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Are abbreviations and acronyms to describe hernia repair techniques overused and helpful? A proposal for rationalisation



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ABSTRACT

Surgeons use abbreviations and acronyms frequently to describe surgical techniques. Recent advances and innovations in repair of abdominal wall hernias, have given rise to a plenitude of novel acronyms. For each small deviation of an existing technique authors have proposed a novel acronym. Since an acronym is most of times not self-explaining it is often hard to understand literature, lectures, symposia programs and discussions in social media. Regularly, we discover different acronyms used for the same procedure and sometimes the same or similar acronyms are used for different techniques. A clear and non-ambivalent description of surgical techniques in the literature is most valuable to summarize scientific evidence in systematic reviews and meta-analyses.

We would like to propose a more rational use of abbreviations to describe hernia repair techniques based on the type of access, type of hernia, mesh position, type of mesh used and type of mesh fixation.

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¿Las abreviaturas y siglas que describen las técnicas de reparación de hernia se utilizan en exceso y son útiles? Una propuesta de racionalización

RESUMEN

Los cirujanos utilizan con frecuencia abreviaturas y acrónimos para describir las técnicas quirúrgicas. Los recientes avances e innovaciones en la reparación de las hernias de la pared abdominal han dado lugar a una plétora de novedosas siglas. Para cada pequeña desviación de una técnica existente los autores han propuesto un nuevo acrónimo. Dado que un acrónimo la mayoría de las veces no se explica por sí mismo, a menudo es difícil de entender la literatura, las conferencias, los programas de simposios y los debates en las redes sociales. Regularmente descubrimos que se utilizan diferentes acrónimos para el mismo procedi-

Palabras clave:

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miento y, a veces, se utilizan acrónimos iguales o similares para diferentes técnicas. Una descripción clara y sin ambivalencias de las distintas técnicas quirúrgicas que podemos encontrar en la literatura es muy valiosa para resumir la evidencia científica en revisiones sistemáticas y metaanálisis.

El objetivo del presente escrito es proponer un uso más racional de las abreviaturas para describir las técnicas de reparación de las hernias en función del tipo de acceso, el tipo de hernia, la posición de la malla, el tipo de malla utilizada y el tipo de fijación de la misma.

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Introduction

Surgeons use abbreviations and acronyms frequently to describe surgical techniques. The recent advances and innovations in repair of abdominal wall hernias, have given rise to a plenitude of novel acronyms. For each small deviation of an existing technique authors have proposed a novel acronym. Since an acronym is most of times not self-explaining it is often hard to understand literature, lectures, symposia programs and discussions in social media. Regularly, we discover different acronyms being used for the same procedure and sometimes the same or similar acronyms are used for different techniques. A clear and non-ambivalent description of surgical techniques in the literature is most valuable to summarize scientific evidence in systematic reviews and meta-analyses.

We would like to propose a more rational use of abbreviations to describe hernia repair techniques based on the type of access, the type of hernia, the mesh position, the type of mesh used and the type of mesh fixation.

Current state of the acronyms and eponyms in hernia repair techniques

With a search on which acronyms are being used we want to summarize the current status and the foundation why a proposal for rationalisation is important. We show the results in [Table 1](#) but we do realise that many abbreviations or acronyms that also have been used might not have been included.

Proposal for a rational use of abbreviations

Surgical approach

We propose to use a lowercase letter to indicate the approach used. This is regularly used to indicate a robotic approach (r-TAPP). We propose to use the same for other approaches. Open surgery is a repair performed via an open incision in the skin. Laparoscopic surgery is an endoscopic approach involving the creation of a pneumoperitoneum, which is often also named trans-abdominal approach (TAPP, TARUP, TARM). An extra-peritoneal approach is an endoscopic approach where the goal is to avoid creating a pneumoperitoneum and to stay extraperitoneal to perform the repair (TEP, eTEP). A hybrid procedure is an endoscopic procedure with a planned open

procedural step where a skin incision is made to perform part of the surgery via this incision. A hybrid approach is different from a conversion, where the surgery is moved from an endoscopic approach to an open approach because of an intraoperative change of plan caused by surgical difficulties or complications. All the endoscopic approaches can be performed using a robotic platform and are then called robot assisted endoscopic surgeries. A proposal for the lower-case letter(s) to be used for each approach is given in [Table 2](#). We also propose the lowercase letter indicating the surgical approach to be followed by a hyphen to set it apart from the main abbreviations on hernia type, mesh type, mesh position and mesh fixation.

