

## A Randomized Trial Comparing Lichtenstein And Desarda Technique For Open Inguinal Hernia Repair--A Study Of 100 Patient

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### Abstract:

**Background:** The Objective Of This Study Is To Compare The Outcome Of Lichtenstein's Repair Vs Desarda's Repair For Inguinal Hernia Repair .

**Methods:** This Is A Randomized Prospective Control Trial Of 100 Patients Having Inguinal Hernia Operated In Our Hospital. 50 Patients Were Operated Using Lichtenstein's Mesh Repair And 50 Patients Using Desarda's Repair. The Variables Like Age, Sex, Type Of Surgery, Duration Of Surgery, Pain On 1st, 3rd, 5th Post-Operative Day, Complication, Re-Exploration, Morbidity, Time To Return To Normal Activities., Cost-Effectiveness Were Analyzed.

**Results:** There Were No Significant Differences Regarding Age , Sex, Location Of Hernia. Pain (Mild To Moderate), Duration Of Surgery Were Higher In Mesh Repair Compared To Desarda's Repair.

Patient Hospitalized For Lesser Time In Desarda's Group. There Were 3 Cases Of Recurrence In Lichtenstein's Group, But Only 1 Case In Desarda's Group. There Were 3 Cases Of Re-Exploration For Mesh Removal For Sepsis In Lichtenstein's Group, As Compared To Desarda's Where No Patient Needed Re-Exploration For Sepsis. The Time To Return To Non-Strenuous Activity Was 10-4 Days In Desarda's Group As Compared To 20-25 Days In Lichtenstein's Group.

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### I. Introduction

Because Of Their Frequency, Inguinal Hernias Remain An Important Surgical Problem. The Estimated Lifetime Risk For Inguinal Hernia Is 27% For Men And 3% For Women (Primatesta And Goldacre, 1996)<sup>1</sup>. Annual Morbidity Rates In Various Countries Vary From 100 To 300 Per 100,000 Citizens (Bay-Nielsen Et Al, 2001)<sup>2</sup>. There Were No Written Surgical Guidelines For Hernia Treatment Until 2009, When The European Hernia Society (EHS) Published Its Recommendations Based On Analysis Of The Literature And The Results Of Clinical Trials. In The EHS Guidelines, Mesh-Based Techniques—The Lichtenstein Technique In Particular—And Endoscopic Methods Are Recommended For Treatment Of Symptomatic Primary Inguinal Hernia In Adult Men (Strength Of Recommendation IA). In A Departure From This Firm Opinion Presented By The EHS, The Shouldice Method Has Been Acknowledged To Be Acceptable As Well (Simons Et Al, 2009)<sup>3</sup>. Schumpelick Emphasized The Effectiveness Of The Shouldice Technique During His Presentation At The 2011 EHS Congress In Ghent. Some Questions Can Be Asked Considering These Facts: Is The Shouldice Technique The Only Nonmesh Method That Ensures Good Clinical Results? Are Any Other Tissue-Based Techniques Effective In Inguinal Hernia Repair If Performed Correctly? The Synthetic Prostheses Most Often Used In The Inguinal Area Can Create New Clinical Problems, Such As Foreign Body Sensation In The Groin, Discomfort, And Abdominal Wall Stiffness, Which May Affect The Everyday Functioning Of The Patient (D'Amore Et Al, 2008)<sup>4</sup>. Surgical-Site Infections, Often With Clinical Symptoms Delayed For Many Years, Are More Frequent After Hernia Treatment Using Mesh (Genc Et Al, 2010; Scott Et Al, 2002)<sup>5,6</sup>. Migration Of The Mesh From The Primary Site Of Implantation In The Abdominal Cavity Is One Of The Most Dangerous Complications (Jeans Et Al, 2007; Ott Et Al, 2005)<sup>7,8</sup>. Intense Chronic Inflammatory Process Typically Associated With Foreign Body Reactions Around The Mesh Prosthesis May Produce Meshoma Or Plugoma Tumors, The Treatment Of Which Becomes A New Surgical Challenge (Mcroy, 2010)<sup>9</sup>. Additionally, Procreation And Sexual Function Are Reportly Seriously Affected After Surgical Hernia Treatment With Mesh (Ott Et Al, 2005)<sup>8</sup>.

