Clarunis
Universitäres Bauchzentrum Basel

St. Claraspital und Universitätsspital Basel

Mesh in pelvic floor surgery: friend or foe?

PD Dr. Marco von Strauss

27.11.2023

Zertifiziertes Kontinenz- und Beckenbodenzentrum

Universität Basel

Friend or «Foe»

- «Foe»
  - **Widersacher**
  - **Feind**
  - **Gegner**

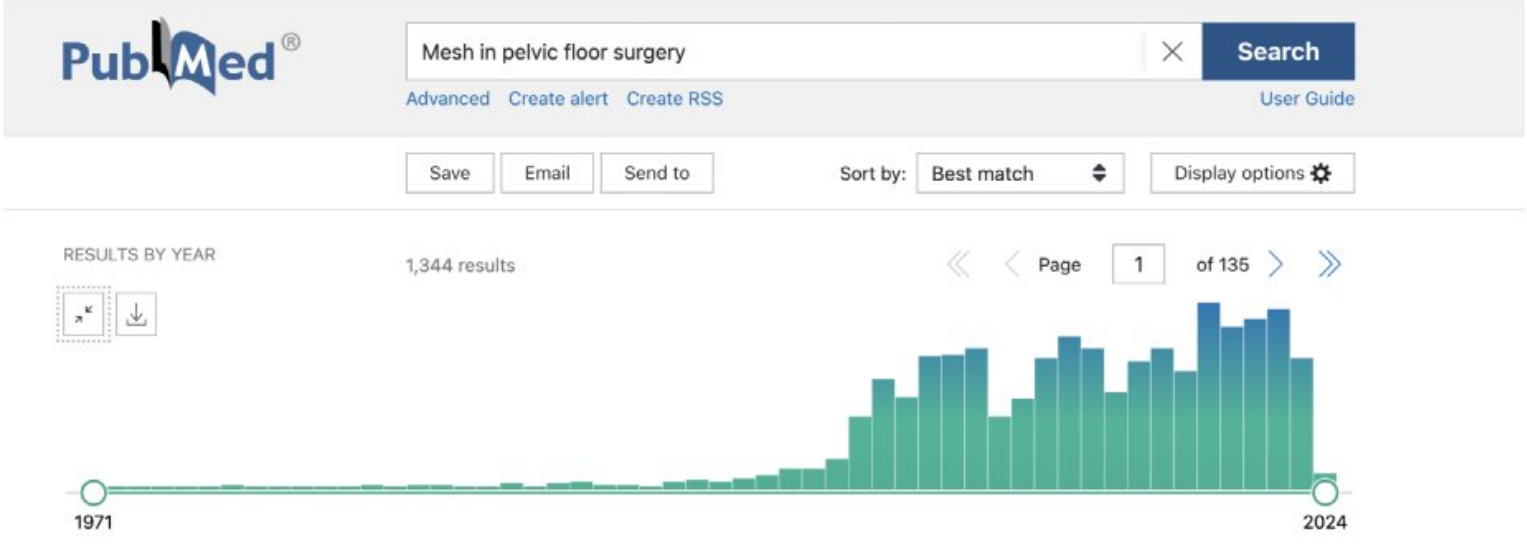
What are we talking about?

- Video da Vinci VMR

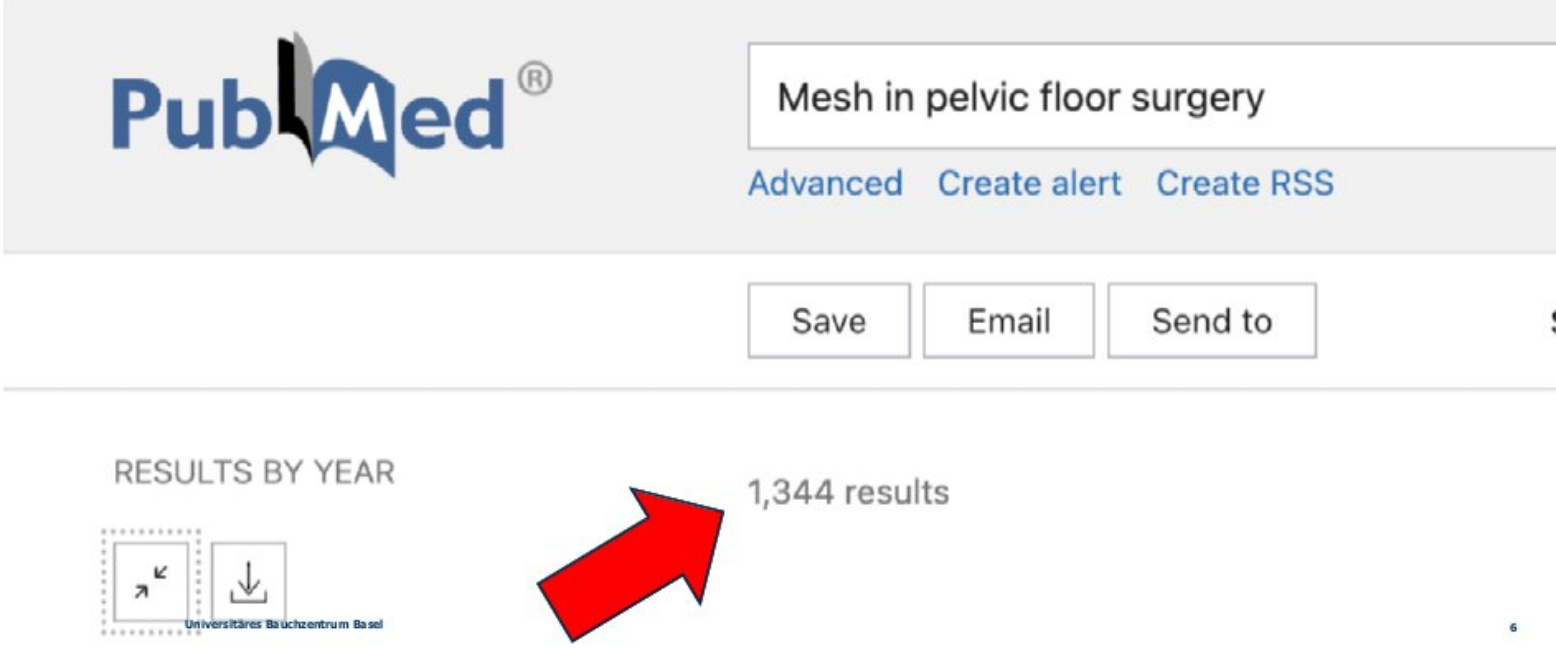
What are we not talking about?