Hernia type

Groin hernia is a collection of lateral inguinal hernias, medial inguinal hernias, and femoral hernias. For the description of these group of cases we propose to use the letter G. Groin hernias are classified according to the European Hernia Society (EHS) classification in lateral (L), medial (M) and femoral (F) hernias, with the size of the hernia defect described as size 1, 2 or 3.¹

Primary ventral hernias are described by the EHS as umbilical, epigastric, spigelian and lumbar hernias. We propose to use U, E, S and L.² Secondary ventral hernias are mostly incisional hernias and we propose to use I. Some studies combine primary and secondary ventral hernias, for which we propose to use the letter V. Primary ventral hernias are classified by the EHS classification according to the type and the size of the hernia (small <2 cm; medium 2–4 cm; large >4 cm). Incisional ventral hernias are classified by the EHS classification according to the location of the hernia (medial zones M1–M5; lateral zones L1–L4) and the width of the hernia (W1 <4 cm; W2 = 4–10 cm; W3 >10 cm).

Parastomal hernias are classified according to the EHS classification according to the size and presence of a concomitant incisional hernia (Type I to Type IV) ([Table 3](#)).³

Mesh position

Meshes can be implanted in different layers of the abdominal wall during hernia repair. A consensus on mesh position terminology has been described recently and is proposed using the first letter of the abdominal wall plane. If no mesh was placed, we propose to use X. Four planes are described: Onlay (O), Retrorectus/Retromuscular (R), Preperitoneal (P) and Intraperitoneal (I) ([Table 4](#)).

Table 1 – A list of abbreviations or acronyms used in relation to abdominal wall surgery, but we do realise that many abbreviations or acronyms that also have been used are not included.

Abbreviations and acronyms used in abdominal wall surgery	
A	
AAW	Anterior Abdominal wall
ACS	Anterior Component Separation
ALT	Antero-Lateral Thigh flap
ARS	Anterior Rectus Sheath
ASIS	Anterior Superior Iliac Spine
AWH	Abdominal Wall Hernia
AWHR	Abdominal Wall Hernia Repair
AWR	Abdominal Wall Reconstruction
B	
BTA/BTX	Botulinum Toxin A
BTOM	Bilateral TAPP or TEP with One Mesh
C	
CAWR	Complex Abdominal Wall Reconstruction
CCS	Carolinas Comfort Scale
CMF	Central Mesh Failure/Fracture
CPIP	Chronic Postoperative Inguinal Pain
CPP	Chronic Pelvic Pain
CS(T)	Component Separation (Technique)
cvMPO	critical view of MyoPectineal Orifice
D	
DIEP	Deep Inferior Epigastric Perforator Flap
DMT	Dermatome Mapping Test
DMC	Dermatome Mapping Classification
DOMA	Dermatoscopic Onlay Mesh Augmentation
DR	Diastasis Recti
E	
'e'	extended or enhanced
eLIRA	endoscopic Laparoscopic Intracorporeal Rectus Aponeuroplasty
eMILOS	endoscopic Mini- or Less Open Sublay repair
eTEP	extended/enhanced-view Totally ExtraPeritoneal
EAF	Entero Atmospheric Fistula
ECF	EnteroCutaneous Fistula
ECS	Endoscopic Component Separation
ELAR	Endoscopic Linea Alba Reconstruction
EO	External Oblique
ePTFE	extended PolyTetraFluoroEthylene
F	
FG	Fibrin Glue
G	
GPRVS	Giant Prosthetic Reinforcement of the Visceral Sac
GFN	Genito Femoral Nerve
H	
'h'	Hybrid
HH	Hiatal Hernia
HWPP	Heavy Weight PolyPropylene
I	
IH	Incisional Hernia/Inguinal Hernia/ IlioHypogastric nerve
IHN	Ilio Hypogastric Nerve
IIN	Ilio Inguinal Nerve
IO	Internal Oblique muscle
IPOM (+/plus)	IntraPeritoneal Onlay Mesh (hernia defect closure)
IRD	Inter Rectus Distance

Table 1 (Continued)

