

Should We Be Quick To Dismiss Non-Sphincter-Sparing Surgery for Fistula-in-Ano? An Analysis of Long-Term Outcomes

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INTRODUCTION

- Fistulotomy is considered the gold-standard treatment for fistula-in-ano
- Reported rates of fecal incontinence and fistula recurrence are low post-fistulotomy, but there exists a lack of long-term functional studies
- A desire to reduce the risk of long-term fecal incontinence has prompted the emergence of sphincter-sparing treatment techniques, despite their higher risk of recurrence

PURPOSE

- The purpose of this study is to compare the **long-term risks of fecal incontinence and recurrence** following **sphincter-sparing** and **non-sphincter-sparing** procedures for fistula-in-ano

METHODS

- All patients with **fistula-in-ano** managed **operatively** between **2000** and **2012** by **colorectal surgeons** at a tertiary center were included
- Patients with **inflammatory bowel disease**, **pelvic radiation**, and **non-definitive treatment** were **excluded**
- Medical records and operative reports were reviewed and patients were contacted by telephone to document **fecal incontinence (FI)** using **CCF-FIS** and **FIQL** questionnaire
- Fistulas were characterized by: **type**, **location**, **branching**, **number of internal openings**, classification (i.e., **high** or **low**), and **primary** or **recurrent** fistula
- Procedures were classified as **sphincter-sparing** (i.e., fibrin glue, anal plug, anorectal flap, LIFT) or **non-sphincter-sparing** (i.e., fistulotomy, cutting seton)
- Outcomes of interest were **fecal incontinence** (defined as **CCF-FIS ≥ 10**) as a **primary** outcome and **recurrence** of disease as a **secondary** outcome

FIGURE 1: PATIENT SELECTION

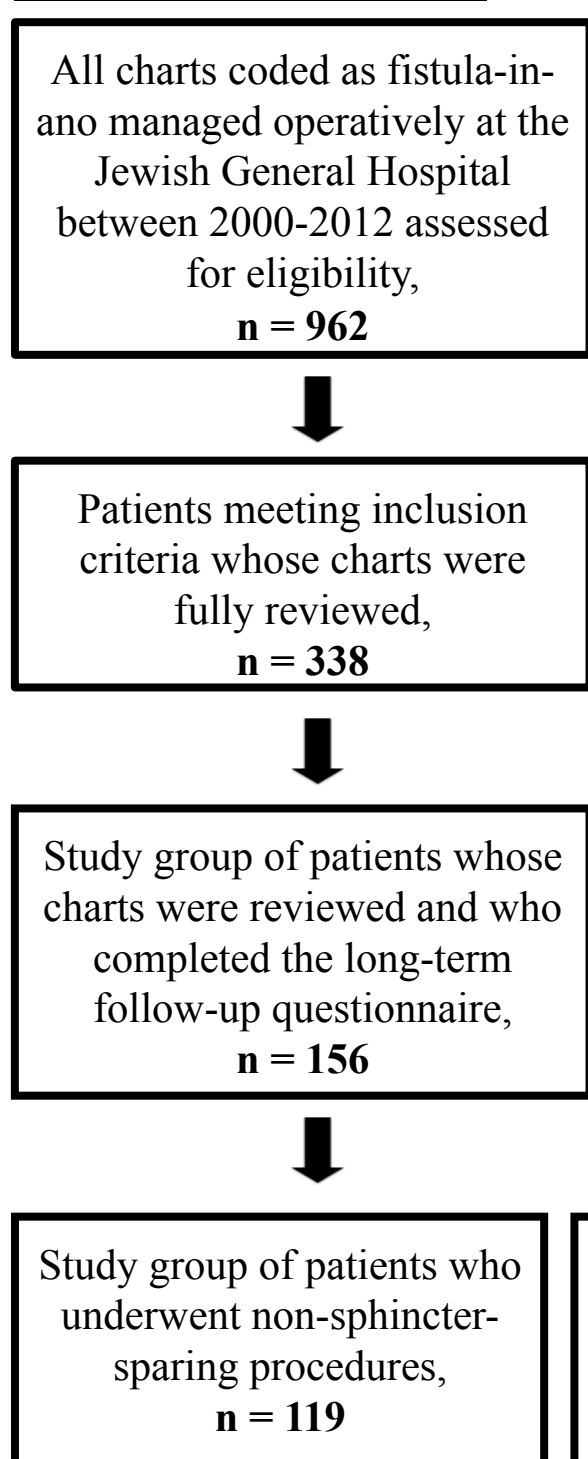


TABLE 1:

PATIENT CHARACTERISTICS

	Non-SSP (N=119)	SSP (N=37)
Age	54.87 (± 11.4)	57.34 (± 15.4)
Sex		
Male	95 (79.8%)	26 (70.3%)
Female	24 (20.2%)	11 (29.7%)
ASA		
1	62 (52.1%)	17 (45.9%)
2	51 (42.9%)	16 (43.2%)
3	6 (5.0%)	4 (10.8%)
4	0 (0.0%)	0 (0.0%)
BMI (kg/m ²)	27.58 (± 5.46)	28.78 (± 7.40)
DMII	8 (6.72%)	3 (8.1%)
Smoker	25 (21.0%)	6 (16.2%)
Vaginal deliveries	12 (10.1%)	4 (10.8%)
Obstetrical injuries	7 (5.9%)	3 (8.1%)
Recurrent disease	35 (29.4%)	2 (5.4%)

TABLE 3: OUTCOMES

Recurrence and Fecal Incontinence (FI)			
	Recurrence (N=45)	All FI (N=21)	CCF-FIS ≥ 10
SSP (N=37)	22 (59.4%)	0 (0.0%)	0 (0.0%)
Non-SSP (N=119)	23 (19.3%)	21 (17.6%)	2 (1.68%)

Fecal Incontinence Quality of Life:

Median FIQL scores (range 1-4; 4=not affected) were lifestyle 4.0 (2.0-4.0); coping 4.0 (1.3-4.0); depression 4.0 (1.3-4.0); embarrassment 4.0 (1.3-4.0)

TABLE 2:

OPERATIVE CHARACTERISTICS

	Non-SSP (N=119)	SSP (N=37)
Age at first repair	45.41 (± 11.9)	46.23 (± 16.5)
Secondary opening		
Anterior	49 (41.2%)	23 (62.2%)
Posterior	61 (51.3%)	11 (29.7%)
Lateral	4 (3.4%)	2 (5.4%)
Bilateral	3 (2.5%)	3 (8.1%)
Fistula classification		
High	18 (15.1%)	27 (73.0%)
Low	101 (84.9%)	10 (27.0%)
Fistula characterization		
Inter-sphincteric	60 (50.4%)	2 (5.4%)
Trans-sphincteric	58 (48.8%)	34 (91.9%)
Extra-sphincteric	1 (0.8%)	1 (2.7%)
Complex fistula	34 (28.6%)	30 (81.1%)
Procedure type		
Fistulotomy	91 (76.5%)	-
Cutting seton	28 (23.5%)	-
LIFT	-	11 (29.7%)
Tissue plug	-	12 (32.4%)
Tissue glue	-	10 (27.1%)
Anorectal flap	-	4 (10.8%)

TABLE 4:

UNIVARIATE ANALYSIS OF RECURRENCE

Logistic Regression			
Variable	Odds Ratio	95% CI	p-value
SSP	6.12	2.75-13.60	<0.001
BMI	1.01	0.96-1.07	0.553
Age at first repair	0.98	0.95-1.00	0.106
DMII	0.53	0.11-2.54	0.425
Smoking	1.22	0.53-2.86	0.640
Secondary opening			
Anterior	Ref.	Ref.	Ref.
Posterior	0.48	0.23-0.99	0.047
Lateral	-	-	-
Bilateral	0.83	0.14-4.86	0.839
Recurrent disease	1.47	0.67-3.24	0.335
Sex (male)	0.72	0.32-1.61	0.421
Complex fistula	3.73	1.60-6.41	0.002
Follow-up time (years)	1.05	0.93-1.40	0.221
High fistula	4.22	2.00-8.94	<0.001

Median follow-up **9.1** years (**6.5** years for **non-sphincter-sparing** procedures vs. **12.6** years for **sphincter-sparing** procedures)

STRENGTHS:

- Patients contacted to document fecal incontinence and to ensure that no recurrence treated elsewhere be missed
- Significantly longer term follow-up than studies published to date

LIMITATIONS:

- Smaller number of SSPs due to increased use of the technique only being adopted in recent years (i.e., outside of study range)

TABLE 5:

MULTIVARIATE ANALYSIS OF RECURRENCE

Logistic Regression			
Variable	Odds Ratio	95% CI	p-value
SSP	6.14	2.22-17.02	<0.001
Complex fistula	1.68	0.70-4.04	0.243
BMI	1.00	0.95-1.07	0.772
Recurrent fistula	2.62	1.02-6.69	0.044
Posterior fistula	0.84	0.38-1.88	0.767

CONCLUSIONS:

- Long-term rates of significant FI after non-sphincter-sparing procedures were low and did not impact quality of life, indicating that these procedures remain a **safe** option with appropriate patient selection
- The use of sphincter-sparing procedures for the definitive treatment of fistula-in-ano had significantly **higher** recurrence rates compared to non-sphincter-sparing procedures