RECENT ADVANCES IN MANAGEMENT OF UTERO-VAGINAL PROLAPSE

ESSAY

Submitted for Complete Fulfillment of
The Master Degree (M.Sc.) in
Obstetrics and Gynecology

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2007

بسم الله الرحمن الرحيم

ACKNOWLEDGEMENT

*"At first, thanks to **ALLAH**, the most gracious and merciful" for opening in front of me so many ways to gain this knowledge and for allowing me to achieve this work to be between your hands today.*

*I am greatly indebted to Prof. Dr. **Osama Abd El-Aziz El-Shenofy**, Professor of Obstetric and Gynecology, Faculty of Medicine, Cairo University. I am greatly honored and pleased to have the opportunity to learn from his creative and expanded experience. His constant support, encouragement and willingness to teach and educate have pushed me forward.*

*I would like to express my profound gratitude and sincere appreciation to Dr. **Ismael Ibrahim Abo-El-Fottoh**, Assistant Professor of Obstetrics and Gynecology, Faculty of Medicine, Cairo University, for his continuous supervision, encouragement and cooperation. Without his intellectual guidance, patience, follow-up and sustaining advice, my task would have been a much more difficult one.*

*I am grateful for the excellent and magnitude of effort that was expended on this work by Dr. **Ahmed Soliman Nasr,** Lecturer of Obstetrics and Gynecology, Faculty of Medicine, Cairo University.*

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

EMG	***:***	***Electromyography***
ICS	***:***	***International Continence Society***
IVP	***:***	***Intravenous pyelogram***
IVS	***:***	***Intravaginal slingoplasty***
MRI	***:***	***Magnetic resonance imaging***
NIH	***:***	***National Institute of Health***
PDS	***:***	***Polydioxanone (delayed absorbable suture)***
POP	***:***	***Pelvic organ prolapse***
POP-Q	***:***	***Pelvic organ prolapse quantification***
PTFE	***:***	***Polytetrafluorethylene***
QOL	***:***	***Quality of life***
RVS	***:***	***Rectovaginal septum***
S1	***:***	***Sacral one***
SSUS	***:***	***Sacrospinous uterine suspension***
TVM	***:***	***Total vaignal mesh***
TVT	***:***	***Tension-free vaginal tape***
US	***:***	***United States***
VLC	***:***	***Veronikis ligature carrier***

ABSTRACT

Pelvic organ prolapse etiology is multifatorial. The POP-Q in now the only widely accepted to quantify POP objectively. Imaging studies may be useful. Uterovaginal prolapse treatment is vaginal hysterectomy and repair. Post-hysterectomy prolapse treatment is sacro-colpopexy (abdominal or laparoscopic). Prosthetic materials have been used to reduce the high recurrence rates as midvaginal sling or total vaginal mesh.

Keywords:

Prolapse – support – vaginal vault – prosthetic materials – pessary – sling – mesh

INTRODUCTION AND AIM OF WORK

Pelvic organ prolapse (POP) is an increasingly common condition for which women seek help and frequently undergo surgical treatment. The United Kingdom Center for health statistics lists genital prolapse as the third most common reasons for a hysterectomy in women and most common indication for hysterectomy in post-menopausal women ***(Popovic et al., 2000).***

Prolapse comes from the Latin ***"Procidere"*** which means "to fall". It is a common gynecological problem which although not life-threatening can severely affect the quality of life of many women especially during their climacteric years. It is responsible for 20% of the waiting lists for major gynecological surgery in the United Kingdom and this rise to 59% of elderly women ***(Cardozo, 1995).***

Despite the scale of the problem, the definition of prolapse requiring treatment remains vague. The US National Institutes of Health (NIH) in 2001 defined prolapse as *the leading edge of any vaginal segment being more than -1 cm above the hymeneal remnants*. In 2002, the International Continence Society (ICS) defined organ prolapse as *the descent of one or more of vaginal segments: the anterior, the posterior, and the apex of the vagina (cervix) or the vault (cuff) after hysterectomy* ***(Yatin and Rajiv, 2006)***.

It is no longer sufficient to alleviate a patient's symptoms of prolapse alone, but normal vaginal length should be maintained with a permanent

cure without the risk of subsequent urinary dysfunction ***(Digesu et al., 2005)***.

Several systems to qualify POP objectively have been developed in recent years. The pelvic organ prolapse quantification (POP-Q) system introduced by ***Bump and colleagues (1996)*** is now the only one that is widely accepted. It has also been studied objectively and proved to have good intra- and inter-examiner reliability ***(Swift, 2002)***. Imaging studies might be useful for cases where symptoms and signs of POP do not correlate with clinical findings or there are difficulties with differential diagnosis, when prior surgery has failed or in research settings ***(Thukar and Varma, 2006)***.

