

PROTESI ERNIARIE: USO, ABUSO, NON USO, MAL USO

Francesco Guarnieri, Walter Smaldone, Franco Moscatelli, Calistus Nwamba, Rosemary Jane Harrison

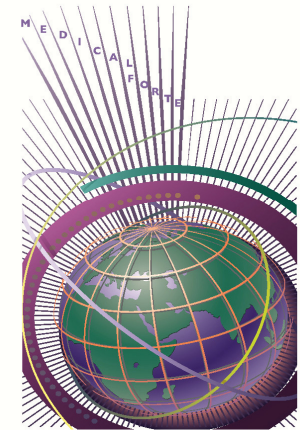


Chirurgia Privata Accreditata

Realtà ed Eccellenze

Medaglia di Rappresentanza Presidente della Repubblica Italiana Giorgio Napolitano

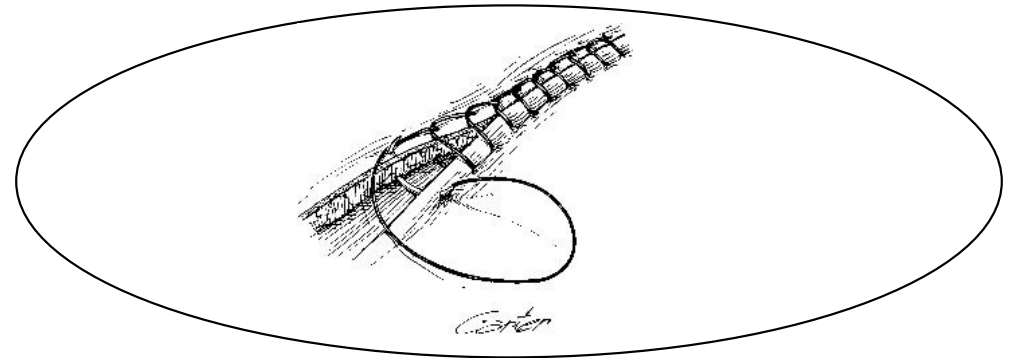
Presidente del Congresso **Daniele Enrico Maria Maggiore**



Bassini Mugnai Ferrari

Marcy

Pomstempsky



In principio c'erano le suture

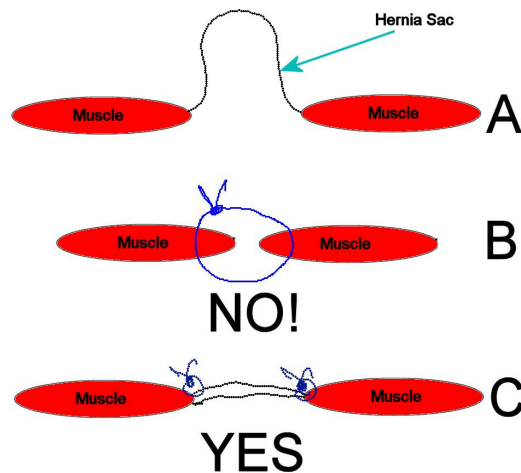
Ma le suture generavano nuove ernie

Vennero le protesi

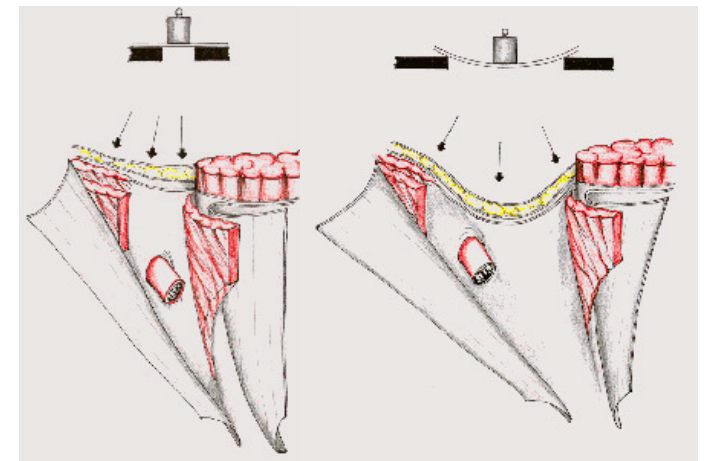
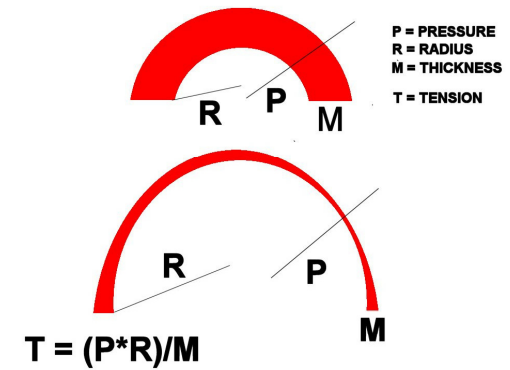
Nasce il concetto di "Tension Free" (1984)

Il concetto di “Tension Free” e’ oggi superato dall’applicazione della legge di Laplace. La tensione non viene esercitata solo orizzontalmente (trazione muscolare sulle suture) ma dipende anche dall’estensione dell’area passiva priva di muscolatura (Guarnieri 1994). Quindi il concetto di tension free a riposo non e’ lo stesso sotto sforzo.

