EVALUATION OF THE ADVANTAGES OF SCARPA`S FASCIA PRESERVATION IN ABDOMINOPLASTY

Essay

Submitted for Partial Fulfillment of
Master Degree in ***General Surgery***

Presented By

Ahmed Zakaria Mohammed Azzam
M.B., B.Ch.

Under Supervision of

Prof. Dr. Awad Hassan Elkayal
Professor of General Surgery
Faculty of Medicine
Ain Shams University

Dr. Ibrahim Mohammed Elzayat
MD-MRCS
Consultant of General Surgery
Mansoura International Hospital

Faculty of Medicine
Ain Shams University
2014

سورة البقرة الآية: ٣٢

*First of all I'm greatly indebted in my work and success to our merciful "**ALLAH**" who gave me ability to finish this work.*

I would like to express my deepest gratitude and sincere appreciation to ***Dr. Prof. Awad Hassan Elkayal,*** *Professor of General Surgery for his keen supervision, continuous encouragement and who gave me an ideal example of what university professor should be in his morals, relation and communications with others.*

No word can adequately express my sincere gratitude and great appreciation to ***Dr. Ibrahim Mohammed El Zayat*** *Consultant of General Surgery who offered me a lot of his time, devoted his vast experience to provide me with the best possible piece of advice and suggestion for this work and for giving me the facilities to finish this work.*

To all my teachers, my sincerest thanks

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (Cont...)

LIST OF ABBREVIATIONS

Abbrev.	Full term
DVT	: Deep Venous Thrombosis.
HB	: Hemoglobin
HCT	: Hematocrit.
HLT	: High Lateral Tension Abdominoplasty.
LMWH	: Low Molecular Weight Heparin.
MCL	: Mid Clavicular Line.
MEV	: Medial Epigastric Vein.
PE	: Pulmonary Embolism.
PTS	: Progressive Tension Sutures.
SAL	: Suction Assested Lipectomy.
SFS	: Superficial Fascia System.
SIEAV	: Superficial Inferior Epigastric Vein.

INTRODUCTION

Abdominoplasty is one of the most common plastic surgical procedures which are performed. This is the procedure that rejuvenates the abdomen after child bearing, abdominal surgery, and significant weight loss ***(Peter et al., 2010).***

It is defined as a surgical procedure designed to correct anterior abdominal wall deformity by acting on its three main elements: skin, fat and musculoaponeurotic layer ***(Andrades and Prado, 2007).***

Despite the advent and popularity of liposuction, which surely is less invasive and offers a more rapid recovery, abdominoplasty has undergone a significant evolution over the past several decades and still represents nowadays a widely performed procedure ***(Melvin and Shiffman, 2010).***

In 1890, Demars and Marx reported the first limited dermolipectomy. Kelly was one of the first surgeons to attempt to correct excess abdominal skin and fat. By meaning of a transverse incision, extending across both flanks, he resected a 7,450-g panniculus. Only 1 year later, he associated the term "aesthetic" to this kind of procedure. Since that time, numerous variations have been suggested and several cases were reported mostly in Europe ***(Al Aly, 2007).***

In the second half of the century, advances in abdominoplasty techniques occurred, consisted of improved scar

placement, abdominal wall plication techniques, and umbilical transposition ***(Al Aly, 2007).***

In 1995, Lockwood described the high lateral tension abdominoplasty. Its key features include limited direct undermining, increased lateral skin resection with high tension wound closure along lateral limbs, and two-layer superficial fascial system (SFS) repair ***(Al Aly, 2010).***

Saldanha developed a particular combination of full liposuction and abdominoplasty with selective undermining, saving the abdominal perforating blood vessels in the mid line and around the umbilicus. This is the so-called "Saldanha's technique. This new concept of "vessels preservation" is very important to avoid ischemic complications of the lower limb and provide a good cicatrization ***(Al Aly, 2010).***

Despite being considered a safe procedure, abdominoplasty (like other operations) is not free of complications ***(Andrades and Prado, 2007).***

