



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

شبكة المعلومات الجامعية  
@ ASUNET



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم





شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأفلام قد أعدت دون أية تغيرات



## يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of  
15-25- c and relative humidity 20-40%

# بعض الوثائق الأصلية تالفة

شبكة المعلومات الجامعية  
@ ASUNET



# بالرسالة صفحات لم

## ترد بالاصل



# Long Term Evaluation Of The Functional Results Of Orthotopic Ileal Bladder Substitutes Integrated With Wall-Incorporated Antireflux Valve

## Thesis

Submitted for partial fulfillment for the  
requirement for master degree in urology

By

Essam Abdel Moneam Ali  
(M.B., B.ch)

## Supervisors

Prof. Dr Hashem M. Rashwan

*Prof. And Head of urology unit*

*Faculty of Medicine*

*Suez Canal University*

Dr. Adel M. Elbakrey

*Ass. Prof of Urology*

*Faculty of Medicine*

*Suez Canal University*

Dr. Hany Arif Abdullah

*Ass. Prof of Urology*

*Faculty of Medicine*

*Suez Canal University*

*Faculty of Medicine*

*Suez Canal University*

2001

B  
01/12/01

# **Long Term Evaluation Of The Functional Results Of Orthotopic Ileal Bladder Substitutes Integrated With Wall-Incorporated Antireflux Valve**

**Thesis**

**Submitted for partial fulfillment for the  
requirement for master degree in urology**

**By**

**Essam Abdel Moneam Ali  
(M.B., B.ch)**

# Supervisors

**Prof. Dr Hashem M. Rashwan**

*Prof. And Head of urology unit*

*Faculty of Medicine*

*Suez Canal University*

**Dr. Adel M. Elbakrey**

*Ass. Prof of Urology*

*Faculty of Medicine*

*Suez Canal University*

**Dr. Hany Arif Abdullah**

*Ass. Prof of Urology*

*Faculty of Medicine*

*Suez Canal University*

*Faculty of Medicine*

*Suez Canal University*

2001



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ تَوَدُّ أَنْ يُسَبِّحَا بِكَ اللَّيْلَ وَالنَّهَارَ  
وَيَكُونََا مِنْ السَّاجِدِينَ

وَقَالَتَا إِنَّا رَايَا رَبَّنَا  
فَاخْتَلَفْنَا فِي الْإِذَا

فَقَالَ اللَّهُ إِنِّي مَعَكُمْ  
إِنْ أَنْتُمْ مِنَ الْمُسْلِمِينَ

سورة البقرة آية ٣٢

## *Dedication*

*To begin with, I must dedicate this study to my father and mother for their help and continuous guidance throughout my life.*

*Also it is dedicated to my wife and my son Moataz for their patience and giving me the motivation to continue working.*



## *Acknowledgments*

First of all I would like to show deepest gratitude to *Allah Most Gracious Most Merciful* for helping me completing this study.

I wish to express my deep thanks and gratitude to Prof. Dr. *Hashim M. Rashwan*, professor and head of urology department, Suez Canal University, for his continuous support and his help with understanding and kind encouragement.

I would like to express my profound gratitude and deep appreciation to Dr. *Adel M. Elbakry*, assistant professor of urology, Suez Canal University for his great encouragement, endless support and kind patience which contributed to the accomplishments of this work. Particulary he is the innovator of the technique of wall incorporated antireflux ureteroileal anastomosis.

I would like to express my thanks to Dr. *Hany Arif*, assistant professor of urology, Suez Canal University deepest appreciation for helping me throughout the study.

Finally, I wish to express my deep thanks to all those who participated in my work especially staff members and my colleagues in the Urology Department, Suez Canal University, who willingly cooperated with me.

# Contents

|            |                                                         |          |
|------------|---------------------------------------------------------|----------|
| <i>I</i>   | <i>Introduction and Rational.</i>                       | <i>1</i> |
| <i>II</i>  | <i>Aim of the work,</i>                                 | <i>3</i> |
| <i>III</i> | <i>Review of literature.</i>                            | <i>4</i> |
| III.1.1    | Anatomy of pelvic floor muscle.                         | 4        |
| III.1.2    | Anatomy of male external urethral sphincter.            | 6        |
| III.1.3    | Anatomy of female urethral sphincter.                   | 9        |
| III.2      | Physiology of continence mechanisms.                    | 12       |
| III.3      | Risk for urethral tumor recurrence.                     | 17       |
| III.4      | Voiding pattern in orthotopic bladder substitution.     | 20       |
| III.5      | Orthotopic bladder substitution.                        | 22       |
| III.5.1    | Indication for orthotopic bladder substitution.         | 22       |
| III.5.2    | Contraindication for orthotopic bladder substitution.   | 24       |
| III.5.3    | Continence mechanisms after radical cystoprostatectomy. | 25       |
| III.5.4    | Ideal bladder substitution.                             | 28       |
| III.6      | Type of orthotopic bladder substitution.                | 30       |
| III.6.1    | Orthotopic ileal reservoirs.                            | 30       |
|            | 1. <i>Camey I</i>                                       | 31       |
|            | 2. <i>Camey II</i>                                      | 31       |
|            | 3. <i>VIP Padovana Pouch</i>                            | 33       |
|            | 4. <i>Park's S-pouch</i>                                | 35       |
|            | 5. <i>Hemikock</i>                                      | 35       |