The Observed Complication Rates And Postoperative Dysfunction Have Influenced Many Investigators To Look For New Hernia Repair Techniques Or To Modify Old Ones. An Example Of Such Efforts Is The Desarda Method, Which Was Presented In 2001 And Became A New Surgical Option For Tissue-Based Groin Hernia Repair (Desarda, 2001a; Desarda, 2001b)<sup>10,11</sup>. Because The Results Of Our Prospective Study Involving The Technique Were Promising, And Comparable To Results Presented By Other Authors (Mitura And Romanczuk, 2008; Szopinski Et Al, 2005)<sup>12,13</sup>.

**Patients and Methods**

A Prospective Randomized Trial Was Carried Out In 100 Patient Having Inguinal Hernia .50 Patient Were Allotted To Both Group . All The Patient From Both Sexes Older Then 16 Years With Primary Inguinal Hernia Were Included.Recurrent Hernia And Patient Operated On Emergency Basis Were Excluded.The Diagnosis And Type Of Inguinal Hernia Was Made By Clinical Examination .Information Was Given To Patient As Regard To Anaesthetic Procedure. The Randomization Was Performed Using A Consecutively Numbered ,Sealed Envelope,Which Was Opened In Theater And All The Patient Having An Even Number Operated By Mesh Repair And Uneven Number By The Desarada Technique.The Operating Surgeon Himself Complete A Data Sheet.The Operating Surgeon Was Of Consultant Level Of All Operation.The Evaluator Was Also A Consultant Level.All The Patient Signed A Written Informed Consent ..Approval Of Local Ethical Committee Was Obtained Before The Onset Of Study.

Skin And Fascia Are Incised Using A Regular, Oblique Inguinal Incision To Expose The External Oblique Aponeurosis (EOA). As Far As Possible, The Thin, Filmy Fascial Layer Covering The EOA Is Kept Undisturbed. The EOA Is Cut In Line With The Upper Crux Of The Superficial Ring. The Sac Is Excised In Indirect Hernias And It Is Inverted In Direct Hernias. The Upper Leaf Of The EOA Is Sutured With The Inguinal Ligament From The Pubic Tubercle To The Abdominal Ring Using Number 1 Monofilament Polydioxanone Violet Continuous Sutures . The First Two Sutures Were Taken Through The Anterior Rectus Sheath And The Last Suture Is Taken So As To Narrow The Abdominal Ring Sufficiently.

A Splitting Incision Is Made In This Sutured Medial Leaf, Partially Separating A Strip 1.5-2 Cm Wide. This Splitting Incision Is Extended Medially Up To The Pubic Symphysis And 1-2 Cm Beyond The Abdominal Ring Laterally. The Medial Insertion And Lateral Continuation Of This Strip Is Kept Intact. The Upper Free Border Of The Strip Is Now Sutured To The Conjoint Tendon With Number 1 Monofilament Polydioxanone Violet Continuous Sutures All Along Its Length . This Will Result In The Strip Of The EOA Being Placed Behind The Cord To Form A New Posterior Wall Of The Inguinal Canal.

The Spermatic Cord Is Placed In The Inguinal Canal And The Lateral Leaf Of The EOA Is Sutured To The Newly Formed Medial Leaf Of The EOA In Front Of The Cord. As Before, Number 1 Monofilament Polydioxanone Violet (PDSII NO. 1, Ethicon) Continuous Sutures Were Used. Undermining Of The Newly Formed Medial Leaf On Both Its Surfaces And Excision Of The Bulky Cremasteric Muscle (If Required) Facilitate Its Approximation To The Lateral Leaf. This Is Followed By Routine Closure Of The Superficial Fascia And The Skin.

