SIMPLE FISTULA-IN-ANO

CUT OR FILL OR FLAP

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Disclosure

- None to be declared.

Types of fistula?

- Simple fistula.
- Complex fistula.

Simply

Simple fistula

Fistulas that you **can** cut lay open (fistulotomy).

Complex fistula

Fistulas that you **cannot** cut lay open (fistulotomy).

Surgical anatomy & types:

Complex fistula

1. Transphincteric fistulas that involve >30% of the external sphincter.
2. Suprasphincteric.
3. Extrasphincteric.
4. Horseshoe fistulas.
5. Anal fistulas associated with IBD, radiation, malignancy.
6. Preexisting fecal incontinence, or chronic diarrhea, or weak sphincters.
7. Anterior fistula in females.

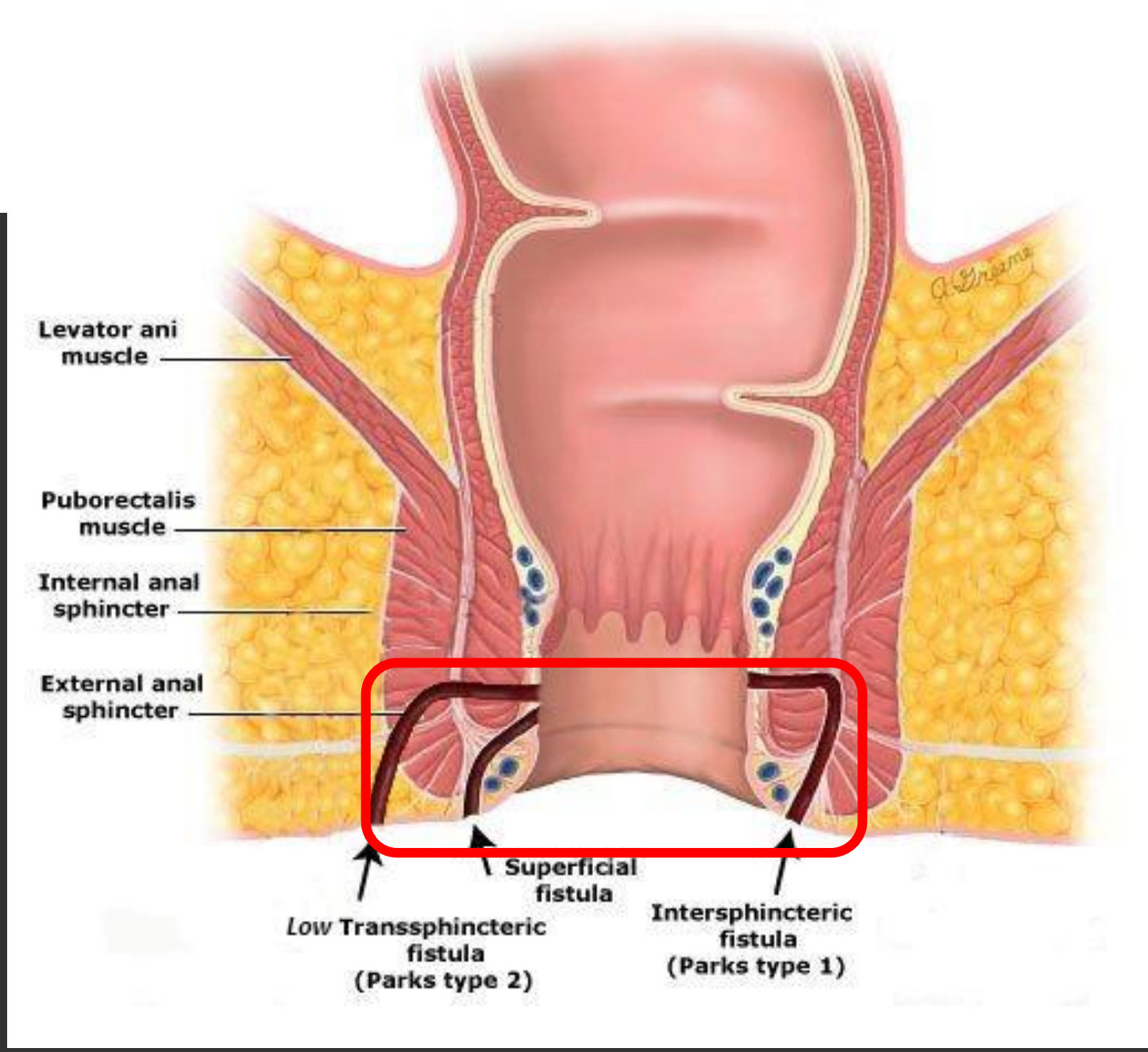
Simple fistula

have none of these complex features

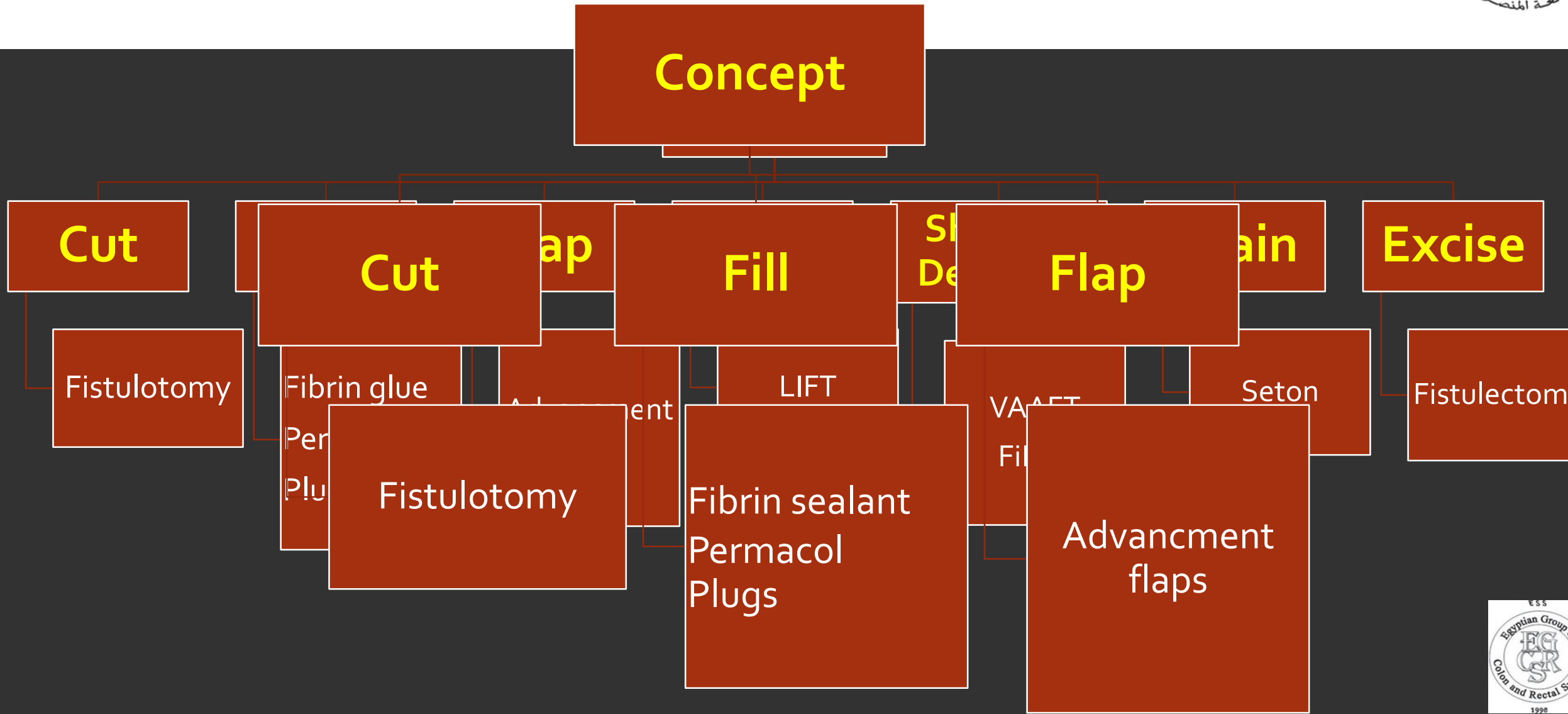
1. Superficial fistulas.
2. Intersphincteric fistulas.
3. Low transphincteric fistulas that involve <30% of the external sphincter.