- Abbildung TVT

Short review…



Short review…




Page
of 135
2008
2017
2019
2024

Mesh in pelvic floor surgery: The rationale

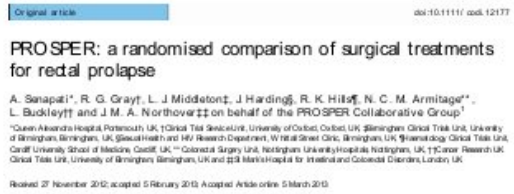
- Indications for mesh
  - **Rectal prolapse**
  - **Internal prolapse**
  - **Rectocele / Enterocele** } **Obstructive defecation**
  - **Anterior Compartment prolapse/stress urinary incontinence**

  - **Others:**
  - **Perineal hernia (prophylaxis)**

Gurland B DCR 2014
Bordaneinanou L DCR 2018

Why mesh?

- High(er?) recurrence rates w/o mesh
- Sustainable fixation
- Induction of fibrosis/scar formation to support collagen synthesis



Original article

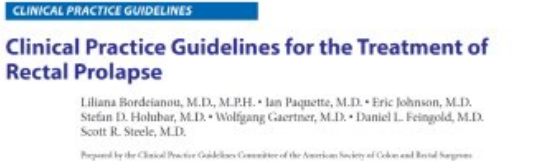
doi:10.1111/ codi.12177

PROSPER: a randomised comparison of surgical treatments for rectal prolapse

A. Senapati*, R. G. Gray†, L. J. Middleton‡, J. Harding§, R. K. Hills¶, N. C. M. Armitage*, L. Buckley†† and J. M. A. Northover‡‡ on behalf of the PROSPER Collaborative Group[1]

*Queen Alexandra Hospital, Portsmouth, UK, †Clinical Trial Service Unit, University of Oxford, Oxford, UK, ‡Birmingham Clinical Trials Unit, University of Birmingham, Birmingham, UK, §Sexual Health and HIV Research Department, Whittall Street Clinic, Birmingham, UK, ¶Haematology Clinical Trials Unit, Cardiff University, School of Medicine, Cardiff, UK, **Colorectal Surgery Unit, Nottingham University Hospitals, Nottingham, UK, ††Cancer Research UK Clinical Trials Unit, University of Birmingham, Birmingham, UK and ‡‡St Mark's Hospital for Intestinal and Colorectal Disorders, London, UK

Received 27 November 2012; accepted 5 February 2013; Accepted Article online 5 March 2013



CLINICAL PRACTICE GUIDELINES

Clinical Practice Guidelines for the Treatment of Rectal Prolapse

Liliana Bordeianou, M.D., M.P.H. • Ian Paquette, M.D. • Eric Johnson, M.D. Stefan D. Holubar, M.D. • Wolfgang Gaertner, M.D. • Daniel L. Feingold, M.D. Scott R. Steele, M.D.

Prepared by the Clinical Practice Guidelines Committee of the American Society of Colon and Rectal Surgeons

Approach & Mesh

- Perineal approach
  - **TVT /Band operations in Urogynecology**
  - **Transvaginal aproach in Rectocele repair**
  - **Prophylactic mesh placements in APR or for perineal hernia repair**
- Abdominal approach
  - **Lap./Robotic Ventral mesh rectopexy**
  - **POPS (pelvic organ prolapse suspension)**
  - **Sacrocolpo(recto)pexy**
  - **(posterior mesh rectopexy)**

Mesh Types

- Absorbable
  - **Biodesign (Cook Medical®** porcine small intestinal submucosa-collagen
  - **Permacol® (**porcine dermal collagen**)**
- Synthetic
  - ***Polyester (?)***
  - **Polypropylene** (J&J (Prolene) Marlex (Bard)
  - **PVDF Polyvinylidene fluoride (** Dynamesh**)**
  - **....**