Nasce il concetto di aree attive e aree passive 1994



L’ernia si genera a livello di un’area passiva che va quindi possibilmente ridotta (oltre che rinforzata) compatibilmente con la trazione che si viene a creare non solo a riposo ma soprattutto sotto sforzo



[J Biomech.](#) 2008 Dec 5;41(16):3462-8. Epub 2008 Nov 13.

Matrix mechanical properties of transversalis fascia in inguinal herniation as a model for tissue expansion.

[Kureshi A](#), [Vaiude P](#), [Nazhat SN](#), [Petrie A](#), [Brown RA](#).

Source

University College London, Tissue Repair & Engineering Centre, Institute of Orthopaedics, Stanmore Campus, London HA7 4LP, UK.

Abstract

Inguinal herniation represents a common condition requiring surgical intervention. Despite being regarded as a connective tissue disorder of uncertain cause, research has focused predominantly on biochemical changes in the key tissue layer, the transversalis fascia (TF) with little direct analysis of functional tissue mechanics. Connective tissue tensile properties are dominated by collagen fibril density and architecture. This study has correlated mechanical properties of herniated TF (HTF) and non-herniated TF (NHTF) with fibrillar properties at the ultrastructural level by quasi-static tensile mechanical analysis and image analysis of collagen electron micrographs. No significant difference was found between any of the key mechanical properties (break stress, strain or modulus) for HTF and NHTF. In addition, no significant differences were found in average collagen fibril diameter, density or fibre bundle spacing. However, both groups displayed anisotropy with greater break stress ($p=0.001$) on average in the transverse anatomical plane compared to the longitudinal plane in a mean ratio of 2:1 (anisotropy ratio), though there was no evidence of a difference in this ratio for HTF and NHTF for both break stress and modulus. It was noted that this anisotropy ratio corresponds closely with the expected force distribution on a model cylindrical structure loaded axially. The absence of other functional differences does not support the idea of a failing (injured) tissue but is consistent with it being a tissue undergoing chronic growth/expansion under multi-vector mechanical loading. These findings provide new clues to collagen tissue herniation for mathematical modelling and model tissue engineering.

PMID:

19012890

[PubMed - indexed for MEDLINE]

NON USO DELLA PROTESI

Recente lavoro pubblicato dalla UCL

La fascia trasversalis dei pazienti con ernia non e' piu' sottile o povera di fibre collagene rispetto a quella dei soggetti sani presi a campione, questa teoria considera l'ernia come l'effetto di una azione meccanica prolungata tesa a creare l'espansione di tessuto. Non ritiene percio' valida la teoria che inquadra l'ernia come un difetto di tessuto collagene.

[Hernia](#). 2009 Dec;13(6):577-80. Epub 2009 Nov 12.

Herniology: past, present, and future.

[Read RC.](#)

Source

University of Arkansas for Medical Sciences, Rockville, MD 20850, USA. read@post.harvard.edu

Abstract

INTRODUCTION: Despite herniorrhaphy being performed frequently, most surgeons consider it to be a minor procedure. However, a few surgeons' views differed. THE PAST: The Master was Bassini (1884), who introduced a radical cure for inguinal **hernia**. Incising his triple layer, internal oblique, transversus, and transversalis, he entered the preperitoneal space, allowing high ligation of the sac and mass suturing to the inguinal ligament. A 2.7% recurrence rate evoked worldwide emulation. Corruption ensued. The cremaster remained and few unincised layers were stitched, without imbrications, along with reinforcement using the cremaster or rectus muscles, fascial flaps, relaxing incisions, and silver coils. Little improvement cast doubt on Bassini's work. Russell's (Lancet 2:1197-1203, 1906) ligation of the hernial sac was adopted until 1953, when the Shouldice clinic revived Bassini's tenets, becoming the gold standard for decades. Cheatle (Br Med J 2:68-69, 1920) introduced posterior preperitoneal repair. Acquaviva and Bourret (Presse Med 73:892, 1948) designed the first plastic prosthesis (nylon), replaced by polypropylene. Usher (Surg Gynecol Obstet 117:239-240, 1963) parietalized the cord. These contributions paved the way for the Rives, Stoppa, Wantz, and Gilbert repairs, Ger's laparoscopic approach, and less common herniorrhaphies. THE PRESENT: Chevrel (1979) formed the GREPA, which evolved into the European **Hernia** Society (EHS), joining with the American **Hernia** Society (AHS) to form the journal '**Hernia**.' Nilsson (1993) instituted national **hernia** registries, enabling less recurrences and better prospective research. THE FUTURE: In the 21st century, the Lichtenstein procedure has dominated inguinal herniorrhaphy. Herniologists accepted systemic connective tissue disorder as the etiology of abdominal **hernia** and pelvic prolapses. This malady explains why prostheses slow but do not eliminate recurrence. Antidotes need to be developed and employed.