Abbreviations and acronyms used in abdominal wall surgery	
J	
K	
L	
'l'	laparoscopic
LFCN	Lateral Femoral Cutaneous Nerve
LIH	Lichtenstein Inguinal Hernia repair
LIRA	Laparoscopic Intracorporeal Rectus Aponeuroplasty
LOD	Loss Of Domain
LTA mesh	Long-Term Absorbable mesh
LVHR	Laparoscopic Ventral Hernia Repair
LWPP	LightWeight PolyPropylene
M	
MILA	Minimally Invasive Laparotomy Approach
MILOS	MIni- or Less Open Sublay repair
MINIM	Minimally Invasive Non-Intraperitoneal Mesh
MOMI	Mesh Out Mesh In
MPO	MyoPectineal Orifice
N	
NPWT	Negative Pressure Wound Therapy
NVBs	NeuroVascular Bundles
O	
'o'	open
OAT	Open Abdomen Treatment
OPUPS	Open Peri Umbilical Perforator Sparing
P	
PCOM	Primary Closure with Onlay Mesh
PCS	Posterior Component Separation
PDS	PolyDioxanone Suture
PEH	ParaEsophageal Hernia
PEST	Prostatectomy Extraction Site Trocar hernia
PIPOM	Partial Intra-Peritoneal Onlay Mesh
PIPS	Pubic Inguinal Pain Syndrome
PO	POLyester
POChP	PostOperative Chronic Pain
POCIP	PostOperative Chronic Inguinal Pain
POUR	PostOperative Urinary Retention
PP	PolyPropylene
PPAWI	Post-Partum Abdominal Wall Insufficiency
PPHR	PrePeritoneal Hernia Repair
PPHR	Pauli Parastomal Hernia Repair
PPP	Pauli Parastomal Plasty/Progressive PneumoPeritoneum
PROM	Patient Reported Outcome Measures
PRS	Posterior Rectus Sheath
PTS	Progressive Tension Sutures
PVDF	PolyVinyliDene Fluoride
PUMP	Preperitoneal Umbilical hernia Mesh Plasty
PUPS	PeriUmbilical Perforator-Sparing component separation
Q	
R	
RALS	Robot-Assisted Laparoscopic Surgery
RA-LVHR	Robot-Assisted Laparoscopic Ventral Hernia Repair
RASD	Robotic Assisted Surgical Devices
REPA	Reparación Endoscopica PreApeurotica
R-IPT	Robotic IlioPubic Tract repair
RoboTAR	Robotic Transversus Abdominis Release
RoME	Robotic Mesh Excision/Explantation
RR	RetroRectus

Table 1 (Continued)

Abbreviations and acronyms used in abdominal wall surgery	
RS	Rives-Stoppa
RS	Retention Sutures
rTAPP	robot-assisted TransAbdominal PrePeritoneal
rTAR	robot-assisted Transversus Abominis Release
rTARUP	robotic Trans-Abdominal Retromuscular Umbilical Prosthetic repair
rTMR	robotic Transabdominal Midline Reconstruction
S	
SBO	Small Bowel Obstruction
SBR	Small Bowel Resection
SC	Spermatic Cord/SubCutaneous
SCOLA	SubCutaneous Onlay Laparoscopic Approach
SIRRS	Single Incision RetroRectus Surgery
SMART	Stapled Mesh stomA Reinforcement Technique
SMAS	Subcutaneous MusculoAponeurotic System aka Scarpa's and Camper's fascia
SSE	Surgical Site Event
SSI	Surgical Site Infection
SSO	Surgical Site Occurrence
SSOPI	Surgical Site Occurrences requiring Procedural Interventions
STORM	Stapled Transabdominal Ostomy Reinforcement with Mesh
STORRM	Stapled Transabdominal Ostomy Reinforcement with (Retromuscular) Mesh
SUPERSEXI repair	SUPraPubic Endoscopic Repair with Synthetic EXtraperitoneal Implant repair
T	
TA	Transversus Abdominis muscle
TAMR	TransAbdominal Midline Reconstruction
TAP	Transversus Abdominis Plane
TAPE	TransAbdominal Partial Extraperitoneal
TAPP	TransAbdominal PrePeritoneal
TAR	Transversus Abdominis Release
TARM	TransAbdominal RetroMuscular repair
TARUP	TransAbdominal Retromuscular Umbilical Prosthetic repair
TASDRR	TransAbdominal Single Dock RetroRectus
TEP	Totally Extraperitoneal Prosthesis
TESLAR	Totally Endoscopic Supra-aponeurotic Linea Alba Reconstruction
TIPP	TransInguinal PrePeritoneal
TMR	Transabdominal Midline Reconstruction
TRAM	Transverse Rectus Abdominis Myocutaneous flap
TRUMP	Transabdominal RetroUMBilical Prosthesis
U	
V	
VAS	Visual Analogue Scale
vTEP	ventral Totally Extraperitoneal Prosthesis
VH	Ventral Hernia
VHR	Ventral Hernia Repair
W	
WLS	Weight Loss Surgery
WWYD	What Would You Do
X	
Y	
Z	

Table 2 – Proposed letters (lower case) to indicate the surgical approach.

Surgical approach	
o-	open
l-	laparoscopic
e-	extraperitoneal
h-	hybrid
rl-	robotic laparoscopic
re-	robotic extraperitoneal
rh-	robotic hybrid

Table 3 – Proposed letters (uppercase) to indicate the hernia type.

Hernia type	
G	Groin
U	Umbilical
E	Epigastric
S	Spigelian
L	Lumbar
V	Ventral
I	Incisional
P	Parastomal

Table 4 – Proposed letters (uppercase) to indicate the mesh position.

