The association of permanent versus absorbable fixation on developing chronic post-herniorrhaphy groin pain in patients undergoing laparoscopic inguinal hernia repair

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Disclosures

Dr. Prabhu is on the advisory board for Surgimatix and CMR Surgical and receives consulting fees from CMR Surgical and Verb Surgical.

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Dr. Rosen serves as the medical director of the ACHQC, received a grant to his institution for research from Telabio and has stock options with Ariste.

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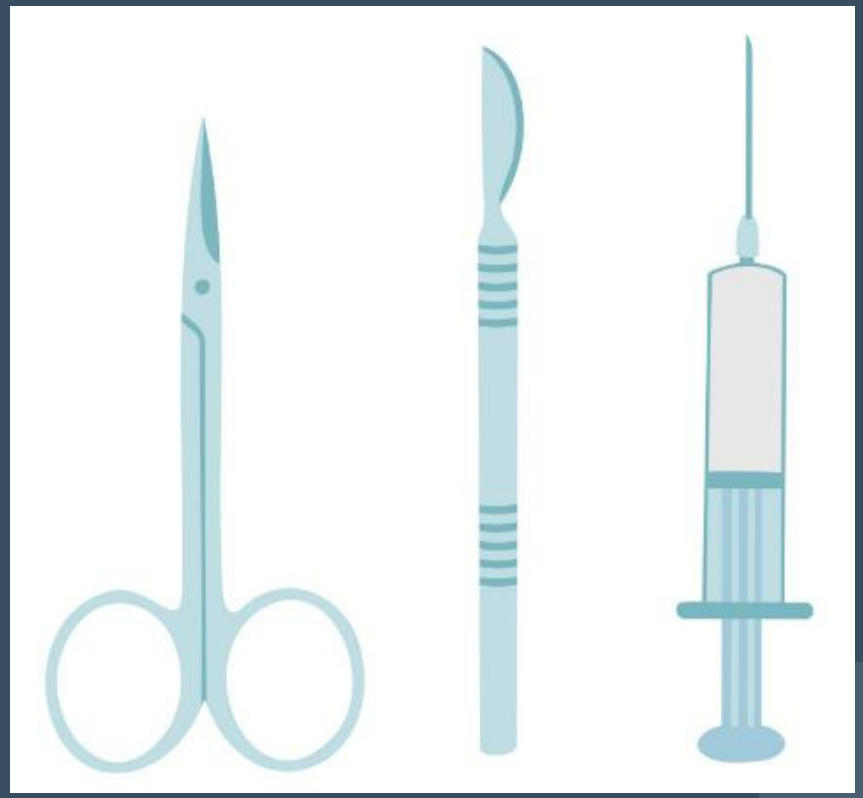
Chronic Post-herniorrhaphy Groin Pain

Patient Characteristics



Operative Characteristics

Permanent vs. Absorbable Tacks

Postoperative Pain and Recurrence after Mesh Fixation with Absorbable versus Non-Absorbable Tacks in Patients undergoing Laparoscopic Transabdominal Inguinal Hernia Repair: A Comparative Study

Authors

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10.21608/ASJS.2018.178205

- RCT
- 30 patients
- No difference in recurrence or chronic pain

Asian J Surg. 2019 Dec;42(12):995-1000. doi: 10.1016/j.asjsur.2019.01.010. Epub 2019 Feb 14.

The efficacy of absorbable versus non-absorbable fixation in laparoscopic totally extraperitoneal (tep) repair of large inguinal hernias

Prajwala S Prakash [1], Sujith Wijerathne [2], Hrishikesh Pandurang Salgaonkar [2], Davide Lomanto [2]