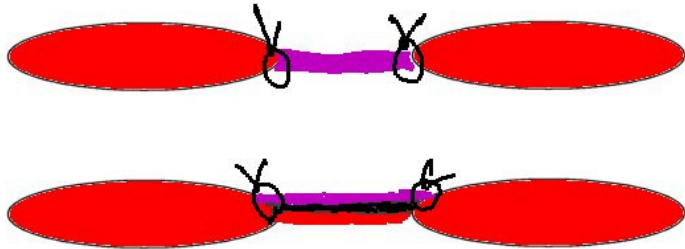
CONCLUSION: This malady explains why prostheses slow but do not eliminate recurrence. Antidotes need to be developed and employed.

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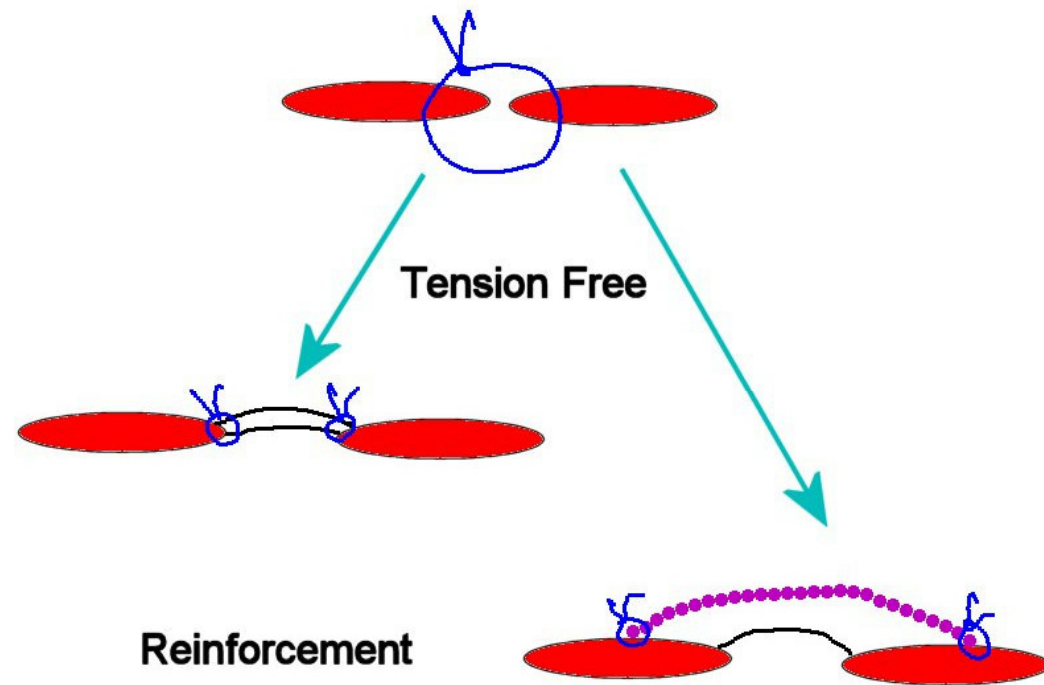
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USO DELLA PROTESI

Sull'altro fronte, invece Reynold Read e' convinto che l'erniosi sia una malattia legata ad un difetto sistemico del tessuto connettivo, tuttavia conclude che non puo' essere curata con il solo uso di protesi: Le protesi rallentano ma non eliminano la recidiva.