Prosthesis Repair Will Be Undertaken As Described In The Textbooks. Polypropylene Mesh Of Size 10X15 Cm Will Be Used. Mesh Will Be Trimmed Wherever Required Keeping Muscle Cover Of Minimum 2-3 Cm.

	LICHTENSTEIN (N=50)	DESARDA(N=50)	P Value
AGE	NUMBER	NUMBER	
25 -45 YEARS	42	44	
45 -65 YEAR	8	6	
SEX			
MALE	48	49	
FEMALE	2	1	
LOCATION			
RIGHT	36	35	
LEFT	12	13	
BILATERAL	2	2	
HOSPITAL STAY			
SHORT HOSPITALIZATION (<3 DAYS)	35	43	<0.0001
LONG HOSPITALIZATION (>3 DAYS)	15	7	<0.0001
	LICHENSTEIN(N=50)	DESARDA(N=50)	
DURATION OF SURGERY	Average 40 Minutes	30 Minutes Averege	<0.0001
PAIN(MILD TO MOERATE)			
FIRST POD	43	37	<0.0001
THIRD POD	44	31	<0.0001
FIFTH POD	42	25	<0.0001

RE-EXPLORATION FOR SEPSIS AND RECURRENCE	NUMBER	NUMBER	
MESH REMOVAL FOR SEPSIS	4	NIL	<0.0048
REPEAT SURGERY FOR RECURRENCE	3	1	<0.0048

	LICHENSTEIN(N=50)	DESARDA(N=50)	P VALUE
POST OPERATIVE COMPLICATION	NUMBER	NUMBER	
SEROMA	7	3	<0.0340
WOUND INFECTION	6	3	<0.0340
HEMATOMA	7	3	<0.0340
ORCHITIS	NIL	NIL	
TESTICULAR ATROPHY	NIL	NIL	
SEPSIS WITHOUT RE-EXPLORATION	4	1	<0.0340
SEPSIS REQUIRE RE-EXPLORATION	4	NIL	<0.0340
RECURRENCE	3	1	<0.1574
RETUEN TO NORMAL NON STERNOUS WORK			
1—7 DAYS	5	14	<0.0001
8—15 DAYS	24	42	<0.0001
16-30 DAYS	39	47	<0.0001

## II. Results

There Were No Significant Difference Regarding Age ,Sex,Location Of Hernia. Mean Hospital Stay In Desarda's Group Was Less Than 3 Days , While In Lichenstein Group Was More Than 3 Days( P Value <0.0001). In Desarda's Group Time Taken For Surgery Was Average 30 Minute ,While In Lichenstein Group Average Time Was 40 Minute (P Value <0.0001). Analysis On Pain Score (Mild To Moderate) On 1<sup>st</sup> ,3<sup>rd</sup> ,And 5<sup>th</sup> POD Was Significantly Less In Desarda's As Compare To Lichenstein(P Value <0.0001). The Recurrence Rate Was 2% In Desarda's Group And 6% In Lichenstein Group. Four Patient Require Re-Exploration In The Form Of Mesh Removal For Sepsis Was Significantly Higher In Mesh Repair As Compare To Desarda's Group Where No Such Re- Exploration Needed(P Value<0.0048). 10 % Of Patient Developed Post Operative Complication In Lichenstein Group While 4 % In Desarda Group(P Value<0.0034). Return To Normal Nonstrnuous Activity After 7-15 In Desarda Group Was 84% While Only 48% Of Patient In Mesh Repair .(P Value<0.0001). There Were No Case Of Chronic Groin Pain Lasting Longer Than 6 Month In Either Of The Group..