COOK® BIOTECH

BD

DynaMesh®
by FEG Textiltechnik mbH

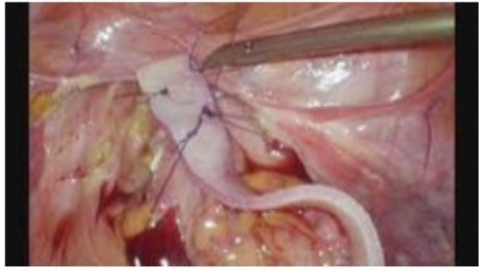
COVIDIEN

BARD | MEDICAL

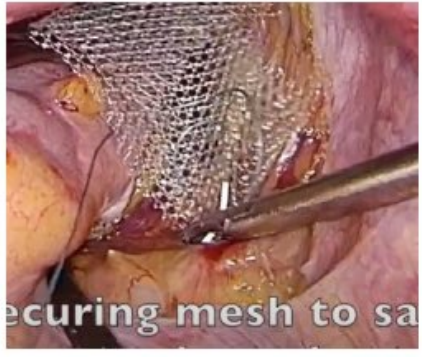
Johnson&Johnson

Mesh fixation

- Where?
  - **Rectum**
  - **Vaginal stump**
  - **Rectovaginal septum**
  - **Sacrum**
  - **Anterior abdominal wall**



- How
  - **Absorbabel sutures**
  - **Non absorbable sutures**
  - **Tacker (absorbable/non absorbable)**



The potential «cost» of mesh (fixation)

- Morbidity
  - **Mesh erosion**
  - **De novo chronic pain**
  - **De novo dyspareunia**
  - **Recurrence**
  - **Shrinkage**
  - **Obstruction (bowel/ureter/urethra/vagina)**
  - **Adhesive bowel obstruction**
  - **Fistula formation**

Van der Schans Colorectal Disease 2022
Singh S Colorectal Disease 2023
E Abet Colorectal Disease 2012

The potential «cost» of mesh (fixation)

- Morbidity
  - **Mesh erosion (0-2,4%)**
  - **De novo chronic pain (15%)**
  - **De novo dyspareunia (0-30%)**
  - **Recurrence (1-18%)**
  - **Shrinkage**
  - **Obstruction (bowel/ureter/urethra/vagina)**
  - **Adhesive bowel obstruction**
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Van der Schans Colorectal Disease 2022
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Mesh in pelvic floor surgery: The «Irrationale»?

- FDA warning 2008 **on transvaginal mesh**
- Ban on mesh in pelvic floor surgery in UK 2017
  - **For transvaginal mesh (TVT et al)**
  - **For pelvic organ prolapse**

News > Health News

TOO LITTLE TOO LATE? Vaginal mesh implants that have left hundreds of women in agonising pain should be banned, Nice says

Lizzie Parry

Published: 11:00, 27 Nov 2017 | Updated: 8:00, 30 Nov 2017

The Guardian

Government halts vaginal mesh surgery in NHS hospitals

Suspension ordered in England to avoid further risk of 'life-changing injuries' to women

THE Sun UK Edition

News Sport Fabulous TV

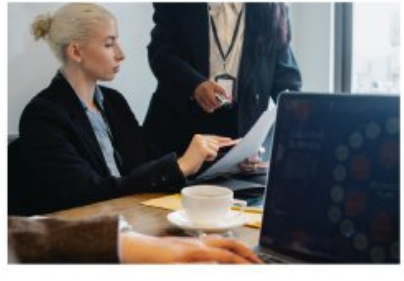
EXCLUSIVE

Fabulous > Health And Fitness

SLING THE MESH It's barbaric and ruins women's lives... Mum who could barely walk after vaginal mesh implant calls for the 'disgusting' procedure to be banned

Transvaginal Mesh Implant News

Seeking Justice: Pelvic Mesh Compensation Amidst Calls for Bans on Surgical Mesh



NICE National Institute for Health and Care Excellence

NICE guidance

Laparoscopic ventral mesh rectopexy for internal rectal prolapse

Interventional procedures guidance
Published: 20 June 2018

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Universität Basel

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Universität Basel

ACPGBI Position Statement 2017

- Morbity for ventral mesh rectopexy lower
- MDT for indication
- Adequate training
- Outcome registry
- No use of polyester mesh

Consensus statement

doi:10.1111/codi.13893

Position statement by the Pelvic Floor Society on behalf of the Association of Coloproctology of Great Britain and Ireland on the use of mesh in ventral mesh rectopexy

M. A. Mercer-Jones*, S. R. Brown†, C. H. Knowles‡ and A. B. Williams§

*Gateshead NHS Trust, Queen Elizabeth Hospital, Gateshead, UK, †Sheffield Teaching Hospitals, Sheffield, UK, ‡National Bowel Research Centre, Bland Institute, Queen Mary University London, London, UK, and §Guy's and St Thomas' NHS Foundation Trust, London, UK

Received 19 July 2017; accepted 31 August 2017; Accepted Article online 19 September 2017

Risk of mesh in transvaginal & transabdominal procedures

- Transvaginal mesh (TVT et al)
  - **Intra & early postoperative**
    - Hemorraghe
    - Bowel perforation
    - Nerve damage (Pain 30%!)
  - **5% re-operation after 5 year**
  - **6% mesh erosion**
  - **4% revisional surgery**
  - **3% removal**
  - **Overall complication rate 20-40%**

- Trans abdominal mesh
  - **Intra & early postoperative**
    - Hemorraghe 0.5%
    - Obstruction 0.3%
    - Bowel perforation 0.4%
  - **2% mesh erosions after 5a**
  - **1% re-eoperation**
  - **Removal rarely indicated**
  - **Overall complication rate 11%**

Kelly EC et al Obstet Gynecol 2016
Fusco F et al Eur Urol 2017
Novara G et al Eur Urol 2008
Barkski D et al Surg Technol Int 2014
Evans C DCR 2015

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Barkski D et al Surg Technol Int 2014
Evans C DCR 2015