Le protesi possono essere utilizzate come **sostituto** di tessuto mancante (A) o come **rinforzo** (B)



USO DELLA PROTESI

La protesi diventa necessaria quando viene utilizzata come sostituto di tessuto mancante (quando non è possibile sostituire il tessuto mancante con altro tessuto). La protesi è invece non necessaria quando la plastica erniaria è sufficientemente robusta da non richiedere ulteriore rinforzo. **L'uso della protesi come rinforzo è spesso facoltativo se non è necessaria alcuna sostituzione di tessuto mancante.**

ABUSO DI PROTESI

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Realtà ed Eccellenze

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Presidente del Congresso **Daniele Enrico Maria Maggiore**

Le protesi non sono sempre necessarie

Per questa ragione e' bene non abusare delle protesi perche'

1. Possono determinare rigetto
2. Possono determinare nevralgie
3. Sono antifisiologiche (elasticita', contrattilita')
4. Aumentano i costi

Ernia Crurale
Ernia Ombelicale
Ernie recidive
Laparoceli

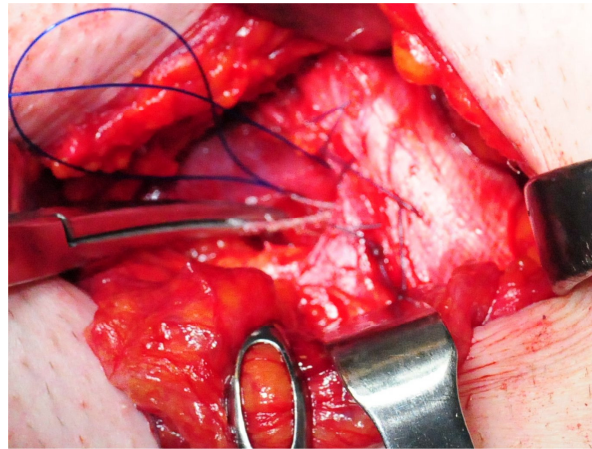
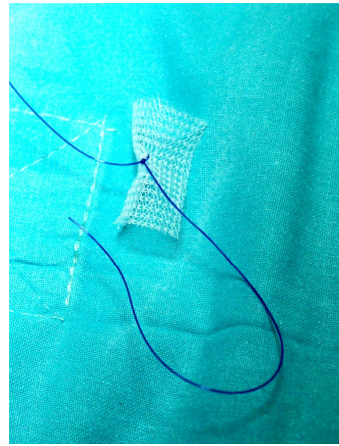
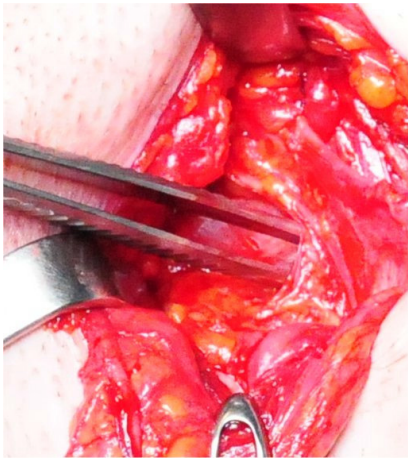
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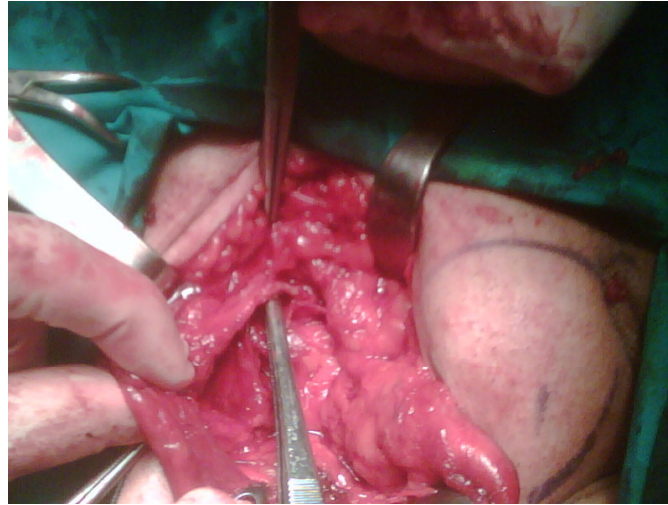
Presidente del Congresso **Daniele Enrico Maria Maggiore**