## III. Discussion

Mesh Repair Is Now Widely Used, And Is Often Referred To As The Gold Standard Despite A Relative Paucity Of Clinical Trial Comparing Mesh With Suture Repair.(The Cost Of Surgery) <sup>14</sup>and Post Operative Morbidity Affecting The Quality Of Life Are Important Consideration In The Inguinal Hernia Surgery.There Are No Clear Scientific Evidence To Prove That The Mesh Prosthesis Repair Is Superior To Non Prosthesis Repair In This Respect. <sup>15</sup>

There Are Advantages And Disadvantages Associated With All Type Of Open Inguinal Hernia Surgery.Existing Non Prosthesis Repair(Bassini/Shoudice)Is Blamed For Causing Tissue Tension And Mesh Repair Is Blamed For Causing Complication Of Foreign Body.Desarda's Suture An Undetached Strip Of The External Oblique Aponeurosis Between The Muscle Arch And The Inguinal Ligament To Give A Strong And Physiologically Dynamic Posterior Wall<sup>16</sup> .Desarda's Result In A Tension Free Repair Without The Use Of Any Foreign Body,Being Simple To Perform .

For Inguinal Hernia Repair,Different Studies Have Tried To Give An Answer As To Which Of The Existing Technique Is Better <sup>17 18</sup> .THE EU HERNIA TRIALIST COLLABORATION <sup>19</sup> Made A Systemic Revision Of The Randomized Prospective Studies And Analysis Of The Result Of Different Studies . The External Oblique Muscle Technique Satisfies All Criteria Of Modern Hernia Surgery.Desarda's Technique Is Simple And Easy To Do.It Does Not Require Risky Or Complicated Dissection .There Is No Tension In Suture Line .It Does Not Require Any Foreign Material And Does Not Use Weak Muscle Or Fascia Transversalis For Repair.It Does Not Use Mesh Prosthesis So It Is More Economical And Also Avoid Morbidity Associated With Foreign Body Like Rejection ,Infection And Chronic Groin Pain.Szopinski Et Al <sup>20</sup>

Stated In Their Randomized Controlled Trial That The ‘‘Desarda’s Technique Has The Potential To Enlarge The Number Of Tissue Based Method Available To Treat Groin Hernias’’. The Most Evident Indication For Use Of The Desarda’s Technique Include Use In Young Patient, In Contaminated Surgical Field, In The Presence Of Financial Constraints Or If A Patient Disagree With The Use Of Mesh.

Dr Desarda’s New Theory About Factor That Prevent Inguinal Hernia Formation In The Normal Individual

1. He Stated That The Posterior Wall Of Inguinal Canal Is Not Formed By Just Fascia Transversalis But Is Formed By Two Layers, Transversalis Fascia And The Aponeurotic Extension From The Transverses Abdominis Aponeurotic Arch .

2. Fascia Transversalis Is Thin And Does Not Give Any Protection . Protection Is Given By The Aponeurotic Extension From The Transverses Abdominis Aponeurotic Arch.

3. Concept Of The Obliquity Of Inguinal Canal Or Shutter Mechanism Is Not Perfect.

The Author Made A Search About The Inguinal Canal Anatomy Through Book Or Publication Made By Stalwarts In This Field Like Nehus, Macvay Etc, And Agree To The New Concept Described By Dr-Desarda In His Publication In BMC Surgery In 2003 16..

#### **IV. Conclusion**

This Study Has Shown That Desarda’s Repair For Inguinal Hernia Give The Same Or Better Result When Compared With Lichenstein Mesh Repair. It Has Shorter Duration Of Surgery , Rapid Recovery And Avoidance Of Specific Mesh Related Complication. It Is Technically Simpler Than The Other Non Mesh Repair Like Shouldice Repair. The Author Strongly Recommend That All The Surgeon Get Acquainted With This Technique.