Surgical anatomy:

Simple fistulas

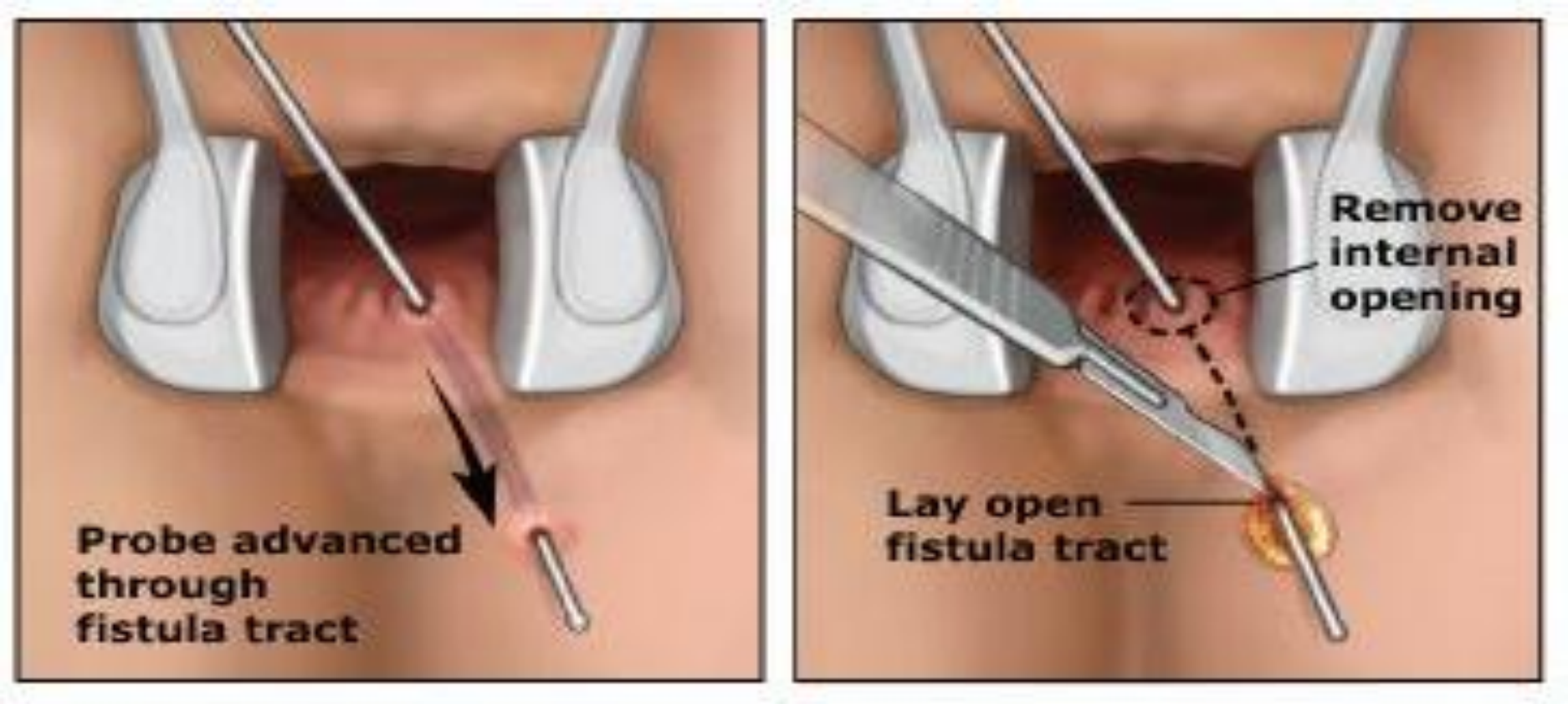


Fistula procedures:



Fistulotomy:

Fistulotomy is surgery to open and drain an abnormal tract connecting two surface epithelium.