|                                                                                    |           |
|------------------------------------------------------------------------------------|-----------|
| 6. Ileal Neobladder                                                                | 37        |
| 7. Ileal neobladder with intact afferent segment.                                  | 41        |
| 8. Double folded pouch with wall incorporated valve                                | 43        |
| 9. T-pouch                                                                         | 43        |
| <b>III.6.2 Colonic orthotopic neobladder</b>                                       | <b>45</b> |
| 1. Sigmoid neobladder                                                              | 45        |
| 2. Rt. Colonic neobladder                                                          | 47        |
| <b>III.6.3 Ileocolonic orthotopic neobladder</b>                                   | <b>49</b> |
| <b>III.6.4 Orthotopic gastric reservoirs</b>                                       | <b>51</b> |
| <b>III.6.5 Composite gastrointestinal reservoir</b>                                | <b>52</b> |
| <b>III.7 Antireflux mechanisms of ileal neobladder substitutes</b>                 | <b>53</b> |
| III.7.1 Wall incorporation.                                                        | 53        |
| III.7.2 Effect isoperstalsis lumen reduction and length of ileal valvular segment. | 56        |
| III.7.3 Distribution of reservoir pressure.                                        | 56        |
| III.7.4 Mucosal softness.                                                          | 57        |
| III.7.5 Sphincteric compression.                                                   | 60        |
| <b>III.8 Antireflux procedure in ileal bladder substitution</b>                    | <b>63</b> |
| III.8.1 Antireflux ureteroileal anastomosis                                        | 64        |
| 1. Le-Duc technique                                                                | 64        |
| 2. Serous lined extramural tunnel.                                                 | 66        |
| 3. The spilt cuff technique.                                                       | 67        |
| 4. Sub-serosal tunneling technique.                                                | 71        |
| 5. Serosal fixation ureteroileal anastomosis.                                      | 71        |

|                |                                                               |            |
|----------------|---------------------------------------------------------------|------------|
| 6.             | Mucosal sleeve ureteroileal anastomosis.                      | 72         |
| 7.             | Hammock technique.                                            | 75         |
| <b>III.8.2</b> | <b>Antireflux valves</b>                                      | <b>77</b>  |
| 1.             | Intussuscepted ileal valve                                    | 77         |
| 2.             | Benckroun antireflux valve.                                   | 80         |
| 3.             | Wall incorporated antireflux valve.                           | 82         |
| 4.             | Afferent isoperistaltic ileal segment.                        | 86         |
| <b>III.9</b>   | <b>Further perspective</b>                                    | <b>92</b>  |
| <b>III.10</b>  | <b>Complications of orthotopic ileal bladder substitution</b> | <b>96</b>  |
| III.10.1       | Nocturnal urinary incontinence.                               | 96         |
| III.10.2       | Voiding difficulty.                                           | 98         |
| III.10.3       | Metabolic complication.                                       | 99         |
| III.10.4       | Mucous secretion                                              | 106        |
| III.10.5       | Infection                                                     | 106        |
| III.10.6       | Carcinogenesis                                                | 107        |
| <i>IV</i>      | <i>Patients and methods</i>                                   | <i>108</i> |
| <i>V</i>       | <i>Results</i>                                                | <i>124</i> |
| <i>VI</i>      | <i>Discussion</i>                                             | <i>144</i> |
| <i>VII</i>     | <i>Summary and conclusion</i>                                 | <i>161</i> |
| <i>VIII</i>    | <i>References</i>                                             | <i>164</i> |
| <i>IX</i>      | <i>Appendix</i>                                               |            |
| <i>X</i>       | <i>Arabic summary</i>                                         |            |

## *List of figures*

|               |      |                                                                     |    |
|---------------|------|---------------------------------------------------------------------|----|
| <i>Figure</i> | (1)  | <i>Anatomy of female urethral sphincter</i>                         | 11 |
| <i>Figure</i> | (2)  | <i>Cauvelaire procedure</i>                                         | 32 |
| <i>Figure</i> | (3)  | <i>Camey I procedure</i>                                            | 32 |
| <i>Figure</i> | (4)  | <i>Camey II procedure</i>                                           | 34 |
| <i>Figure</i> | (5)  | <i>Padovana pouch (VIP)</i>                                         | 34 |
| <i>Figure</i> | (6)  | <i>Park's S-pouch</i>                                               | 36 |
| <i>Figure</i> | (7)  | <i>Orthotopic Hemi-kock pouch</i>                                   | 38 |
| <i>Figure</i> | (8)  | <i>Ileal neobladder.</i>                                            | 40 |
| <i>Figure</i> | (9)  | <i>Ileal neobladder With an afferent segment</i>                    | 42 |
| <i>Figure</i> | (10) | <i>Double folded pouch with wall incorporated antireflux valve.</i> | 44 |
| <i>Figure</i> | (11) | <i>T-Pouch</i>                                                      | 46 |
| <i>Figure</i> | (12) | <i>Sigmoid neobladder.</i>                                          | 48 |
| <i>Figure</i> | (13) | <i>Le Bag ileocolonic neobladder</i>                                | 50 |
| <i>Figure</i> | (14) | <i>Mainz pouch</i>                                                  | 50 |
| <i>Figure</i> | (15) | <i>The mechanism of intussuscepted valve Ileal neobladder.</i>      | 55 |
| <i>Figure</i> | (16) | <i>The mechanisms of Benckroun hydraulic valve.</i>                 | 58 |
| <i>Figure</i> | (17) | <i>Koff procedure &amp; Mechanisms</i>                              | 59 |
| <i>Figure</i> | (18) | <i>Le-Duc ureteroileal anastomosis</i>                              | 65 |
| <i>Figure</i> | (19) | <i>Serous lined extramural tunnel.</i>                              | 68 |
| <i>Figure</i> | (20) | <i>The split cuff technique</i>                                     | 70 |
| <i>Figure</i> | (21) | <i>Serosal fixation ureteroileal anastomosis.</i>                   | 73 |