Complications were recorded either as wound complications including wound infection, wound dehiscence, seroma, hematoma and skin edges necrosis or complications after surgery including deep venous thrombosis, pulmonary embolism, ileus, sensibility disorder to the skin of the thigh ***(Jeroen et al., 2000).***

One of the important postoperative complications is seroma formation which remains the most frequent complication following abdominoplasty ***(Matthias and Thomas, 2011).***

Previous anatomical and imaging studies described two different fat compartments separated by fascial plane known as Scarpa's fascia or superficial fascia ***(Abu-Hijleh et al., 2006).***

Accordingly, Costa-ferreira and his colleagues in 2010 proposed a different approach from the classical technique of abdominoplasty by suggesting that the abdominal flap should be elevated on two different surgical planes, in the supra-umbilical region a pre-muscular plane as in traditional abdominoplasty, in the infra umbilical region a supra-scarpa's (pre-scarpa's) fascia plane**.** This is known as scarpa fascia preservation abdominoplasty. There are many reasons for scarpa fascia preservation as it may decrease wound complication as seroma formation with the early removal of the drains, shorter hospital stay and decreasing the total cost, also early ambulation of the patient that decreases the incidence of deep Venus thrombosis, consequently pulmonary embolism. It also decreases the incidence of wound dehiscence as the presence of seroma increases the pressure between the abdominal flap and the rectus with subsequent wound dehiscence ***(Costa-Ferreira et al., 2010).***

The potential role for preserving Scarpa's fascia and/or the deep fat compartment during abdominoplasty has been pointed out by some authors as a way to lower complication rate e.g. decrease in seroma formation, decrease in abdominal necrosis, decrease in the swelling of the lower abdominal flap and avoidance of discrepancy in flap thickness (between the pubic flap and the abdominoplasty flap) ***(Espinosa-de-los Monteros et al., 2006).***

AIM OF THE WORK

The aim of this work is to evaluate the advantages of preserving the Scarpa fascia during abdominoplasty on decreasing the postoperative complications and the risk of seroma formation following abdominoplasty.

ANATOMY OF THE ABDOMINAL WALL

When considering aesthetic procedures for the abdomen, the knowledge of the anatomy of the abdominal wall is a prerequisite. A clear understanding of the blood supply and soft tissue layers is critical when planning surgery, determine pinch test the amount of tissue to be resected, as well as if suction assisted lipectomy (SAL) is indicated ***(Nahai et al., 2010).***

Aesthetics consideration of the abdomen:

The abdomen plays a central role in the person's profile, emphasizing its importance in defining body contour ***(Pitanguy, 2007).***

One of the challenges of cosmetic surgery is to determine the best way to treat different aesthetic deformities of the abdomen with suitable techniques. Several authors created useful classifications mostly on the basis of subcutaneous excess fat, skin deformity, and rectus diastasis secondary to pregnancy ***(Matarasso and Wallach, 2005).***

Surface anatomy:

Abdomen is the part of the trunk between the thorax and the pelvis. It is bounded superiorly by the xiphoid process and costal margins, posteriorly by the vertebral column, and inferiorly by the upper parts of the pelvic bones ***(Moore et al., 2006).***

It is divided aesthetically in multiple units and anatomically it is divided into layers ***(Steven et al., 2005).***

The female "abdomen" is considered to consist of seven related aesthetic units: upper abdomen, umbilicus, lower abdomen, mons, flank, dorsal rolls and sacrum. The male "abdomen" is considered to consist of six related aesthetic units: upper abdomen, umbilicus, lower abdomen, mons, flank and sacrum (Fig.-2) ***(Matarasso and Wallach, 2005).***

Its layers consist of skin, superficial fascia (subcutaneous tissue), muscles and their associated deep fascia, extra peritoneal fascia, and parietal peritoneum. The abdominal wall is musculoaponuretic except the posterior wall which includes the lumbar vertebral column (Fig -1) ***(Joseph and Remus, 2009).***