Le protesi sono spesso necessarie

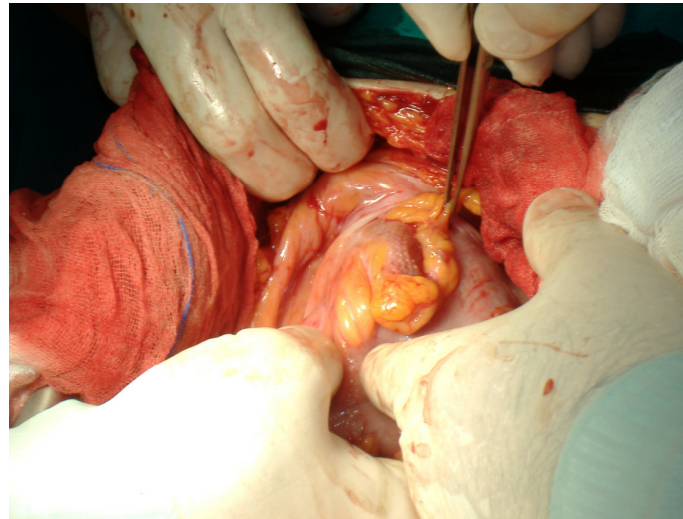
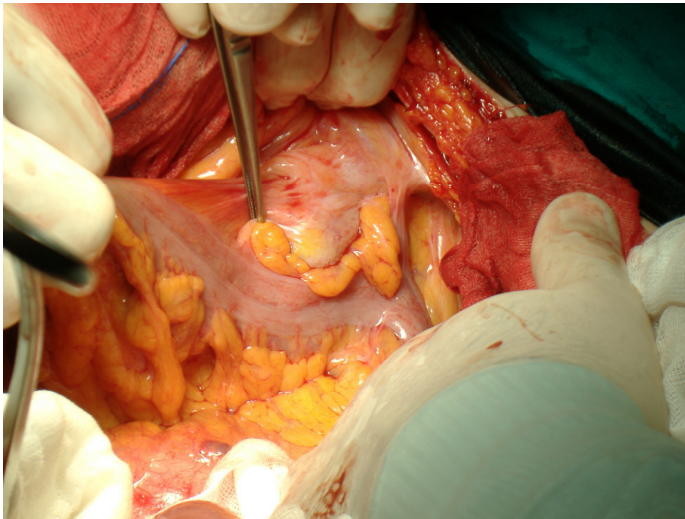


Le protesi sono
necessarie
quando la porta
erniaria e' rigida

Esempi di complicanze da protesi



Ernia recidiva in paziente con protesi prefasciale e spermioγραμμα come per azospermia



Esempio di plug incorporato e migrato nel sigma

DISUSO DI PROTESI



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La tecnica di Shouldice ha eliminato l'uso di protesi

1. Difficolta' di esecuzione
2. Necessita' di esperienza
3. Selezione dei pazienti



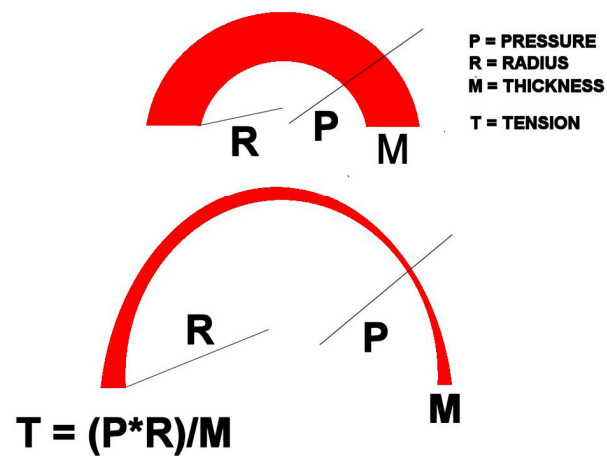
NON USO DI PROTESI

AUMENTA LE RECIDIVE

COMPLICA L'INTERVENTO

Le protesi sono necessarie come sostituto tessutale

1. Quando il difetto erniario e' ampio (area passiva ampia)
2. Quando i tessuti sono poco elastici (anche se il difetto non e' ampio si genera trazione delle suture)
3. Quando i tessuti che compongono l'area passiva necessitano di un rinforzo
4. Quando i bordi da suturare non hanno una sufficiente vitalita' tissutale
5. Quando vi sia evidenza di un difetto del collagene



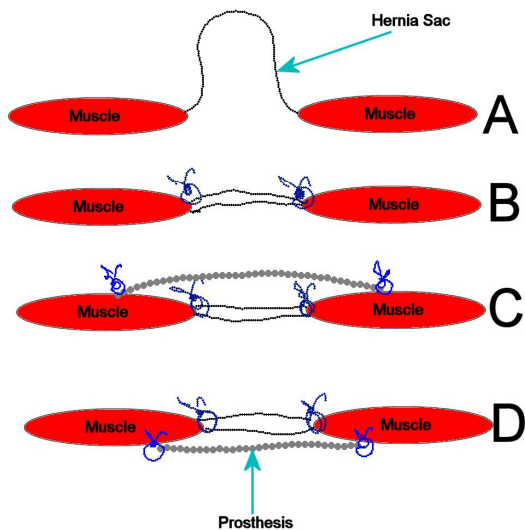
Tecnica chirurgica

Questo significa che e' necessario sia ridurre che rinforzare l'area passiva.