Data on mesh in posterior compartment prolapse surgery

ORIGINAL CONTRIBUTION

A Multicenter Collaboration to Assess the Safety of Laparoscopic Ventral Rectopexy

Charles Evans, M.D., F.R.C.S.[1] • Andrew R. L. Stevenson, M.B.B.S., F.R.A.C.S.[2]
Pierpaolo Sileri, M.D., Ph.D.[3] • Mark A. Mercer-Jones, M.B.B.S., F.R.C.S.[4]
Anthony R. Dixon, D.M., F.R.C.S., F.R.C.S.(Edinb.)[5]
Chris Cunningham, M.D., F.R.C.S.(Edinb.)[1] • Oliver M. Jones, D.M., F.R.C.S.[1]
Ian Lindsey, M.B.B.S., F.R.A.C.S.[1]

1 Oxford University Hospitals National Health Service Trust, Oxford, United Kingdom
2 Royal Brisbane and Women's Hospital, University of Queensland, Brisbane, Queensland, Australia
3 Department of Surgery, University of Rome Tor Vergata, Policlinico Tor Vergata, Rome, Italy
4 Department of Colorectal Surgery, Queen Elizabeth Hospital, Gateshead, United Kingdom
5 Frenchay Hospital, Bristol, United Kingdom

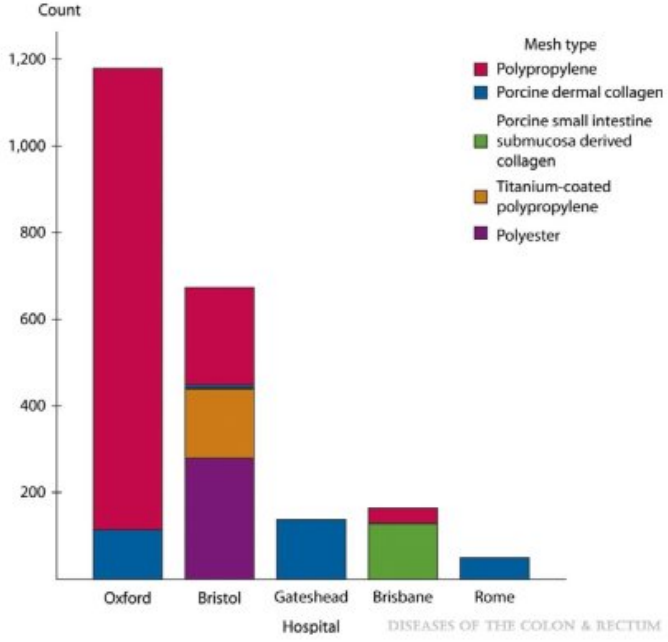
- 2203 PatientInnen (5 internationale Zentren)
- 80% synthetic mesh

DCR 2015

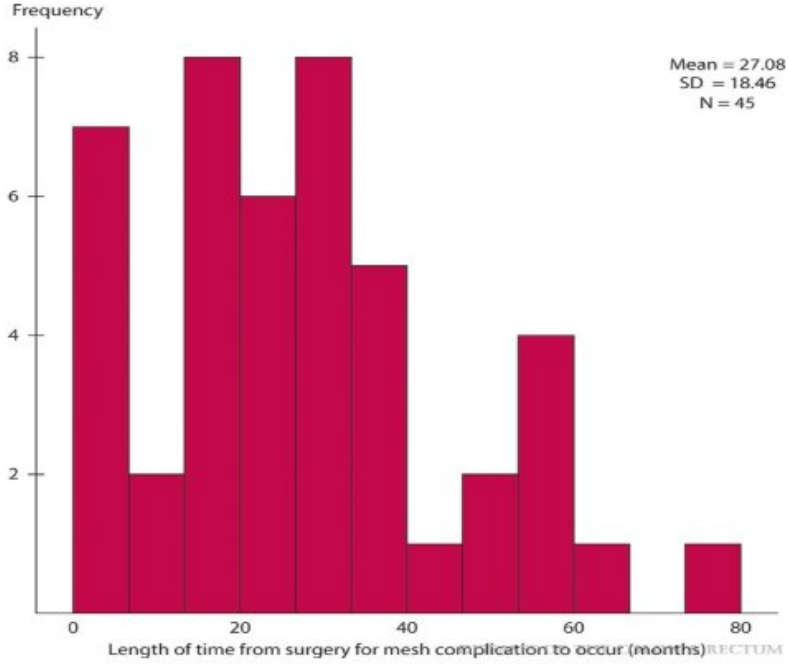
Mesh erosion by mesh type

Mesh Type	N(erosions/total)	Rate of erosion
Polypropylene	23/1325	1.7%
Polyester	18/279	6.4%
PVDF	1/160	0.6%
Porcine dermal	3/309	1%
Porcine submucosa	0/30	-

Used Mesh Types by center



Timing of mesh complication occurence



Non Mesh related complications

Complication	*Frequency, n (%)*
Surgical complication	
Port site hernia	27 (1.4)
Port site infection/hematoma	26 (1.3)
Pelvic hematoma	10 (0.5)
Urinary retention	37 (1.9)
Perforated viscus	8 (0.4)
Small-bowel obstruction/ileus	6 (0.3)
Subcutaneous emphysema	3 (0.2)
Vaginal bleed/discharge	3 (0.2)
Musculoskeletal	2 (0.1)
Intersphincteric abscess	1 (0.1)
Medical complication	
Urinary infection	19 (1.0)
Respiratory infection	6 (0.3)
Cardiovascular	12 (0.6)
Venous thrombotic event	2 (0.1)
Neurological	4 (0.2)
Pain	55 (2.8)
Pyrexia of unknown origin	5 (0.2)
Diarrhea	6 (0.3)
Constipation	7(0.4)
Duodenal ulcer	2 (0.1)