- Case control
- 20 patients
- No difference in recurrence or chronic pain

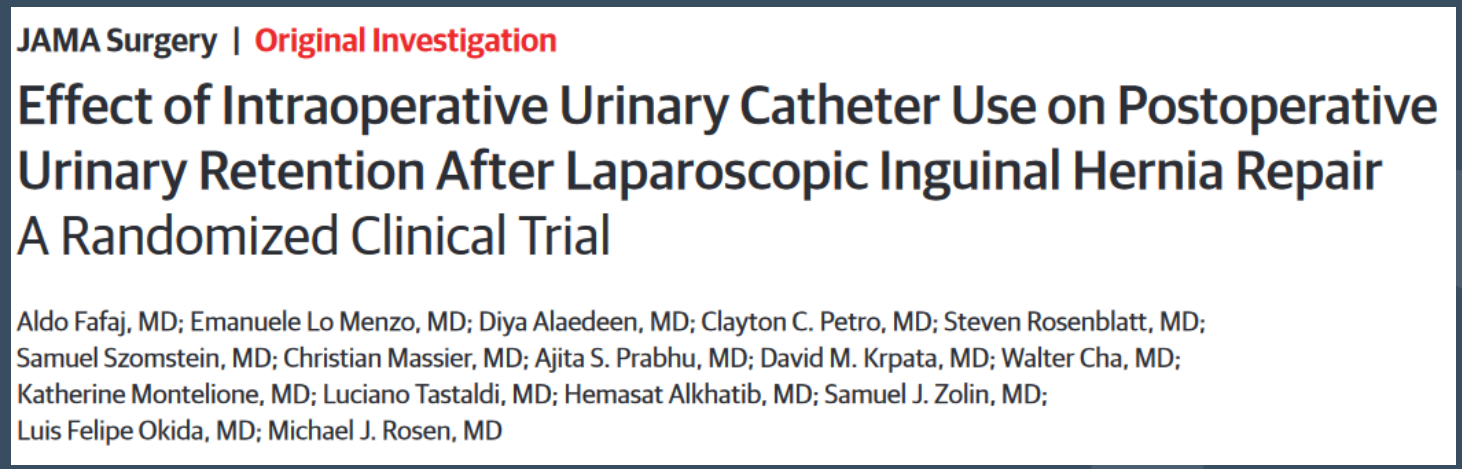
Cost

Primary Aim

To compare the rates of chronic post-herniorrhaphy groin pain after laparoscopic inguinal hernia repair between permanent versus absorbable tack fixation.

Post-hoc Analysis of RCT

- Objective:
  - To investigate the effect of intraoperative catheters on postoperative urinary retention (PUR) after laparoscopic inguinal hernia repair.
- Study design:
  - Multicenter trial at 6 hospitals
  - Patients 18 years or older, undergoing elective, laparoscopic inguinal hernia repair
  - March 2019-March 2021
- Results and Conclusion:
  - 491 patients
  - No difference in rate of PUR between the catheter and no-catheter groups



JAMA Surgery | Original Investigation

Effect of Intraoperative Urinary Catheter Use on Postoperative Urinary Retention After Laparoscopic Inguinal Hernia Repair

A Randomized Clinical Trial

Aldo Fafaj, MD; Emanuele Lo Menzo, MD; Diya Alaedeen, MD; Clayton C. Petro, MD; Steven Rosenblatt, MD; Samuel Szomstein, MD; Christian Massier, MD; Ajita S. Prabhu, MD; David M. Krpata, MD; Walter Cha, MD; Katherine Montelione, MD; Luciano Tastaldi, MD; Hemasat Alkhatib, MD; Samuel J. Zolin, MD; Luis Felipe Okida, MD; Michael J. Rosen, MD

Variables

Permanent fixation: ProTack™
titanium tacks

MedTronic, Minneapolis, MN

Byrd JF, Agee N, Swan RZ, et al. Evaluation of absorbable and permanent mesh fixation devices: adhesion formation and mechanical strength. *Hernia*. 2011;15(5):553-558.

Absorbable fixation: AbsorbaTack™
synthetic polyester copolymer

MedTronic, Minneapolis, MN

Long-term follow up

- All patients in the prior trial were contacted at maximum follow up to obtain EuraHS Quality of Life (QoL) and Hernia Recurrence Inventory (HRI) assessments.