La riduzione dell'area passiva si puo' avere solo nei casi in cui la parete risulti elastica.

Il rinforzo della parete puo' essere ottenuto con una protesi che puo' essere messa al di sopra, al di sotto della fascia o a Sandwich (Guarnieri 1988)

Quando la porta erniaria e' rigida o di grandi dimensioni la protesi e' indispensabile



USO DI PROTESI

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La protesi va usata quando serve

USO DELLA PROTESI

Rinforzo Tessutale	Sostituzione Tessutale
Tessuti Elastici < 2 cm	Tessuti Rigidi > 2 cm



USO DI PROTESI

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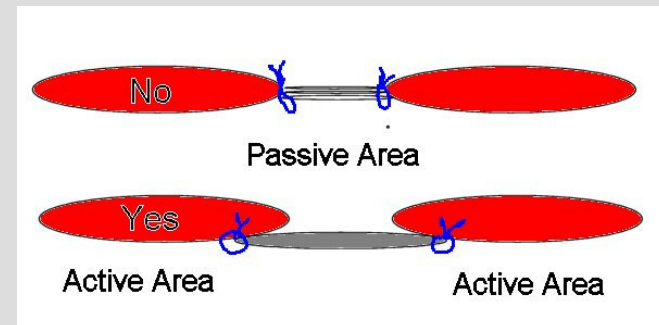
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LA SCELTA DELLA PROTESI E' IMPORTANTE COME LA TECNICA DA UTILIZZARE

1. Materiale protesico
2. Forma
3. Collocazione della protesi
4. Fissazione della protesi
5. Dimensione della protesi



USO DI PROTESI

Medical Forte - International Hernia Mesh Chart

POLYPROPYLENE MESH

Bard Davol
100 Crossings Boulevard, Warwick, RI 02886
Email: Deb.Tetreault@erbard.com
Main Phone: 800-556-6756
Customer Service: 800-556-6275
Medical Services & Support Hotline: 800-562-0027

BARD DAVOL INGUINAL HERNIA REPAIR

Bard® MK® Hernia Patch
Description : Self-expanding polypropylene patch
Uses : open anterior approach to a preperitoneal repair

Bard® 3DMax® Mesh
Description : Unique three-dimensional polypropylene mesh
Uses : laparoscopic hernia repair

Bard® Soft Mesh
Description : Large pore monofilament polypropylene mesh that has a soft, compliant knit structure

Bard® Mesh
Description : Knitted monofilament polypropylene

Bard® Visilex® Mesh
Description : Large pore mesh
Uses : laparoscopic repair

jahan teb arvin, JTA
17 shahrivar jaddid str, tabriz, Iran (Islamic Republic of)
Telephone: 98-914-4140213

Paha Hernia Mesh
Description : Polypropylene monofilament Mesh

Changzhou Intl. Trade & Enterprises Cooperative Co., Ltd.
Room 2405, No.8 Building, West Yanling Road
Changzhou, Jiangsu, China. Zip: 213003
Telephone: 0086-519-86803321
Fax: 0086-519-86608339 • Website: www.citecgroup.com

CITEC Hernia Mesh
Description : Knitted Polypropylene Monofilament, laser cut or heat sealed edge
Uses : Hernias, chest wall defects

Toptree Industrial Ltd.
F13, ChuangYeZhongx, XinBeiQu, Changzhou, Jiangsu, China, Hong Kong. Zip: 213100
Telephone: 0086-519-82068313 • Mobile: 13921038754
Fax: 0086-519-82081001 • www.entoptree.com

Toptree Hernia Mesh
Description : Polypropylene, knitted monofilament mesh
Uses : Open and laparoscopic repair

Venkuri/Luratex
Rua do Arbutos, 39, Sao Paulo, Brazil. Zip: 04186430
Telephone: 55-11-23311210 • http://venkuri.com.br

Venkuri/Luratex Hernia Mesh
Description : Sterile Polypropylene Mesh
Uses : open and Laparoscopic Surgery

Magenta Biomedika
Jl Taman Asri III No 25, Jatinegara Baru-Buaran,
Jakarta 13940, Singapore
Telephone: 65-6221 46825760
www.magentabiomedika.com

Prolite Atrium Hernia Mesh
Description : Polypropylene mesh
Uses : Open and Laparoscopic surgery

Euromed Surgical Limited
26-34 Old Street, London, United Kingdom, EC1V 9QQ
Telephone: 44-845-1651400 • Fax: 44-845-1651417
www.euromedsurgical.com

Euromed
Description : Low weight Monofilament Polypropylene Mesh
Uses : General Hernia Repair