#### **References**

- [1] Primates P, Goldacre MJ. Inguinal Hernia Repair: Incidence Of Elective And Emergency Surgery, Readmission And Mortality. *Int J Epidemiol.* 1996; 25:835–839.
- [2] Bay-Nielsen M, Kehlet H, Strand L, Et Al. Quality Assessment Of 26,304 Herniorrhaphies In Denmark: A Prospective Nationwide Study. *Lancet.* 2001;358:1124–1128.
- [3] Simons MP, Aufenacker T, Bay-Nielsen M, Et Al. European Hernia Society Guidelines On The Treatment Of Inguinal Hernia In Adult Patients. *Hernia.* 2009;13:343–403.
- [4] D’Amore L, Gossetti F, Vermeil V, Et Al. Long-Term Discomfort After Plug And Patch Hernioplasty. *Hernia.* 2008;12:445–446.
- [5] Genc V, Ensari C, Ergul Z, Et Al. A Very Late-Onset Deep Infection After Prosthetic Inguinal Hernia Repair. *Chirurgia (Bucur)* 2010;105:555–557
- [6] Scott NW, McCormack K, Graham P, Et Al. Open Mesh Versus Non-Mesh For Repair Of Femoral And Inguinal Hernia. *Cochrane Database Syst Rev.* 2002.
- [7] Jeans S, Williams GL, Stephenson BM. Migration After Open Mesh Plug Inguinal Hernioplasty: A Review Of The Literature. *Am Surg.* 2007;73:207–209.
- [8] Ott V, Groebli Y, Schneider R. Late Intestinal Fistula Formation After Incisional Hernia Using Intraperitoneal Mesh. *Hernia.* 2005;9:103–104.
- [9] Mcroy LL. Plugoma And The Prolene Hernia System. *J Am Coll Surg.* 2010;212:424
- [10] Desarda MP. Inguinal Herniorrhaphy With An Undetached Strip Of External Oblique Aponeurosis: A New Approach Used In 400 Patients. *Eur J Surg.* 2001a;167:443–448.
- [11] Desarda MP. New Method Of Inguinal Hernia Repair: A New Solution. *ANZ J Surg.* 2001b;71:241–244.
- [12] Mitura K, Romanczuk M. Comparison Between Two Methods Of Inguinal Hernia Surgery—Lichtenstein And Desarda. *Pol Merkuriusz Lekarski.* 2008;24:392–395.
- [13] Szopinski J, Kapala A, Prywinski S, Et Al. Desarda Technique For Inguinal Hernia Treatment: First Polish Experiences. *Pol Przegl Chir.* 2005;77:159–168
- [14] Costos Hospitalarios. Comunicación Personal. Departamento Económico. Hospital Enriquecabrera. Enero. 2005.
- [15] Porrero JL. El Cambio De La Cirugía De La Hernia En La Última Década. En:
- [16] Celdran A, De La Pinta JC, Editores. *Fundamentos De La Hernioplastia Sin Tensión.* Madrid: Fundación Jiménez Díaz: 1999. P. 9-11.
- [17] MP Desarda. Surgical Physiology Of Inguinal Hernia Repair-A Study Of 200 Cases. *BMC Surgery* 2003; 3:1-9.
- [18] Simons MP, Kifignen J, Van Geldere D, Hoitsmahfw, Obertop H. Role Of The Shouldice Technique In Inguinal Hernia Repair: A Systematic Review Of Controlled Trials And Meta-Analysis. *Br J Surg* 1996; 83:734-8.
- [19] McGillicuddy JE. Prospective Randomized Comparison Of The Shouldice And Lichtenstein
- [20] Hernia Repair Procedures. *Arch Surg* 1998; 133: 974-8.
- [21] EU Hernia Trialist Collaboration. Mesh Compared With Non-Mesh Methods Of Open Groin
- [22] Hernia Repair: Systematic Review Of Randomized Controlled Trials. *Br J Surg* 2000; 87: 854-9.
- [23] Jacek Szopinski, Stanislaw Dabrowiecki, Stanislaw Pierscinski, Marekjackowski,
- [24] Maciejjaworski, Zbigniewszufflet. Desarda Versus Lichtenstein Technique For Primary
- [25] Inguinal Hernia Treatment: 3-Year Results Of A Randomized Clinical Trial. *World J Surg.* 2012 May;36(5):984-92. Doi: 10.1007/S00268-012-1508-1..