The aim of surgery for prolapse is to correct anatomical defects, preserve the vaginal function, and improve patient symptoms with minimal morbidity and the least risk of recurrence in the long-term. The challenges in the management of POP are due to its high recurrence rates, paucity of randomized controlled trials and the poor definition of success/failure rates ***(Yatin and Rajiv, 2006)***.

The aim of this study was to review the new tools in the management of POP, quality of life in POP and the recent developments in the surgical management of POP.

ANATOMICAL CONSIDERATIONS

Delancey (1994) in his famous work on cadaver dissection, divided the vaginal supports into *three levels:*

1. **Level I:** superior attachment (cardinal uterosacral ligament complex).
2. **Level II:** lateral attachment (superolateral insertion points of the anterior vaginal wall, recto-vaginal fascia).
3. **Level III:** distal attachment (perineal body, perineal membrane).

Petros (2001) confirmed these findings in his radiological study on 50 nulliparous females.

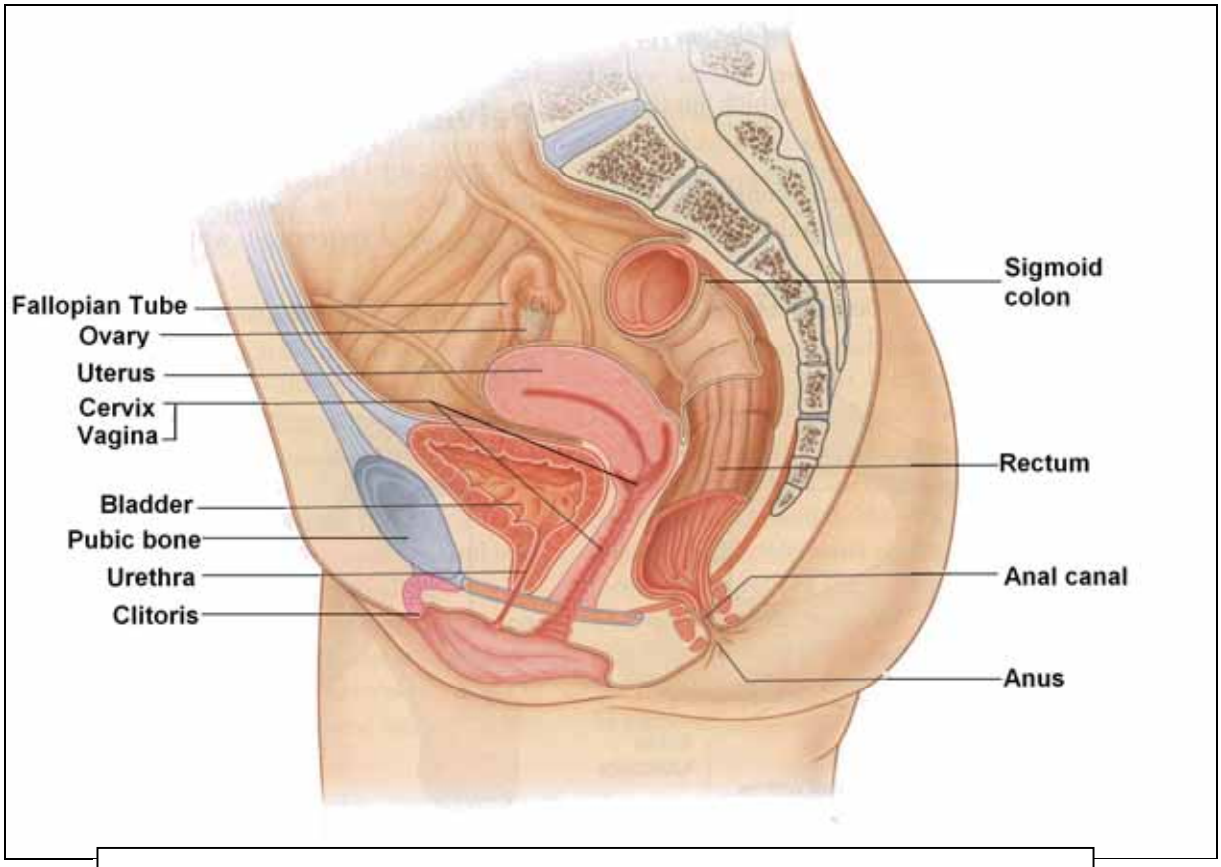

Figure (1): Anatomy of the female genital tract (sagittal view).