POLYPROPYLENE & ePTFE

Bard Davol
100 Crossings Boulevard, Warwick, RI 02886
Email: Deb.Tetreault@erbard.com
Main Phone: 800-556-6756
Customer Service: 800-556-6275
Medical Services & Support Hotline: 800-562-0027

BARD DAVOL VENTRAL HERNIA REPAIR

Bard® Composix® L/P Mesh
Description : Self-expanding polypropylene and ePTFE patch with AbsorbFlex® Memory Technology
Uses : soft tissue reconstruction via an open approach Low-profile polypropylene and ePTFE prosthesis for laparoscopic repair

Bard® Composix® E/X Mesh
Description : Polypropylene/ePTFE composite mesh
Uses : laparoscopic repair

Bard® CK® Patch
Description : expanding polypropylene/ePTFE mesh
Uses : open approach to Intra-abdominal repair

Bard® Ventrex® Patch
Description : expanding polypropylene/ePTFE mesh
Uses : umbilical and small incisional hernia repair

Bard® CK® Parastomal Patch
Description : Polypropylene/ePTFE composite patch
Uses : parastomal hernia repair

ePTFE

Bard Davol
100 Crossings Boulevard, Warwick, RI 02886
Email: Deb.Tetreault@erbard.com
Main Phone: 800-556-6756
Customer Service: 800-556-6275
Medical Services & Support Hotline: 800-562-0027

BARD DAVOL VENTRAL HERNIA REPAIR

Bard® Dulex® Mesh
Description : Dual-sided ePTFE mesh
Uses : intra-abdominal repair

W. L. Gore & Associates, Inc.
Medical Products Division
P.O. Box 2400, Flagstaff, Arizona, 86003-2400 USA
Tel.: 928 / 779-2771 • Tel.: 800 / 437-8181

GORE MYCROMESH® Biomaterial
Description : strong, soft, inert and conformable ePTFE, microporous node and fibril structure with regularly spaced macropores.

GORE MYCROMESH® PLUS Biomaterial
Description : strong, soft, inert and conformable ePTFE, microporous node and fibril structure with regularly spaced macropores. The Plus contains antimicrobial technology, preservative agents, two antimicrobial preservative agents, silver carbonate and chlorhexidine diacetate, which act to inhibit bacterial colonization of, and resist initial biofilm formation on the patch for up to 14 days postimplantation. It also offers all the performance advantages of GORE MYCROMESH® Biomaterial, such as rapid host tissue incorporation and minimal foreign body response.

GORE DUALMESH® Biomaterial
Description : a closed structure ePTFE surface for reduced tissue attachment and a macroporous structure surface for faster tissue attachment. The textured CORDUROY® Surface encourages host tissue incorporation while the smooth surface minimizes tissue attachment to the material.

GORE DUALMESH® PLUS Biomaterial
Description : first two-surface hernia repair material with antimicrobial technology for controlling potential operative contamination of the material. This advanced ePTFE biomaterial contains two antimicrobial preservative agents, silver carbonate and chlorhexidine diacetate, which act to inhibit bacterial colonization of, and resist initial biofilm formation on, the patch for up to 14 days postimplantation.

GORE.TEX® Soft Tissue Patch
Description : featuring a microporous structure allowing for host tissue incorporation, the material has suture/staple retention strength greater than the most commonly used meshes.
Uses : laparoscopic hernia repair & inguinal herniorrhaphy

COLLAGEN MATRIX

Bard Davol
100 Crossings Boulevard, Warwick, RI 02886
Email: Deb.Tetreault@erbard.com
Main Phone: 800-556-6756
Customer Service: 800-556-6275
Medical Services & Support Hotline: 800-562-0027

BARD DAVOL GENERAL HERNIA REPAIR

Bard® CollaMend® Implant
Description : Non-cross-linked regenerative collagen matrix
Uses : hernia and abdominal wall repair

Bard® AlloMax® Surgical Graft
Description : All-natural biologic implant derived from human dermal collagen

COOK MEDICAL INC.
P.O. Box 4195, Bloomington, IN 47402-4195 U.S.A.
E-mail: Sales.Ops@cookmedical.com
Phone: 812 339 2235
Alternate Phone: 800 457 4500 (toll free)
Telefax: 800 554 8325 (toll free)

Surgisis® Biodesign™ 8-Layer Tissue Graft
Surgisis® Biodesign™ Abdominal Lock Graft
Surgisis® Biodesign™ Complex Hernia Graft
Surgisis® Biodesign™ Hiatal Hernia Graft
Surgisis® Biodesign™ Inguinal Hernia Graft
Surgisis® Biodesign™ Umbilical Hernia Graft

LifeCell Corporation
One Millennium Way, Branchburg, NJ 08876

AlloDerm® Regenerative Tissue Matrix & Tissue Matrix
Description : Human tissue, acellular dermal matrix, basement membrane with a dermal surface

Strattice™ Reconstructive Tissue Matrix
Description : sterile reconstructive tissue matrix that supports tissue regeneration derived from porcine dermis.

