Efficacy of Scarpa Fascia Preservation during Abdominoplasty: A Systematic Review

A Thesis

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List of Abbreviations

Abb.	Meaning
ASAPS	American Society for Aesthetic Plastic Surgery
BMI	Body Mass Index
CBC	Complete blood count
CI	Confidence interval
CG	Control Group
CCT	Controlled Clinical Trials
DIEA	Deep inferior epigastric
DSEA	Deep superior epigastric artery
DVT	Deep venous thrombosis
I2	Inconsistency
ICJME	International committee of medical journal association
L	Lumbar
MD	Mean difference
MOOSE	Meta-analysis Of Observational Studies in Epidemiology
NOS	Newcastle-Ottawa Scale
NR	Not reported
NR	Not Reported
OD	Odds Ratio
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PG	Prevention Group
PE	Pulmonary embolism
RCT	Randomized Controlled Trial
RR	Relative risk
SAL	Suction assisted lipectomy
SD	Standard deviation
SMD	Standardized mean difference
SFS	Superficial fascial system
T	Thoracic
US	Ultrasound
WRAP	Wide rectus abdominis muscle plication
WHO	World Health Organization

INTRODUCTION

Abdominoplasty is one of the most performed operations in Plastic Surgery in the world. Its main objective is to improve the body contour by means of excising redundant skin and fat tissue and tightening of the abdominal muscles. The number of abdominoplasty surgeries has been increasing in proportion with the rising number of bariatric surgeries in response to the increasing number of obesity cases in both developed and developing countries ***(Kitzinger et al., 2011).***

Obesity is considered a worldwide health problem, ***(Schechner et al., 1991),*** according to WHO 39% of adults aged 18 years and over were overweight in 2016, and 13% were obese.

Truncal deformity consists of excess tissue in the abdominal region both vertically and horizontally, and it is the chief concern of most patients presenting for abdominoplasty ***(Colwell and Amy, 2010).***

It usually occurs after repeated pregnancies because pregnancy stretches the skin beyond its biomechanical capability to spring back and stretches the musculoaponeurotic structures of the abdominal wall. The result is stretching and thinning of these structures and diastasis of the rectus muscle. Massive weight loss, whether

from dieting or after a gastric bypass surgery, also plays a role in excess skin and laxity of the abdominal wall. ***(Allen and Subhas, 2018).***

Redundant abdominal skin can result in physiological and psychological problems related to an unusual body habitus. Patients complain of difficulties with daily activities, choice of clothing, social acceptance, etc. Abdominoplasty has proven to be an important part of the rehabilitation of the morbidly obese patient ***(Schechner et al., 1991).***

Complications related to abdominoplasty include seroma formation which is the most frequent complication, pseudo-bursa, small areas of ischemia and poor wound healing. Also include minor complications like poor scars and dog ears. The most worrisome complications are the ones which threaten the life or severely affect the aesthetic result of the procedure like huge hematomas, significant infection, necrosis, and deep venous thrombosis/pulmonary embolism (DVT/PE). Most of these complications are preventable by proper patient and procedure selection, careful planning and adequate surgical technique ***(Allen and Subhas, 2018).***

Multiple surgical strategies have been described to lower the complication rate, such as Scarpa's fascia preservation, lipoabdominoplasty, selective undermining, high tension sutures techniques, use of pressure dressings,

and fibrin glue. The technique used to raise the abdominal flap (scalpel vs electrosurgery) has also been implicated ***(Hunstad and Repta, 2009).***

The classical technique of abdominoplasty is preformed through a premuscular plane of dissection. A supra scarpa's preservation technique using a more superficial plane has been proposed as a way to decrease the complications associated with abdominoplasty through using two plane of dissection opposite to the single plane used in the classical abdominoplasty. Both techniques are identical in the supraumbilical region, but in the infraumbilical region the dissection is more superficial at scarpa fascia level and this modification aims to reduce the seroma rate by means of lymphatic preservation ***(Alberto Di Giuseppe and Melvin, 2016).***

AIM OF WORK

The aim of the study is to evaluate the effectiveness and efficiency of preserving Scarpa's Fascia in reducing postoperative complications during abdominoplasty.