In normal women upright at rest, the proximal vaginal axis is almost horizontal, lying parallel to and on the levator plate. Colpographic studies have shown that as intra-abdominal pressure increases, the pelvic diaphragm contracts and maintains the position of the levator plate and horizontal vaginal axis. As a consequence, uterus, vagina and rectum are pushed against the levator plate and not through the genital hiatus. **Petros** ***(2001)*** demonstrated intact levator plate with obvious prolapse of the vagina and uterus on straining, hence, muscle damage alone cannot provide the entire explanation for the uterovaginal prolapse.

Uterovaginal prolapse is attributed to a break in the integrity of the utero-sacral ligament (USL) complex, weakening of the pelvic floor musculature and alteration of the normal vaginal axis. These are rarely found in isolation and tend to co-exist with defects in more than one compartment ***(Nieminen et al., 2003)***.

- **The Pelvic Floor:**

When humans assumed the upright posture, the opening in the bony pelvis comes to lie at the bottom of the abdomino-pelvic cavity. This required the evolution of a supportive system to prevent the pelvic organs from being pushed downward through this opening. In the female, this system must withstand these downward forces but allow for the passage of the large and cranially dominant fetus. The supportive system that has evolved to meet these needs consists of a fibromuscular floor that forms a shelf spanning the pelvic outlet and that contains a cleft for the birth canal and excretory drainage. A series of visceral ligaments and fascia tethers the organs and maintains their position over the closed portion of the floor. The floor consists of the levator ani muscles and perineal membrane. The

openings in these structures for parturition and elimination have required the development of ancillary fibrous elements that are concentrated over open areas in the muscular floor to support the viscera in these weak areas ***(Delancey, 2003)***.