Covidien
15 Hampshire Street, Mansfield, MA 02048
Phone: 508-261-8000

Permacel™ Biologic Implant
Description : Acellular crosslinked porcine dermal Collagen with Elastin Fibres

MODERN CONCEPT MESHES

W. L. Gore & Associates, Inc.
Medical Products Division
P.O. Box 2400, Flagstaff, Arizona, 86003-2400 USA
Tel.: 928 / 779-2771 • Tel.: 800 / 437-8181

PTFE

GORE INFINIT Mesh
Description : 100% monofilament PTFE, large pore, knitted surgical mesh

POLYGLYCOLIDE: TRIMETHYLENE CARBONATE) CO-POLYMER

GORE BIO-A Tissue Reinforcement
Description : biocompatible synthetic polymers that is gradually absorbed by the body, while its 3D matrix of open, highly interconnected pores facilitates tissue generation and healing. As a synthetic tissue scaffold, it is not derived from human or animal tissue but engineered for uniformity, consistency and versatility. Clinical evidence demonstrates that the scaffold is replaced with favorable type I collagen.
Uses : Hernia Repair (non load bearing)

Covidien
15 Hampshire Street, Mansfield, MA 02048
Phone: 508-261-8000

POLYESTER & POLYLACTIC ACID

Parietex ProGrip™
Description : bicomponent mesh comprised of monofilament polyester and a resorbable polylactide (PLA) gripping system
Uses : Standard open patch repair

Atrium Medical Corporation
5 Wentworth Drive, Hudson, NH, 03051, U.S.A.
Phone: 1-603-880-1433 • Fax: 1-603-880-6718
Email sales@atriummed.com

POLYPROPYLENE & BIOABSORBABLE OMEGA3 GEL

C-CUR Lite™ Mesh
Description : Non Polymeric natural bioabsorbable Omega 3 coating Lightweight Polypropylene Mesh, coated with a bioabsorbable Cross linked Omega 3 (fatty acid Gel)
Uses : Intraperitoneal soft tissue repair

C-CUR Edge™ Mesh
Description : Reinforced edge design of Polypropylene mesh coated with a bioabsorbable cross linked Omega 3 (fatty acid Gel)
Uses : Laparoscopic and open surgical repair

C-CUR™ Mesh
Description : Lightweight single layer Polypropylene Mesh with a bioabsorbable cross linked Omega 3 (fatty acid Gel)



Maxims Global/Medical Forte

Law & Medical Publishing
145 147 St. John's Street
London EC3V 4PT
United Kingdom

Email: maximsglobal@aol.com
Web: www.maximsglobalinternational.com
www.medicalforteinternational.com

Maxims Global/Medical Forte
10085-B Hazelhurst Dr.
10644 Houston, Texas 77043, USA

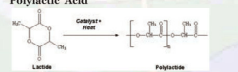
Maxims Global/Medical Forte
9809 Santa Monica Boulevard
Beverly Hills, California 90212, USA

Polypropylene - CAS number 9003-07-0
Molecular formula: (C₃H₆)_n, Density 0.855 g/cm³, amorphous 0.946 g/cm³, crystalline.
Melting point ~ 160 °C

Omega 3 (Fatty Acids) - α-linolenic acid (ALA), eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), all of which are polyunsaturated

Polyalactic Acid
Dimethylterephthalate - DMT- CAS No.: 120-61-6. Synonymy: 1,4 Benzene dicarboxylic acid dimethyl ester Sum formula C₆H₄(COOCH₃)₂, mol weight: 194,19

Mono Ethylene Glycol - MEG - CAS No.: 107-21-1. Synonymy: 1,2 Ethandiol, Sum formula: C₂H₆O₂, mol weight: 62,07



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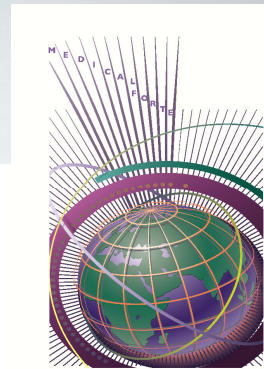


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GUARNIERI
HERNIA
CENTER



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Realtà ed Eccellenze

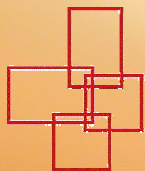
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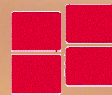
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ARS MEDICA

casa di cura



Fabia Mater
casa di cura accreditata

Villa Flaminia

Casa di Cura