Fistulotomy (results)

Author	Year	Number	Healing %	Recurrence %	Incontinence %	Follow up Months
Stelzner	1956	73	100	-	10	60-120
Akvobianz	196					24-48
Riedler	197					-
Saino	198					7-108
Shouler	198					1-50
Sangwan	199					34
Van Tets	199					12
Aguilar	199					29
Belmontes	199					6
Perez	2006	28	100	7	-	24-52
Pescatori	2006	52	-	8.3	8.3	10
Van Koperen	2008	109	-	7	40	7-134
Ortiz	2008	115	-	2	6	42

Healing % is great (75-100)

But

Incontinence % is not (0-45)

Fistulotomy + Marsupialization

2 Randomized controlled trials.

- *Improve healing.*
- *Decrease bleeding.*

BJS

Explore this journal >

Randomized Trial

Marsupialization of fistulotomy wounds improves healing: a randomized controlled trial

Mr Y.-H. Ho , M. Tan, A. F. P. K. Leong, F. Seow-Choen

First published: 1 January 1998 Full publication history

View issue TOC
Volume 85, Issue 1
1 January 1998
Pages 105–107

Colorectal Disease

Explore this journal >

Marsupialization of fistulotomy and fistulectomy wounds improves healing and decreases bleeding: a randomized controlled trial

M. Pescatori, S. M. Ayabaca, D. Cafaro, A. Iannello, S. Magrini

First published: 9 December 2005 Full publication history

View issue TOC
Volume 8, Issue 1
January 2006
Pages 11–14

Fistulotomy:

Excellent healing rates

Bad continence rates

What to do !?!?!?!?!?!?!?!?!

So, what do the guidelines say?

Fistulotomy alone

Deutsche Gesellschaft fur Koloproktologe

Fistulotomy should only be done in superficial fistula, Risk of incontinence increases with the amount of dissected sphincter. (grade B)

ASCRS American Society of Colon and Rectal Surgeons

Simple fistula-in-ano in patients with normal anal sphincter function may be treated with fistulotomy. (grade 1B)

SICCR Società Italiana di Chirurgia Colo-Rettale

Simple anal fistula should be treated by immediate fistulotomy.
Grade of recommendation: 1B

ESCP European Society of COLOPROCTOLOGY

There is an important role for fistulotomy in the treatment of perianal fistula.(1b) Fistulotomy should in general not be used in high perianal fistula

The Association of Coloproctology of Great Britain and Ireland

Division of the external sphincter should always be undertaken with caution, taking account of the sex of the patient, the position of the fistula, previous surgery and associated diseases (grade C).

Fistulotomy + Marsupialization

Deutsche Gesellschaft fur Koloproktologe	Did not mention
ASCRS American Society of Colon and Rectal Surgeons	Marsupialization of the wound edges after fistulotomy has been associated wit less postoperative bleeding and accelerated wound healing. It may also redu the need for postoperative analgesics. (1 A)
SICCR Società Italiana di Chirurgia Colo-Rettale	Marsupialization of the wound edges following fistulotomy is associated with shorter healing time. Grade of recommendation: 1B
ESCP European Society of COLOPROCTOLOGY	Did not mention
The Association of Coloproctology of Great Britain and Ireland	Marsupialization after fistulotomy is associated with a significantly shorter healing time, wound edges of the laid open fistula track should be marsupialized to aid healing (grade 1A).

Fistulotomy score might be helpful ?!

Clinical note

doi:10.1111/j.1463-1318.2009.02106.x

Proposal: a score to select patients for fistulotomy

R. Sjödahl

Department of Surgery, University Hospital, Linköping, Sweden

Received 4 June 2009; accepted 5 June 2009; Accepted Article online 3 November 2009

Score ≤ 5 is safe to perform fistulotomy

Not widely used!!