1. Pain at the site of the hernia												
	0 = no pain										10 = worst pain imaginable	
Pain in rest (lying down)	0	1	2	3	4	5	6	7	8	9	10	
Pain during activities (walking, biking, sports)	0	1	2	3	4	5	6	7	8	9	10	
Pain felt during the last week	0	1	2	3	4	5	6	7	8	9	10	
2. Restrictions of activities because of pain or discomfort at the site of the hernia												
	0 = no restriction										10 = completely restricted	
Restriction from daily activities (inside the house)	0	1	2	3	4	5	6	7	8	9	10	X
Restriction outside the house (walking, biking, driving)	0	1	2	3	4	5	6	7	8	9	10	X
Restriction during sports	0	1	2	3	4	5	6	7	8	9	10	X
Restriction during heavy labour	0	1	2	3	4	5	6	7	8	9	10	X
	X = If you do not perform this activity											
3. Esthetical discomfort												
	0 = very beautiful										10 = extremely ugly	
Shape of your abdomen	0	1	2	3	4	5	6	7	8	9	10	
Site of the hernia	0	1	2	3	4	5	6	7	8	9	10	

ACHQC
ABDOMINAL CORE HEALTH QUALITY COLLABORATIVE

INGUINAL HERNIA POSTOPERATIVE ASSESSMENT

1. How many tablets of prescription opioid pain medication did you take in the past 30 days?

☐ 0 ☐ 1 to 2 ☐ 3 to 4 ☐ 5 to 10 ☐ 11 to 15 ☐ 16 to 30 ☐ 30 or more

2. Regarding your hernia operation…

Do you feel your hernia has come back? ☐Yes ☐No

Do you feel or see a bulge? ☐Yes ☐No

Do you have physical pain or symptoms at the site? ☐Yes ☐No

Have you had additional surgery since your hernia operation? ☐Yes ☐No

If yes, reason for abdominal surgery:

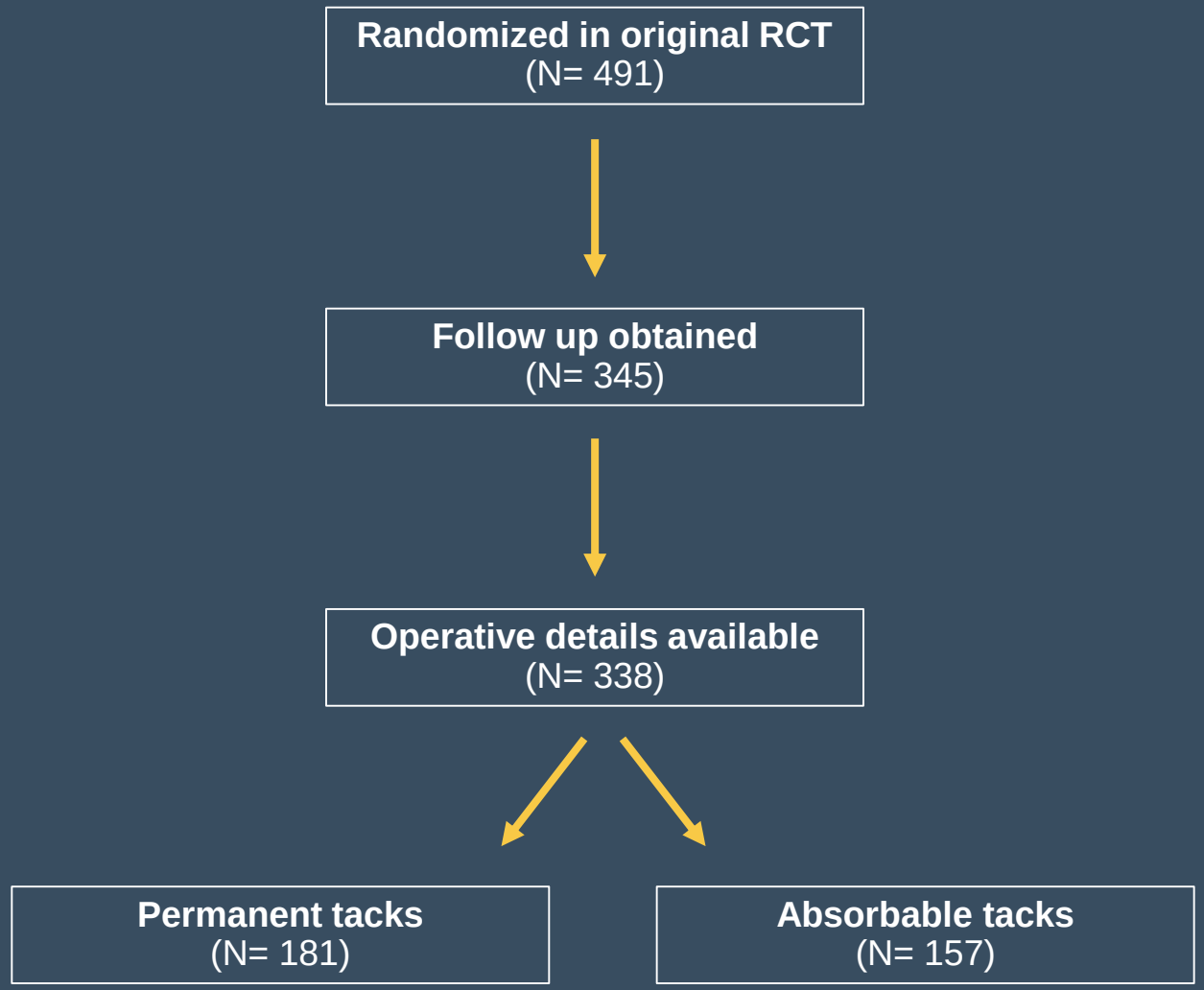
☐For hernia ☐For another reason

Outcomes

- Primary Outcome: rate of chronic post-herniorrhaphy groin pain
  - Defined as a EuraHS-QoL pain domain score ≥4

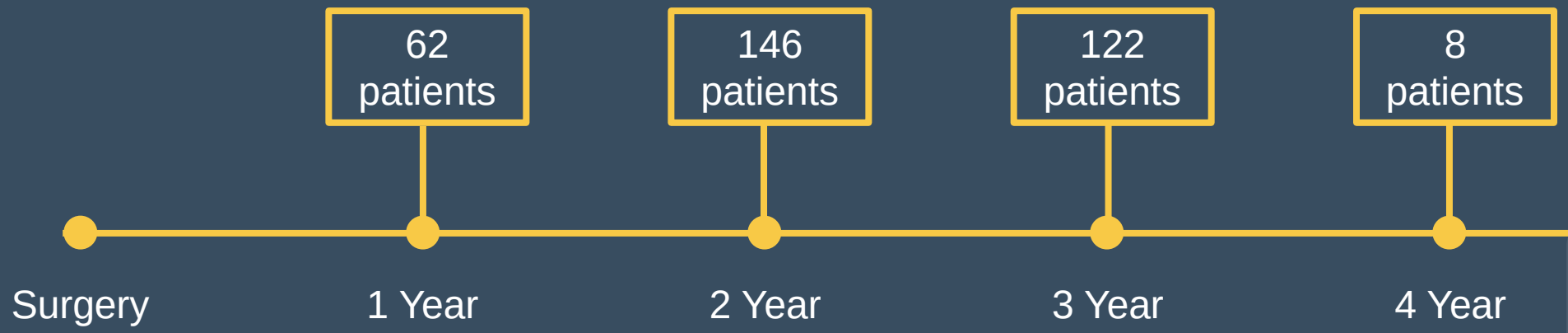
- Secondary outcomes:
  - Average EuraHS-QoL pain domain scores
  - Average EuraHS-QoL restriction of activity domain scores
  - Rate of HRI patient-reported hernia recurrence

Study Population



Maximum Follow Up

- Average follow-up:
  - 27 months for permanent fixation
  - 26 months for absorbable fixation (P=0.41)



Baseline Characteristics

	n	Permanent fixation n = 181	Absorbable fixation n = 157	*P* value
Age (years), median (IQR)	338	61 (54, 67)	62 (50, 70)	0.69
Sex	338			0.70
Female		6.1% (11)	5.1% (8)	
Male		93.9% (170)	94.9% (149)	
BMI	335			0.09
</= 29.9		79.3% (142)	82.7% (129)	
30-34.9		14.5% (26)	16.0% (25)	
35-39.9		5.6% (10)	0.64% (1)	
>/= 40		0.6% (1)	0.64% (1)	
ASA Class	335			0.37
1		12.3% (22)	12.8% (20)	
2		54.7% (98)	62.8% (98)	
3		32.4% (58)	23.7% (37)	
4		0.6% (1)	0.6% (1)	
Diabetes	335	4.5% (8)	5.8% (9)	0.59
Hypertension	338	38% (68)	29% (46)	0.11
COPD	335	1.7% (3)	0.0% (0)	0.10
Current Smoker	335	6.2% (11)	5.8% (9)	0.88
Baseline Eura-HS QoL Scores				
Pain domain, median (IQR)	229	6 (2, 12)	8 (3, 11)	0.54
Restriction of activity domain, median (IQR)	227	9 (1.5, 18)	11 (2, 20)	0.22

