LAPAROSCOPIC SACRAL COLPOPEXY IN TREATMENT OF VAGINAL VAULT PROLAPSE: ASSESSMENT OF EFFICACY AND CLINICAL RESULTS

Thesis
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بسم الله الرحمن الرحيم

وقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ والْمُؤْمِنُونَ

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Hisham A. Majeed Ibrahim Fahim

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List of Abbreviations

ASC	:	Abdominal sacrocolpopexy
ATFP	:	Arcus tendineus fasciae pelvis
ATLA	:	The arcus tendineus levator ani
BMI	:	Body mass index
CL	:	Cardinal ligament
EAS	:	External anal sphincter
EUL	:	External urethral ligament
GH	:	Genital hiatus
GI	:	Gasro- intestinal
ICS	:	International continence society
LMA	:	The longitudinal muscle of the anus
LP	:	Levator plate posteriorly.
LSC	:	Laparoscopic sacral- colpopexy
MDCT	:	Multi detector CT
MRI	:	Magnetic resonant imaging
NIH	:	National institute of health
NSAIDS	:	Non-steroidal anti-inflammatory drugs
PB	:	The perineal body
PCF	:	Pubocervical fascia
PCM	:	Pubococcygeus muscle
PFDI	:	Pelvic Floor Distress Inventory
PFIQ	:	Pelvic Floor Impact Questionnaire
POP	:	Pelvic organ prolapse
POP-Q	:	Pelvic Organ Prolapse Quantification
PPRST	:	Preoperative prolapse reduction stress testing
PRM	:	Puborectalis muscle
PUL	:	Pubourethral ligament
PVL	:	Pubovesical ligament
RALSC	:	Robotic assisted laparoscopic sacrocolpopexy
RVF	:	Rectovaginal fascia

List of Abbreviations (Cont.)

SUI	:	Stress urinary incontinence
TOT	:	Trans-obturator tape
TVL	:	Total vaginal length
TVM	:	Total vaginal polypropylene mesh
USL	:	Cardinal-uterosacral ligament complex
UTI	:	Urinary tract infection
UUI	:	Urge urinary incontinence
VVP	:	Vaginal vault prolapse

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Introduction

Pelvic organ prolapse (POP) is one of many pelvic floor disorders in women. Prolapse is a protrusion of the vaginal walls and/or uterus, resulting from descent of the pelvic organs. In general, "vaginal prolapse" includes multiple categories of pelvic support problems, such as uterine prolapse, posthysterectomy vaginal vault prolapse, anterior vaginal wall prolapse (cystocele), and posterior vaginal wall prolapse (rectocele). These various support defects can occur in isolation or in combination with one another ***(Siddique and Edenfield, 2014)***.

POP is highly prevalent and it has been estimated that 50% of parous women have some degree of POP, but only 20% of these are symptomatic ***(Akladios et al., 2010; Maher et al., 2013).***

The etiology is multifactorial, and includes known risk factors of pregnancy and childbirth, increasing age, obesity, hysterectomy, connective tissue abnormalities, and conditions associated with increased abdominal strain ***(Jelovesk et al., 2007)***

Uterine descent is often associated with coexistent anterior, posterior vaginal wall prolapse and/or an enterocele. The commonly associated symptoms of anterior vaginal wall prolapse are urinary frequency, urgency, incontinence, intermittent flow, straining to void, feeling of incomplete bladder emptying and poor stream. Symptoms associated with posterior vaginal wall prolapse include difficulty in defecation with excessive straining to empty the bowels, feeling of incomplete bowel emptying, constipation and manual evacuation with digital assistance. The sensation of 'something coming down', urinary, bowel and/or sexual symptoms are universally described as 'prolapse symptoms'.

However, there are very little data correlating symptoms with physical findings or the relationship of specific symptoms to prolapse of the anterior, posterior and central compartments ***(Nygaard et al., 2008; Uzoma and Farag, 2009).***

Evaluation of POP is often limited to physical examination. Additional tools include various imaging modalities, urodynamic tests and urine analysis ***(Walters et al., 2005).*** Pelvic Organ Prolapse Quantification (POP-Q) is an objective and standardized system of prolapse classification introduced in 1996, by the International Continence Society. It is a useful tool in assessing the extent of prolapse. It has the added advantage of its use in evaluating surgical and nonsurgical treatment outcomes and for clinical research purposes ***(Bump et al., 1996; Maher et al., 2013).***

The two main nonsurgical treatment options for POP - pelvic floor muscle strengthening and pessary use - are often either unacceptable to patients or simply unsuccessful, leaving pelvic reconstructive surgery as the only treatment option ***(Culligan, 2012).***

The goal of surgical repair for POP is to return the pelvic organs to their original anatomical positions ***(Lee and Raz, 2011)***. Surgery for genital prolapse is traditionally performed via an abdominal or vaginal approach. Abdominal sacrocolpopexy with mesh was initially described in ***1958*** by ***Huguier and Scali***. The prolapsed vagina is restored to its natural position by attaching a synthetic mesh from the top and back of the vagina to the anterior longitudinal ligaments of the sacrum. Sacrocolpopexy is the treatment of choice for women with female POP associated with symptoms, with subjective success rates ranging from 76 to 100% ***(Barber et al., 2005; Claerhout et al., 2009).***

Abdominal sacrocolpopexy is associated with a lower rate of recurrence and dyspareunia than with vaginal sacrospinous colpopexy ***(Maher et al., 2010).*** However, laparotomy involves longer recovery times than the vaginal approach which is quicker and cheaper to perform and women return earlier to activities of daily living ***(Rivoire et al., 2007).***

In ***1994, Nezhat et al***. reported the first case series of 15 patients who underwent laparoscopic sacral colpopexy. The apical cure rate for that cases series was 100 %. The technique has since acquired widespread acceptance among pelvic floor surgeons ***(Mustafa et al., 2012).***

Laparoscopic sacrocolpopexy provides the potential to combine the success rate of an abdominal approach with the faster recovery time associated with a minimally invasive technique ***(Rivoire et al., 2007).***

The laparoscopic approach enables the performance of a highly successful abdominal procedure, while avoiding large abdominal incision, abdominal packing, and extensive bowel manipulation ***(Mustafa et al., 2012).*** In addition to providing minimally invasive access to the pelvis, the laparoscopic approach contributes to superior visualization of the operative field because of magnification of the image, concentration of the light at the site of surgical action, and visualization of the tissue and instruments at selected distances. This improved visualization makes the ureter and rectum readily identifiable, and therefore the surgeon's ability to avoid injury to these structures is enhanced than in the vaginal approach ***(Miklos et al., 2002; Wattiez et al., 2003; culligan et al., 2003).***

An additional potential advantage of the laparoscopic approach is the ability to use permanent suture for vault suspension, as the sutures are placed and knots tied outside of