Morbidität 11%

Mortalität 0.1%

Pain Sites after ventral mesh rectopexy

Site of postoperative pain	*Frequency, n (%)*
Port site	14 (0.7)
Intra-abdominal	11 (0.6)
Perineum/perianally	10 (0.5)
Pelvic	7 (0.4)
Sacral	7 (0.4)
Back	3 (0.2)
Thigh	2 (0.1)
Neck	1 (0.1)

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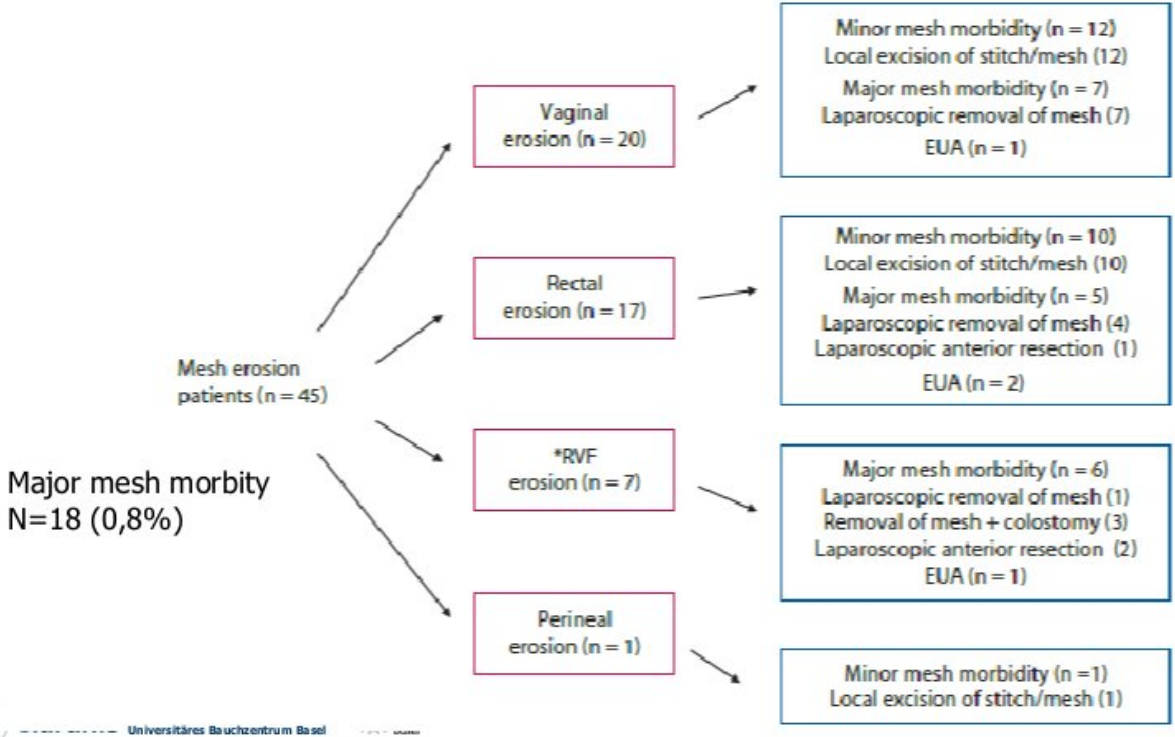
DISEASES OF THE COLON & RECTUM

Mesh Erosion Severity



Major mesh morbity
N=18 (0,8%)

CAVEATS Mesh fixation

ORIGINAL CONTRIBUTION

Impact of Suture Type on Erosion Rate After Laparoscopic Ventral Mesh Rectopexy: A Case-Matched Study

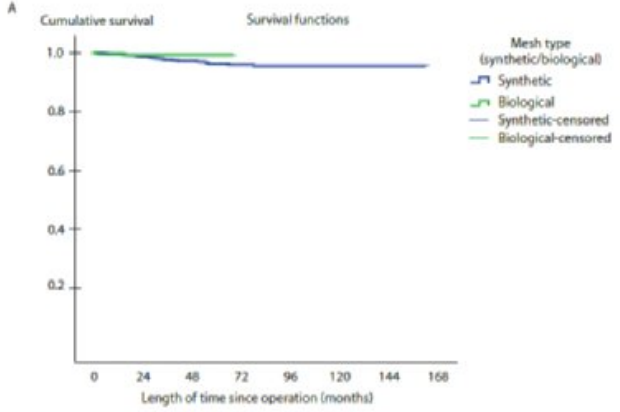
Patricia Tejedor, M.D., Ph.D. • Ian Lindsey, M.B.B.S., F.R.A.C.S.
Oliver M. Jones, D.M., F.R.C.S. • Helen J.S. Jones, M.B.Ch.B., F.R.C.S.Ed.
Kim Gorissen, M.D. • Marta Penna, M.B.B.S., B.Sc.(Hons.), M.R.C.S.
Chris Cunningham, B.Sc.(Hons.), M.B.Ch.B., M.D., F.R.C.S.Ed.