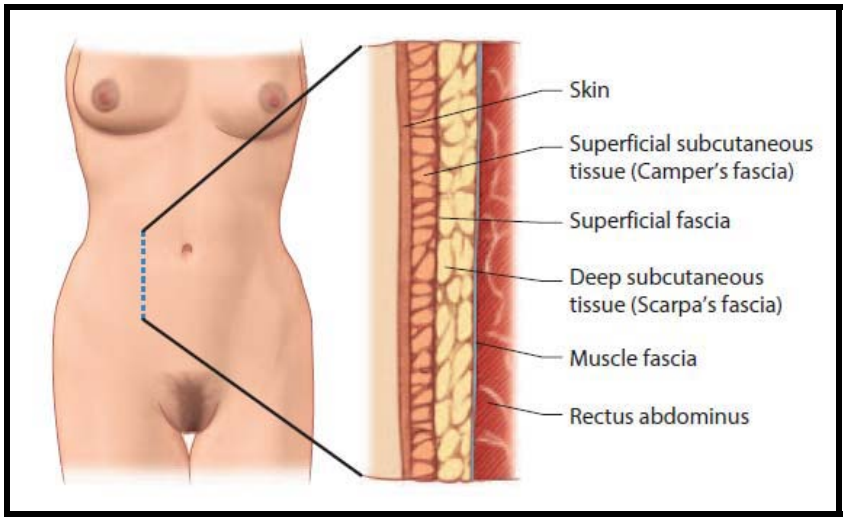

Figure (1): Anatomical layers of abdomen ***(Joseph and Remus, 2009).***

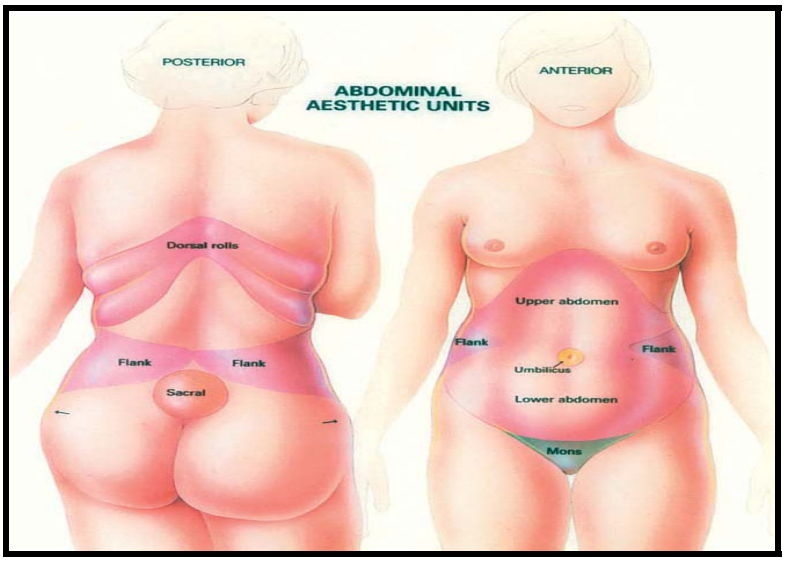

Figure (2): Abdominal aesthetic unit ***(Matarasso and Wallach, 2005).***

Skin:

The skin of the abdominal wall varies in texture, tending to be thin in front and thick behind, Distribution of hair varies with sex, age and race. Natural tension lines of the skin are very constant, and are of tremendous importance to the cosmetic appearance of healed incisions ***(McMinn, 2009).***

It is relatively mobile over the underlying layers except at the umbilicus, where it is fixed ***(Grevious, 2006).***

Skin exhibits certain surface markings such as the umbilicus, linea Alba, linea semilunaris and the epigastric fossa. The umbilicus is a midline fibrous cicatrix covered by a folded area of skin; it is an important anatomical landmark in the anterior abdomen. In young adults, it is usually located at the level of the