Mesh position	
X	no mesh
O	Onlay
R	Retrorectus-Retromuscular
P	Preperitoneal
I	Intraperitoneal

Table 5 – Proposed letters (uppercase with lowercase) to indicate the mesh type and separate absorbable versus permanent.

Mesh type	
X	no mesh
Sp	Synthetic permanent
Sa	Synthetic absorbable
Ba	Biological absorbable

Table 6 – Proposed letters (uppercase with lowercase) to indicate the fixation type and to separate absorbable versus permanent.

Mesh fixation	
X	no fixation
A	Autofixating
S	Sutures
G	Glue
Tp	Tackers permanent
Ta	Tackers absorbable

Table 7 – Overall proposal for rational use of abbreviations to describe hernia repair techniques.

Surgical approach		Hernia type		Mesh position		Mesh type		Mesh fixation	
o-	open	G	Groin	X	no mesh	X	no mesh	X	no fixation
l-	laparoscopic	U	Umbilical	O	Onlay	Sp	Synthetic permanent	A	Autofixating
e-	extraperitoneal	E	Epigastric	R	Retrorectus-Retromuscular	Ba	Biological absorbable	S	Sutures
h-	hybrid	S	Spigelian	P	Preperitoneal	Sa	Synthetic absorbable	G	Glue
rl-	robotic laparoscopic	L	Lumbar	I	Intraperitoneal			Tp	Tackers permanent
re-	robotic extraperitoneal	V	Ventral					Ta	Tackers absorbable
rh-	Robotic hybrid	I	Incisional						
		P	Parastomal						

Table 8 – Examples of using the proposed rational use of abbreviations for commonly used acronyms of surgical hernia repair techniques.

Operative technique	abbreviation
TAPP groin with mesh and glue	l-GPSpG
rTARUP with mesh and suture fixation	rl-URSpS
IPOM incisional hernias with absorbable tackers	l-IISpTa
LIRA incisional hernia with permanent tackers	l-IISpTp
eTEP epigastric hernia with self-fixating mesh	e-ERSpA
Lichtenstein repair	o-GRSpS
Schouldice	o-GXXX
open PPHR Pauli Parastomal Hernia Repair without fixation	o-PRSpX

Mesh type

For hernia repair without the use of a mesh we propose the letter X. Meshes can be divided based on their origin (synthetic versus biological) and whether they are permanent or will absorb over time. Moreover, some combinations of partially absorbable meshes do exist. We propose the letters S and B for synthetic and biologic mesh respectively as an uppercase added by a lowercase p or a, to indicate permanent or absorbable meshes (Table 5).

Mesh fixation

Meshes can be either not fixed, fixed with sutures, fixed with glue or fixed with tackers. The tackers can be either permanent or absorbable (Table 6).

Summary

In Table 7 we present an overview of the proposal and in Table 8 we list some examples of using the proposal for commonly used hernia repair techniques.

Conclusion

A plenitude of acronyms is currently used to describe surgical advances in hernia surgery. To overcome ambiguity in

reporting scientific literature, we propose a more rational use of abbreviations to describe hernia repair techniques based on the type of access, the type of hernia, the mesh position, the type of mesh used, and the type of mesh fixation.

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Conflict of interest

FM reports having received research grants from Medtronic, Intuitive Surgical and FEG Textiltechnik besides speakers' honoraria from Medtronic, BD Bard, Intuitive Surgical and WL GORE, consultancy honoraria from Medtronic, CMR surgical and expert testimony from Sofradim. FM is proctor for Intuitive Surgical and participates in the Advisory Board of Medtronic.

MV reports participation in the Advisory Board of Medtronic.

REFERENCES

- Miserez M, Alexandre JH, Campanelli G, Corcione F, Cuccurullo D, Pascual MH, et al. The European hernia society groin hernia classification: simple and easy to remember. *Hernia*. 2007;11:113-6. <http://dx.doi.org/10.1007/s10029-007-0198-3> [Epub 13.03.07; erratum in: *Hernia* 2008;12(3):335; PMID: 17353992].
- Muysoms FE, Miserez M, Berrevoet F, Campanelli G, Champault GG, Chelala E, et al. Classification of primary and incisional abdominal wall hernias. *Hernia*. 2009;13:407-14. <http://dx.doi.org/10.1007/s10029-009-0518-x> [Epub 03.06.09; PMID: 19495920; PMCID: PMC2719726].
- Śmietański M, Szczepkowski M, Alexandre JA, Berger D, Bury K, Conze J, et al. European Hernia Society classification of parastomal hernias. *Hernia*. 2014;18:1-6. <http://dx.doi.org/10.1007/s10029-013-1162-z> [Epub 01.10.13; PMID: 24081460; PMCID: PMC3902080].