Operative Details

	n	Permanent fixation n = 181	Absorbable fixation n = 156	*P* value
Prior inguinal mesh	139			**0.02**
No		84.6% (66)	96.7% (59)	
Yes		15.4% (12)	3.3% (2)	
Hernia size	333			**0.01**
≤3cm or ≤2 fingertips		70.2% (125)	83.2% (129)	
>3cm or >2 fingertips		29.8% (53)	16.8% (26)	
Laterality	333			0.92
Bilateral		38.2% (68)	38.7% (60)	
Unilateral		61.8% (110)	61.3% (95)	
Surgical repair approach	333			**<0.001**
TAPP		56.7% (101)	1.3% (2)	
TEP		43.3% (77)	98.7% (153)	
Number of tacks	333			**<0.001**
≤4		38.2% (68)	95.5% (147)	
>4		61.8% (110)	4.5% (7)	
Operation time	335			**<0.001**
<1 hour		28.5% (51)	46.8% (73)	
≥1 hour		71.5% (128)	53.2% (83)	

EuraHS QoL Scores

	Permanent fixation n = 181	**Absorbable fixation** n = 157	***P* value**
Pain domain, mean ± SD	1.78 ± 4.38	2.32 ± 5.40	0.22
Restriction of activity domain, mean ± SD	1.39 ± 4.32	2.48 ± 7.45	0.18

