic MRI revealed that the mesh plug dips through the defect on contracting the anterior abdominal wall.....	134
Figure (50): <b>a,b&amp;c.</b> Dynamic MRI revealed that the mesh plug dips through the defect on contracting the anterior abdominal wall.....	136



## **LIST OF TABLES**

Table (1): Role of Nutrients in the Wound-Healing Process.....	57
Table (2): Age distribution of patients.....	107
Table (3): Sex distribution.....	107
Table (4): Hernia characteristics.....	110
Table (5): Intraoperative work up.....	112
Table (6): Complications.....	113

## **LIST OF DIAGRAM**

Diagram (1): Age distribution.....	108
Diagram (2): Sex distribution.....	108
Diagram (3): Primary ventral hernia.....	110
Diagram (4): Incisional hernia.....	111
Diagram (5): Intraoperative management.....	112
Diagram (6): Complications.....	114

## ***Abstract***

Ventral hernias are a common surgical condition. Well known to be associated with occurrence of serious complications and usually appear during adulthood and are frequently associated with multiple pregnancies and obesity. Since surgery remain the only modality of treatment, an effective repair with low preoperative morbidity and recurrence rates should be performed.

This study included fifty patients male and female suffering from ventral hernias. And aimed to apply the rationale of mesh plug repair in groin hernia to ventral hernia repair techniques. Prolene mesh plug repair is an accepted alternative minimal tension method for ventral hernia repair with accepted complication rate.

Complications rate in the current study were (12%) and included 3 cases (6%) of seroma, one case (2%) of haematoma, one case (2%) of sloughing of flap and one case (2%) of deep venous thrombosis. Late complications involved one case of recurrence after one year of surgery in an average follow up to 18 months.

The current study results suggest that prolene mesh plug repair for ventral hernias, allow for the tri-dimensional repair of the anterior abdominal wall defect with minimal tension, safe, effective and technically feasible operation with reduced morbidity. It has a short learning curve and with improved technical skills. Results will have a better outcome. In this series the follow up period was short, and the size of the sample was small. However, it is hoped that publication of these data may encourage others to conduct further trials to validate the results.

### ***Key words:***

***Prolene mesh - Mesh plug – Ventral hernia.***

INTRODUCTION  
& AIM OF THE  
WORK

## **INTRODUCTION**

Abdominal wall hernias are a familiar surgical problem. Millions of patients are affected each year. (*Holzman et al, 2000*).

The term ventral hernia is applied to any protrusion through the anterior abdominal wall, with the exception those of the inguinofemoral region. Ventral hernias usually appear during adulthood and frequently associated with multiple pregnancies and obesity. (*Askar, 1984*).

Ventral hernias are hernias involving the midline aponeurotic zone, (umbilical, paraumbilical, epigastric and hypogastric hernias), incisional hernia, Spigelian hernia, and port site hernia. (*Converteny et al, 2003*).

Abdominal wall defects can be accompanied by a spectrum of symptoms up to profound peritoneal signs when strangulation occurs. The most common symptom is a heavy or dull sense of discomfort during straining or lifting. (*George et al, 1986*).

Most hernias are diagnosed upon physical examination as a bulge at the site of the hernia increasing with coughing or straining. (*Vanden Berg et al, 1999*).

The history of prosthetic repair in abdominal wall hernias began in 1844 by the use of silver wire coils placed on the floor the groin to incite an inflammatory fibrosis augmenting the repair. Many prosthetic materials have been tried in hernia repair, but the two most common in current use are Polypropylene mesh (PPM), and expanded Poly-tetra-flouroethylene (ePTFE). (*Leber et al, 1998*).

Several hernia repair methods have been described. The use of synthetic mesh to achieve a tension-free repair has resulted in a significant reduction in post operative pain, in length of the recovery period, and in the number of recurrences. (*Lowe et al, 2000*).

There used to be two repair options including inlay and onlay technique. In inlay technique, the mesh is sutured to the fascial edges while in onlay technique; the mesh is placed and sutured onto the anterior rectus sheath. Mesh plug repair has been used for inguinal hernia repair. (*Burger et al, 2004*).

Lately, mesh plug hernioplasty started to gain attention in the US, and became the fastest growing hernia repair among the American Surgeons. (*Rutkow et al, 1997*).

In mesh plug technique, a mesh plug was fashioned from a flat polypropylene mesh, a cone of polypropylene mesh was made by the operating surgeon, mesh of such a size that diameter of the cone was slightly greater than the size of the defect the shape of the mesh plug was maintained by one prolene suture placed through the mesh about one cm away from the apex of the mesh plug. The plug was then placed in the defect and fixed to the margins using either interrupted or continuous one prolene. (*Rutkow & Robbins 1993; Sanjay et al, 2005*).

### **Hypothesis**

Prolene mesh plug repair is an accepted alternative minimal tension method for ventral hernia repair with accepted complication rate.

### **The aim of work**

Is to apply the rationale of mesh plug repair in groin hernia to ventral hernia repair techniques.

# REVIEW OF LITERATURE

## **EMBRYOLOGY OF THE ANTERIOR ABDOMINAL WALL**

The anterior abdominal wall form as a result of the rapid growth of the embryonic body and a simultaneous decrease in the growth of the body stalk. (*Keith, 1988*).

A layer of ectoderm and mesoderm (Somatopleure) at first without muscle, vessels or nerves from the primitive wall. By the sixth week of intrauterine life the somatopleure is invaded by the mesoderm derived from the myotomes on either side of the vertebral column. The segmental pattern is lost and the mesoderm grows laterally and ventrally as a sheet, the leading edges of which will differentiate into the right and left rectus abdominis muscles. These muscles are at first widely separated. The remaining part of the mesodermal sheet splits into three layers, an external layer which will differentiate ventrally into the external oblique muscle and dorsally into the serratus muscle, middle layer which will form the internal oblique muscle and an inner layer which will become the transverses abdominis muscle. All of these muscles are distinguishable by the seventh week of intrauterine life. (*Skandalakis and Gray, 1996*).

In the infraumbilical region, the invasion of the somatopleure by the somatic mesoderm is preceded by a layer of mesoderm that arises from the primitive streak just behind the cloaca. This “secondary mesoderm” surrounds the margins of the cloaca and invades the abdominal wall caudal to the body stalk, separating the layers of ectoderm and endoderm of the cranial end of the cloacal plate. It provides primary closure of the body wall between the phallus and the body stalk and forms part of the musculature of the bladder. The secondary mesoderm is in position by the seventh week and is followed by the somatic mesoderm which fuses externally to it by the twelfth week. (*Boyd, 1980*).