Department of Colorectal Surgery, Churchill Hospital, University Hospitals of Oxford, Oxford, United Kingdom

- Erosion 2% (n=6/495) 2010-2017
- Erosionen ausnahmslos bei Verwendung von nicht resorbierbaren Nähten

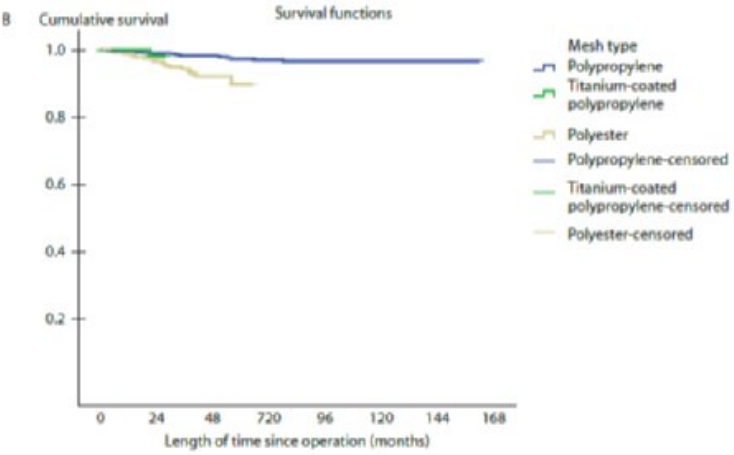
DCR 2019

CAVEATS Mesh Type



Number at risk

Time (months)	0	12	24	36	48	60	72	84	96
Synthetic mesh	1764	1757	1744	1733	1730	1724	1723	1722	1722
Biological mesh	439	437	436	436	436	436	436	436	436



Mesh related complications

Techniques in Coloproctology (2022) 26:85–98
https://doi.org/10.1007/s10151-021-02534-4

REVIEW

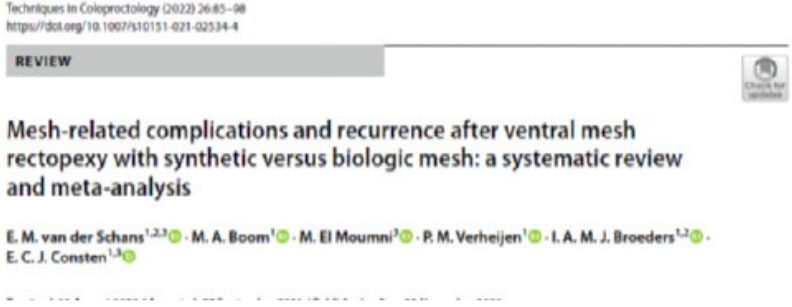
Mesh-related complications and recurrence after ventral mesh rectopexy with synthetic versus biologic mesh: a systematic review and meta-analysis

E. M. van der Schans[1,2,3] · M. A. Boom[1] · M. El Moumni[3] · P. M. Verheijen[1] · I. A. M. J. Broeders[1,2] · E. C. J. Consten[1,3]

Received: 13 August 2021 / Accepted: 27 September 2021 / Published online: 23 November 2021

Recurrence by mesh type

Mesh Type	N	Recurrence	%	Confidence Intervall
Synthetic	2371	155	6%	4-8%
Biologic	602	38	6%	3-10%
Total	2973	193	6.4%	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Follow up 5-74 moths
Shorter for biologic mesh…

Van der Schans et al Tech Coloproct 2022

Mesh Type Basel/Wien/Edinbourgh

	n/%		P-value*
Mesh type	synthetic	biologic	
Total (n=360)	220	140	
Surgical recurrence	12 (5%)	13 (9%)	0.2022
Further therapy necessary	81 (37%)	55 (39%)	0.6568
Oral laxatives	78 (35%)	44 (31%)	0.4934
Rectal laxatives	16 (7%)	15 (11%)	0.3352
Complications	24 (11%)	8 (6%)	0.2875

Christen et al Abstract/Poster
ESCP Vilnius 2023

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Christen et al Abstract/Poster
ESCP Vilnius 2023

And the guidelines?

OXFORD

BJS, 2021, 108, 1149–1153
DOI: 10.1093/bjs/znab123
Advance Access Publication Date: 17 April 2021
Rapid Research Communication

Obstructed defaecation syndrome: European consensus guidelines on the surgical management

A. Picciariello [1]*, P. R. O'Connell[2], D. Hahnloser[3], G. Gallo [4], A. Munoz-Duyos[5], O. Schwandner[6], P. Sileri[7], G. Milito[8], S. Riss[9], P. A. Boccasanta[10], G. Naldini[11], A. Arroyo [12], F. de laPortilla[13], P. Tsarkov[14], B. Roche[15], C. Isbert[16], M. Trompetto[17], A. d'Hoore[18], K. Matzel[19], E. Xynos[20], L. Lundby[21], C. Ratto[22], E. Consten[23], A. Infantino[24], Y. Panis [25], G. Terrosu[26], E. Espin[27], J.-L. Faucheron [28], A. Guttadauro[29], M. Adamina [30], P. A. Lehur[31] and D. F. Altomare[1]