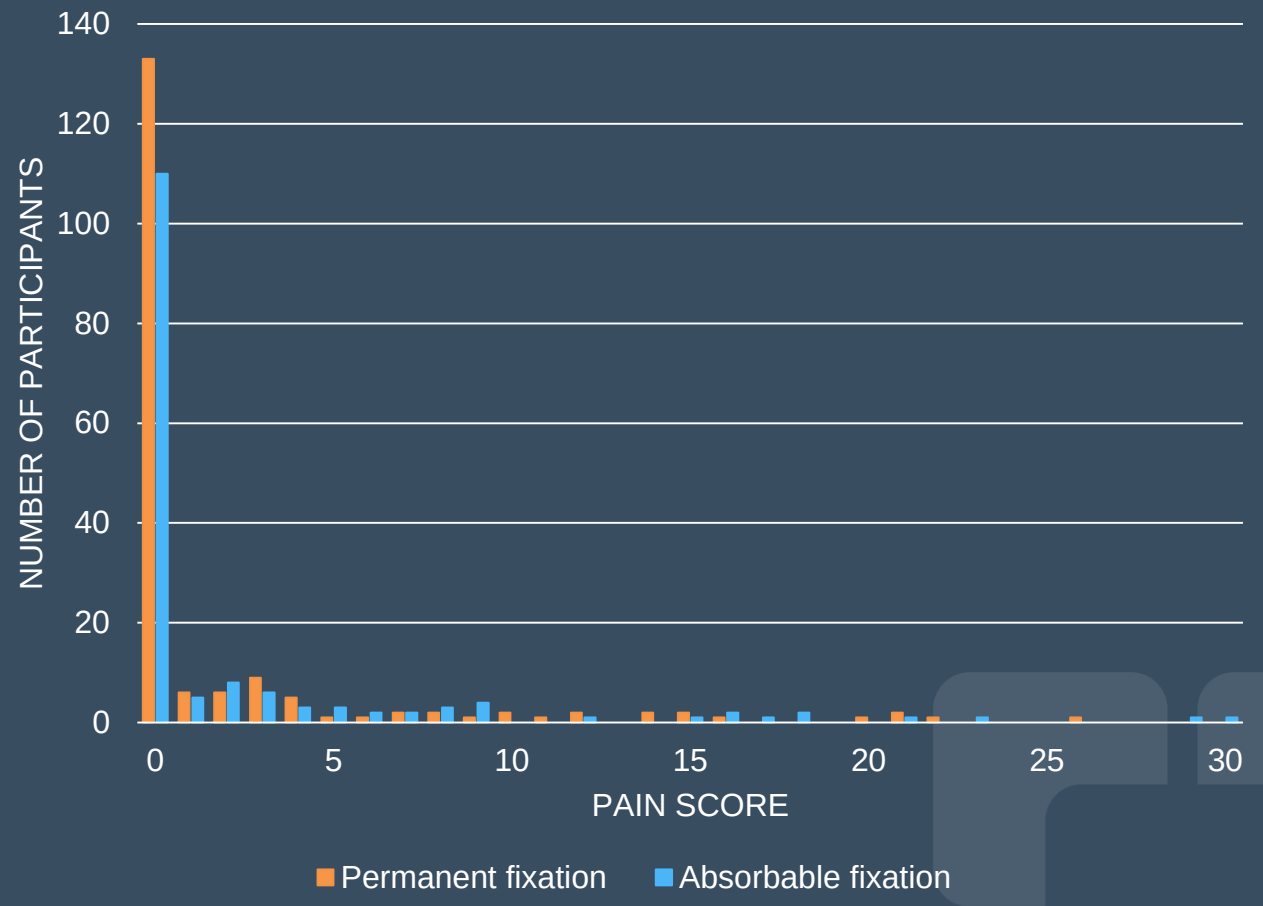
Hernia Recurrence Index

	Permanent fixation n = 181	**Absorbable fixation** n = 157	***P* value**
“Do you feel or see a bulge?”			
No	90.1% (163)	90.4% (142)	0.9
Yes	9.9% (18)	9.5% (15)	

Chronic post-herniorrhaphy groin pain

- The overall rate of chronic post-herniorrhaphy groin pain at maximum follow-up was 16.3%

- There was no statistically significant difference in the rates of chronic pain between permanent and absorbable fixation (27 [15%] vs 28 [18%], P=0.47).



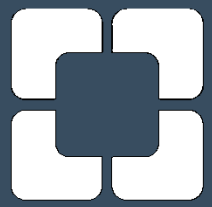
Chronic post-herniorrhaphy groin pain

	OR (95% CI)	Significance
BMI	0.96 (0.71-1.30)	*P*=0.79
Age	0.94 (0.76-1.16)	*P*=0.59
Tack Type		
Permanent	1.0 (Reference)	*P*=0.57
Absorbable	1.23 (0.60-2.50)	
Hernia size		
≤3cm	1.0 (Reference)	*P*=0.49
>3cm	1.27 (0.64-2.50)	
Number of tacks used		
≤4 tacks	1.0 (Reference)	*P*=0.71
>4 tacks	0.87 (0.40-1.88)	

Age, BMI, hernia size, and number of tacks used, and tack type were not associated with chronic post-herniorrhaphy groin pain

Conclusion

Mesh fixation with permanent tacks does not appear to increase the risk of developing chronic post-herniorrhaphy groin pain after laparoscopic inguinal hernia repair when compared to fixation with absorbable tacks



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Every life deserves world class care.

Hernia (2021) 26:225–232
https://doi.org/10.1007/s10029-021-02498-2

ORIGINAL ARTICLE

Predictors of low quality of life after open inguinal hernia repair using the EuraHS-QoL score: prospective multicentric cohort study across 33 hospitals

PT Surg (Portuguese Collaborative Research Group)[1]

"Chronic postoperative inguinal pain was defined as a score of ≥ 3/10 in any of the questions of the pain domain of the EuraHS-QoL score, at three months after surgery."

Table 4 Descriptive statistics of EuraHS scores at 30 day follow-up by mesh fixation

From: Comparing 30-day outcomes between different mesh fixation techniques in minimally invasive inguinal hernia repair

	Total Number of Patients	AF (*N* = 253) Median (25, 75 quartiles)	TNS (*N* = 451) Median (25, 75 quartiles)	TS (*N* = 160) Median (25, 75 quartiles)	*p* value
EuraHS: Pain domain score (0–30) at 30-day follow-up	864	2 (0, 6)	3 (0, 6)	4 (1, 8)	< 0.001[d*]
EuraHS: restrictions domain score (0–40) at 30-day follow-up	852	2 (0, 10)	3 (0, 12)	6.8 (0–16.2)	0.001[d*]
EuraHS: Cosmetic domain score (0–20) at 30-day follow-up	864	1 (0, 4)	2 (0, 6)	3 (0, 7)	< 0.001[d*]
EuraHS: Overall score (0–90) at 30-day follow-up	864	8 (1, 19)	11 (3, 23)	15 (4.4, 29)	< 0.001[d*]