Chapter (1)

Anatomy

Embryology:

The abdominal wall begins to develop from the lateral plate of the intraembryonic mesoderm. As differentiation proceeds, the intraembryonic mesoderm becomes segmented into proliferating somites forming the abdominal wall ***(Sabiston, 2002).***

As the lateral plates grow and fold over, four unique folds are formed. The cephalic fold is the most anterior and contains the foregut, the stomach, and the mediastinal/ thoracic contents. Additionally, the cephalic fold forms the epigastric abdominal wall ***(Sabiston, 2002).***

The caudal fold develops into the colon, rectum, bladder, and the hypogastric abdominal wall. The two lateral folds develop into the midgut and the lateral segments of the abdominal wall. All of these segments coalesce in the midline at the umbilicus ***(Sabiston, 2002).***

Because the alimentary tract grows rapidly, at 6 to 8 weeks of gestation, all fetuses demonstrate a physiologic herniation of the midgut [Fig. 1] ***(Sabiston, 2002).***

By the 11th week, the midgut rotates and returns back into the abdominal wall cavity with the alimentary tract in continuity ***(Sabiston, 2002).***

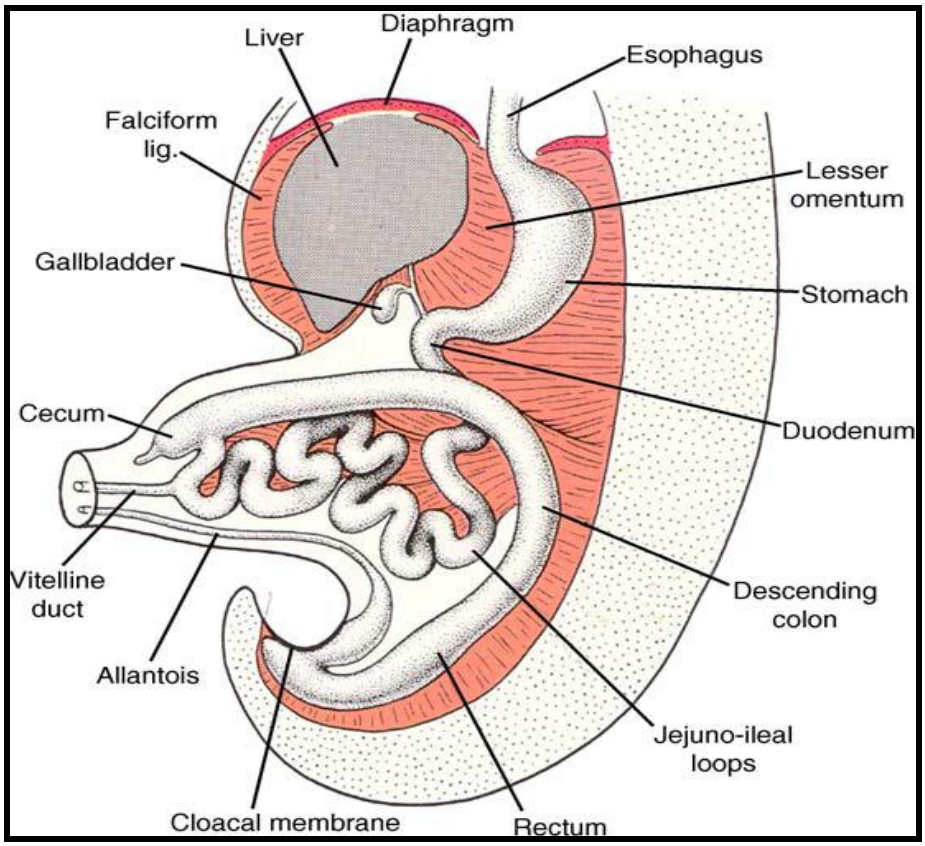

Figure (1): Embryo at 12 weeks at time of abdominal wall formation ***(Sadler et al., 2013).***

Anatomy:

The outline of the anterior abdominal wall is approximately hexagonal. It is bounded superiorly by the arched costal margin (with the xiphisternal junction at the summit of the arch). The lateral boundary on either side is,