Algorithmus

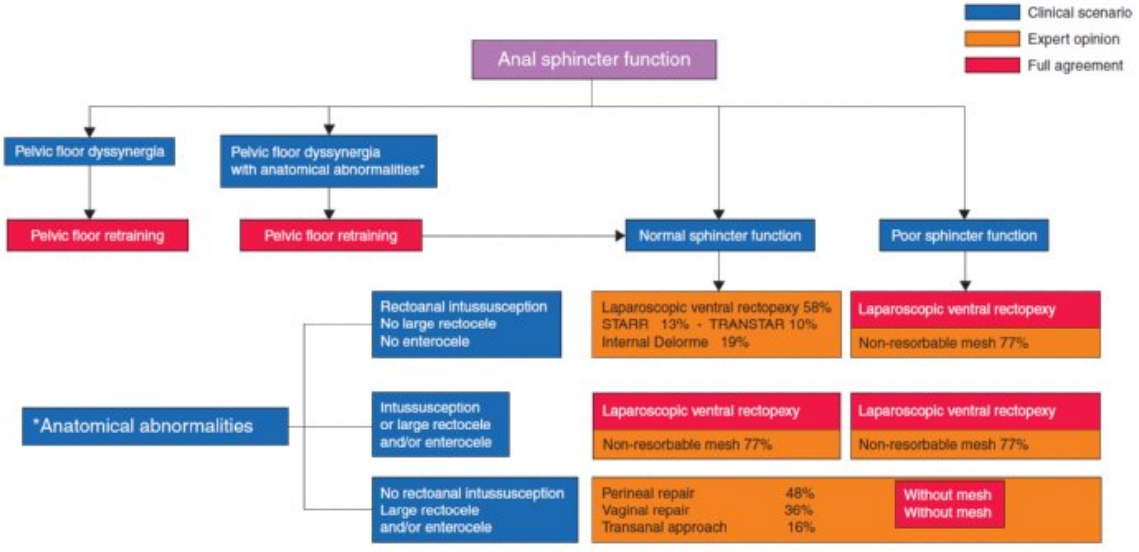
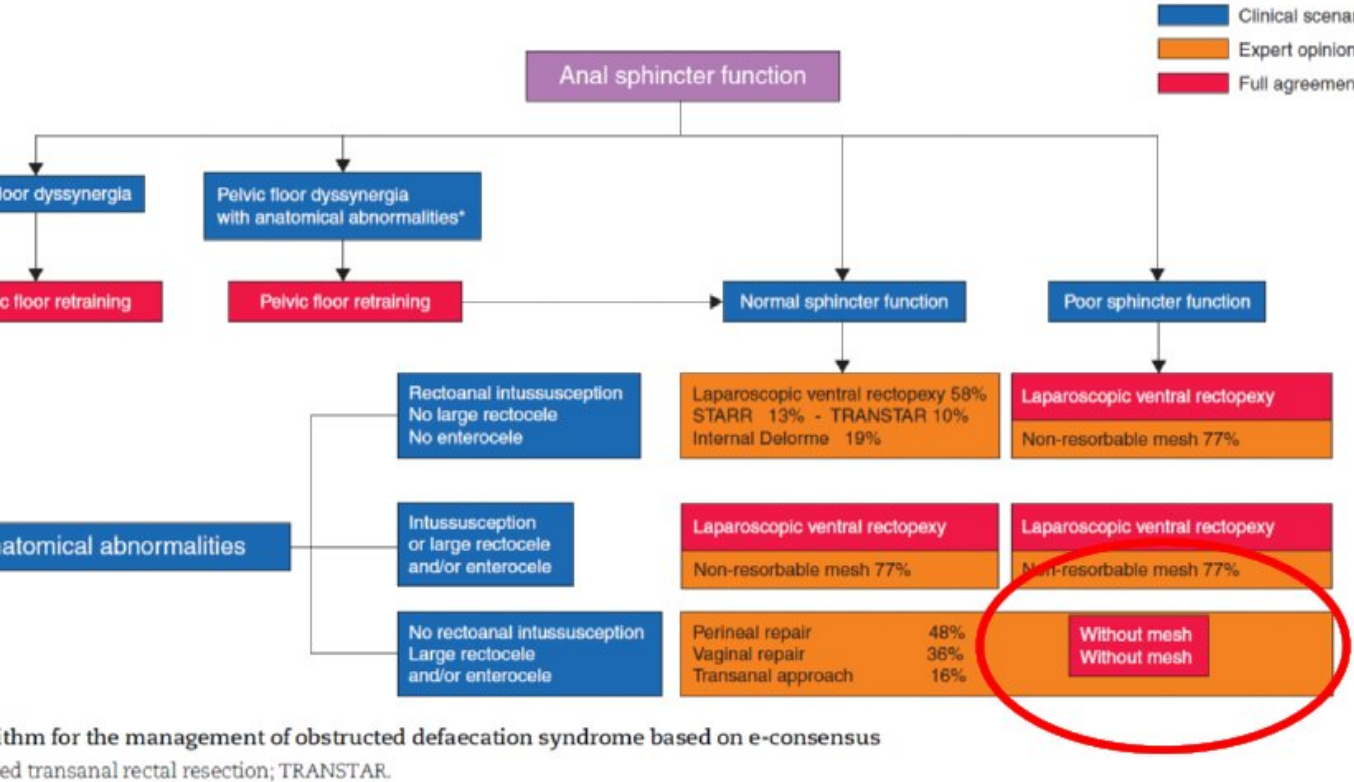


Fig. 1 Algorithm for the management of obstructed defaecation syndrome based on e-consensus
STARR, stapled transanal rectal resection; TRANSTAR.