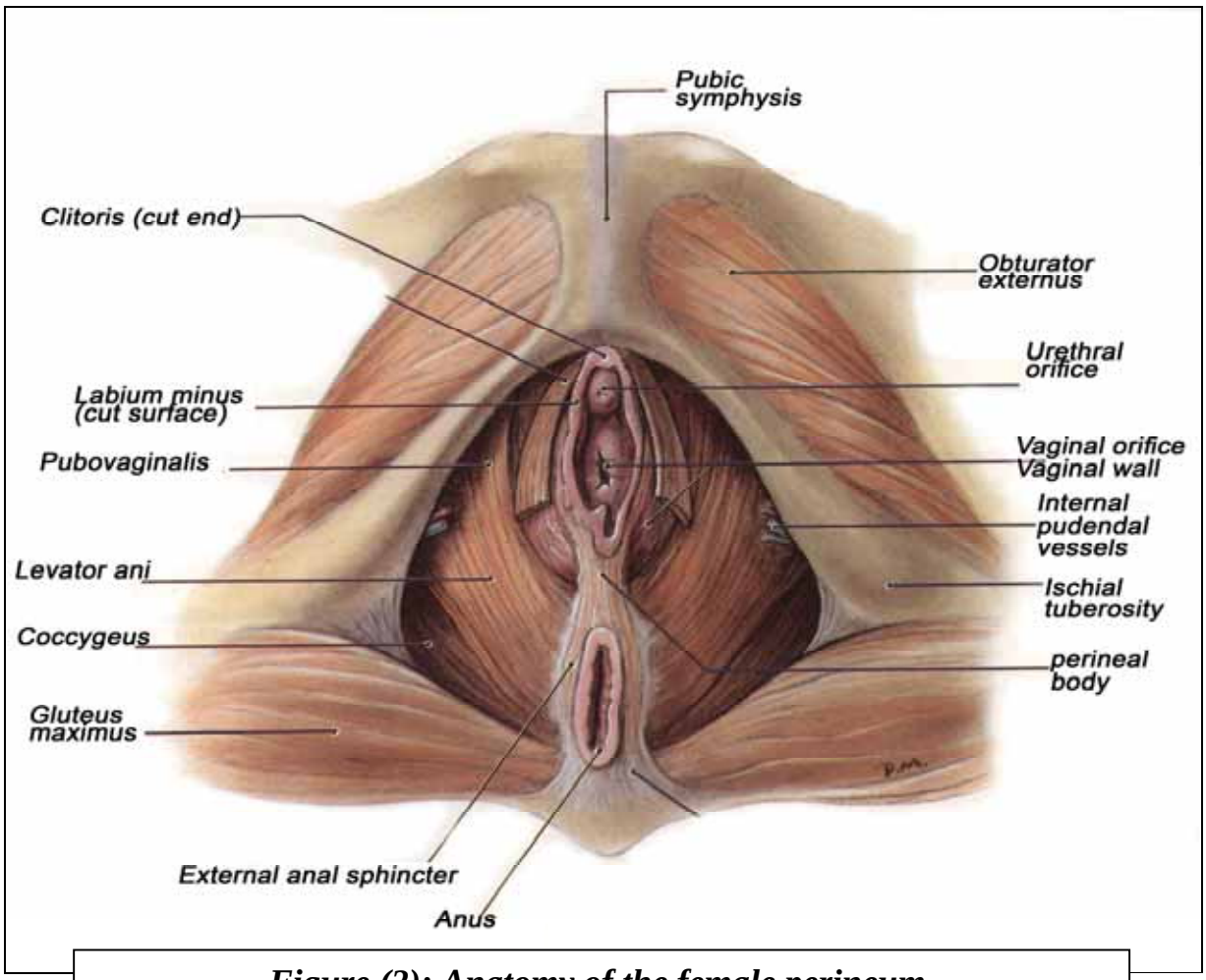

Figure (2): Anatomy of the female perineum.

- **<u>Perineal membrane (urogenital diaphragm):</u>**

The perineal membrane forms the inferior portion of the anterior pelvic floor. It is a triangular sheet of dense, fibromuscular tissue that spans the anterior half of the pelvic outlet. It lies just caudal to the skeletal muscle of the striated urogenital sphincter (formerly the deep transverse perineal

muscle). Because of the presence of the vagina, the perineal membrane cannot form a continuous sheet to close off the anterior pelvis in the female, as it does in male. It does provide support for the posterior vaginal and perineal body to the ischiopubic rami, thereby limiting their downward descent. This layer of the floor arises from the inner aspect of the inferior ischiopubic rami above the ischiocavernous muscles and the crura of the clitoris. The medial attachment of the perineal membrane are to the urethra, walls of the vagina, and perineal body ***(Delancey, 1992)***.

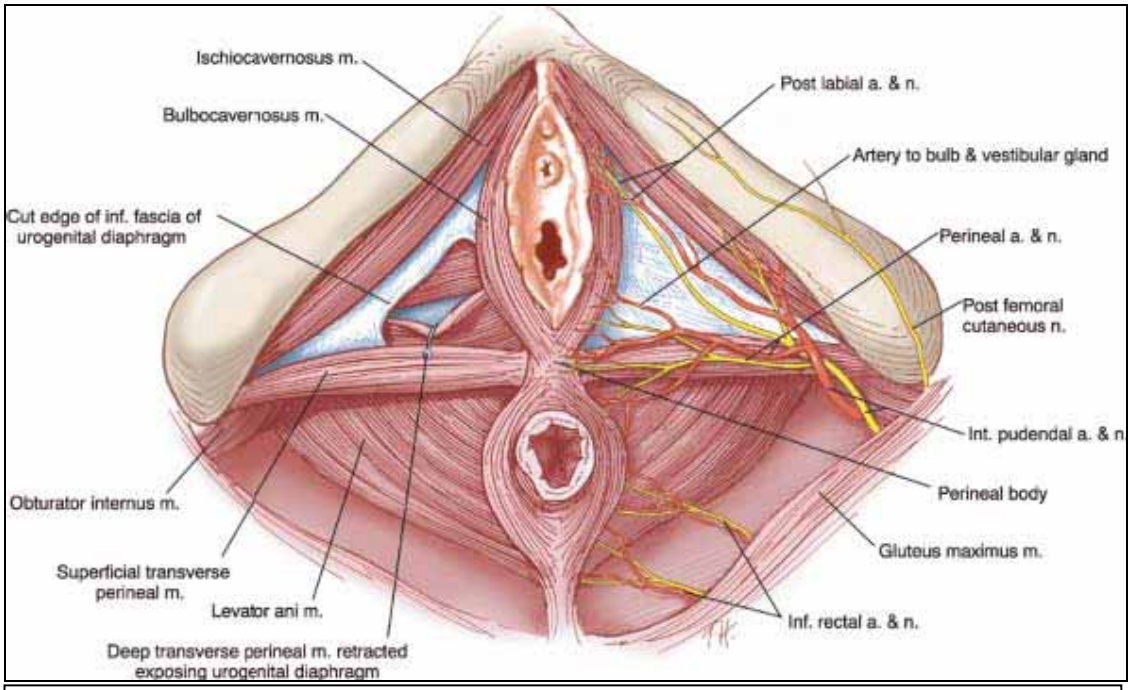

Figure (3): Anatomy of the female superficial perineal compartment.

Just cephaled to the perineal membrane lie two arch-shaped muscles that begin posteriorly to arch over the urethra**.** These are the compressor urethra and the urethrovaginal sphincter. They act to compress the distal urethra. Posteriorly, intermingled within the membrane are skeletal muscle fibers of the transverse vaginal muscle and some smooth muscle