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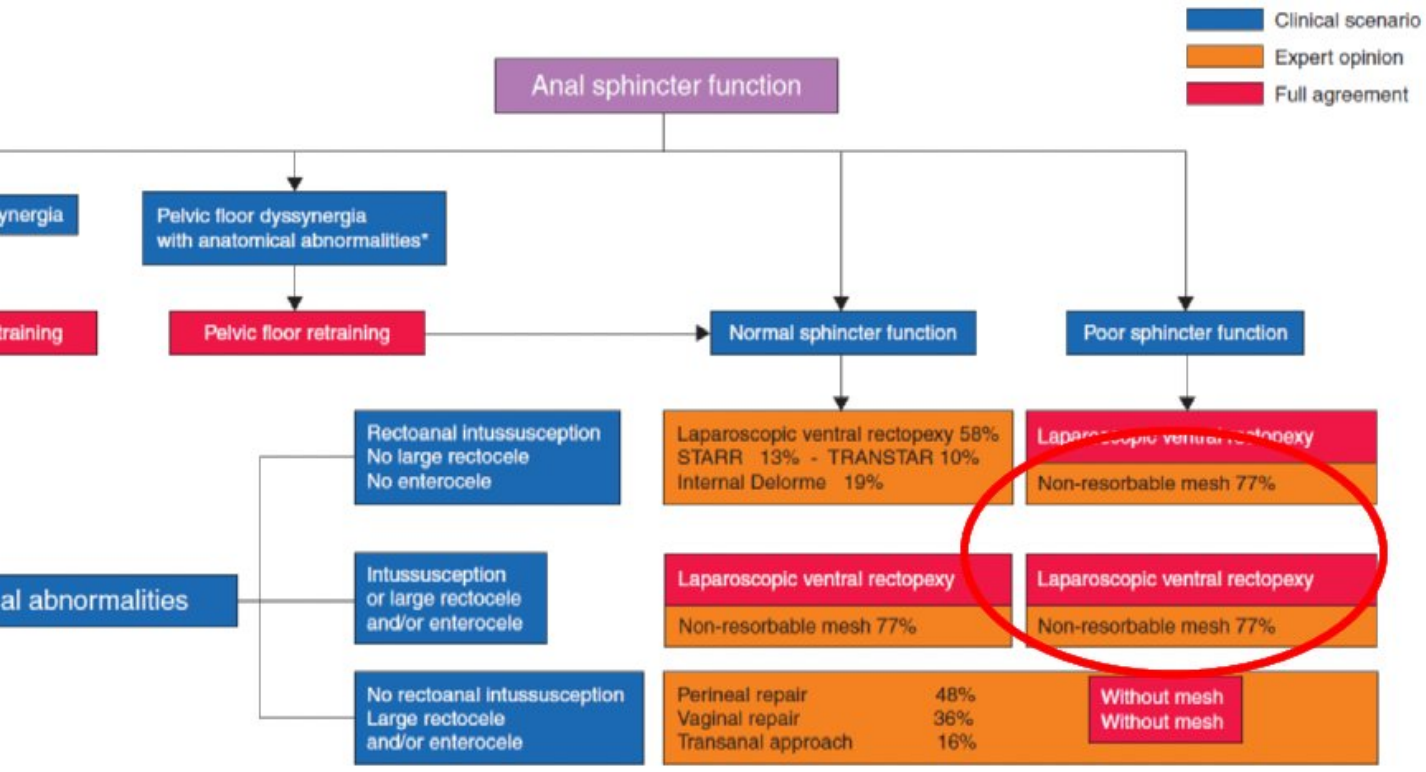

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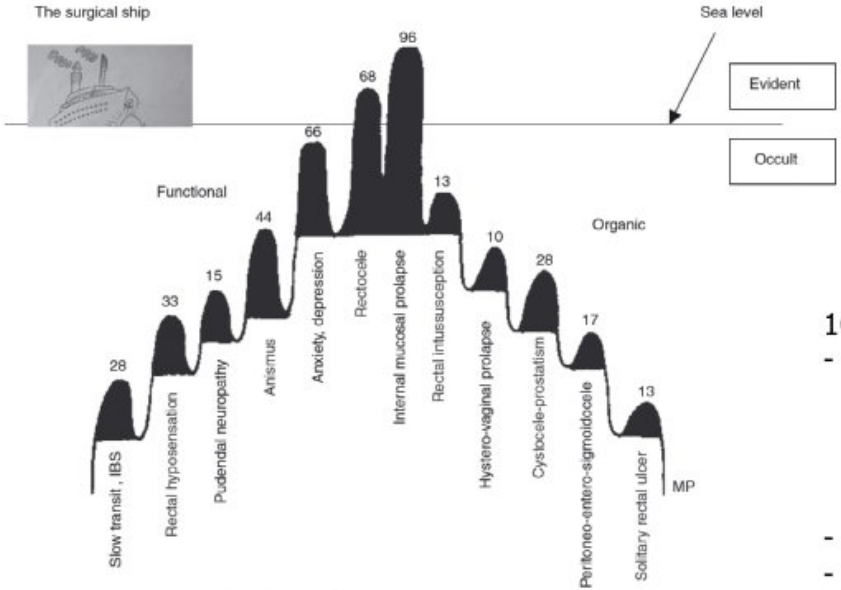
sanal rectal resection; TRANSTAR

CAVEAT Indication…



Pescatori M et al., Colorectal disease 2006: 9, 452-456

100 Patients

- 100: more than one disease, of those:
  - 66% Anxiety/Depression
  - 44% Anismus
  - 33% rectal hyposensation
- 66: more than three
- Median number of «icebergs»: 5

Summary

- Mesh in posterior compartment surgery is…
  - **effective**
  - **has low recurrence rates for prolapse**
  - **comes with a risk of 2% of mesh erosion…**
  - **which can be lowered by the use of absorbable fixation**
- Absorbable mesh has trend for higher recurrence rates &
  - **more reoperations…**
- Good indications are the key to success…

- Mesh is not «THE» foe