Type of fistula	Intersphincteric (IS)	0
	Transsphincteric (TS)	2
	Suprasphincteric (SS)	6
	Extrasphincteric (ES)	6
Distance between internal opening and anorectal junction (proximal zone)	>2 cm	0
	1–2 cm	2
	<1 cm	5
Sphincter function	Good	0
	Intermediate	3
	Bad	6
Frequency of defecation	1–2/24 h	0
	1–4/24 h	2
	≥5/24 h	4
Bowel function (urgency)	Good	0
	Intermediate	2
	Bad	4

Score range (0-25)

Cut

My Recommendation

- Fistulotomy is safely done in all superficial fistulas ± Marsupialization.
- In selected cases, Fistulotomy is an option for intersphincteric and low transsphincteric fistulas, but should be done with great caution after careful assessment & informing the patient about the possible risks.

Fibrin sealant:

- A combination of fibrinogen, thrombin, and calcium in a matrix, which is injected into the fistula track.
- It heals the fistula by first inducing clot formation within the track and then encouraging growth of collagen fibres and healthy tissue.
- Proposed as sphincter saving technique.

Fibrin sealant:

- Success rates were very high in the beginning then it started to decrease with longer follow-up
- ion.
- en

related to success or failure. While some surgeons have demonstrated higher success rates when using fibrin glue in long tracts (> 3.5 cm)

The only study analyzed fibrin glue vs conventional fistulotomy in simple fistula.

Author	Year	Number	Success%	Follow up m
Sentovich	2000	20	85	10
Maralcan	2005	36	83	12
Patrlj	2000	69	74	28
Sentovich	2002	48	69	22
Lindsey	2002	42	63	4
Adams	2007	36	61	3
Witte	2007	34	55	7
Parades	2008	30	50	12
Gisbertz	2005	27	33	7
Dietz	2006	39	31	23

Fibrin sealant:

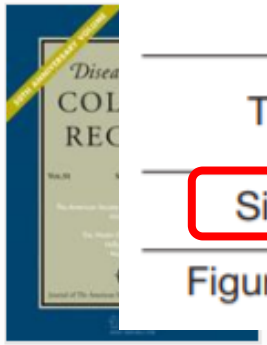


Table 2.
Fistula Healing

Type of Fistula	ventional eatment
Simple	/7 (100)

Figures are numb

Author

Ian Lin

M. M. S
F.R.C.S

CONCLUSIONS

Although an advantage for fibrin glue has not been shown for simple fistulas, a statistically significant advantage for fibrin glue over conventional treatment for complex anal fistulas has been demonstrated. This is likely to be where fibrin glue will find its place in the management of anal fistulas. We suggest fibrin glue as first-line treatment for complex anal fistula in appropriately selected patients.

lue vs fistulotomy

es 3/6 (50%)

ng 7/7 (100%)

ncontinence

Fibrin glue (guidelines)

Deutsche Gesellschaft fur Koloproktologe

The literature search confirmed the great heterogeneity of the studies, especially since good results reported in earlier studies could not be reproduced in the more recent ones. Therefore, we agreed that fibrin glue should only be used in special cases.

ASCRS
American Society of Colon and Rectal Surgeons

Fibrin glue is a relatively ineffective treatment for fistula- in-ano. Grade of Recommendation: Weak recommendation. evidence, 2B.

SICCR
Società Italiana di Chirurgia Colo-Rettale

Simple anal fistula may be treated with novel techniques including fibrin glue, (LIFT), (VAAFT) and (FiLaC). Grade of recommendation: 2C

ESCP | European Society of COLOPROCTOLOGY

There is a place for fibrin glue in the treatment of complex perianal fistulae, although the efficiency remains unclear. It is unclear which patients should receive this treatment. Consensus, highest level of evidence 1b.

The Association of Coloproctology of Great Britain and Ireland

Simple anal fistulas may be treated by track debridement and fibrin glue injection (level III, grade B).

Collagen paste (Permacol™)

- The paste is made of acellular, porcine dermal collagen suspended in saline. When injected, the paste expands to fill the internal shape of the fistula, enabling closure of the channel.

- The fistula is de-epithelised and granulation tissue is removed, before being cleaned with dilute H_2O_2 followed by saline.

- The internal opening of the fistula is closed using resorbable stitches. The external opening is partially closed, to allow any inflammatory fluid to drain out without allowing the Permacol paste to escape.

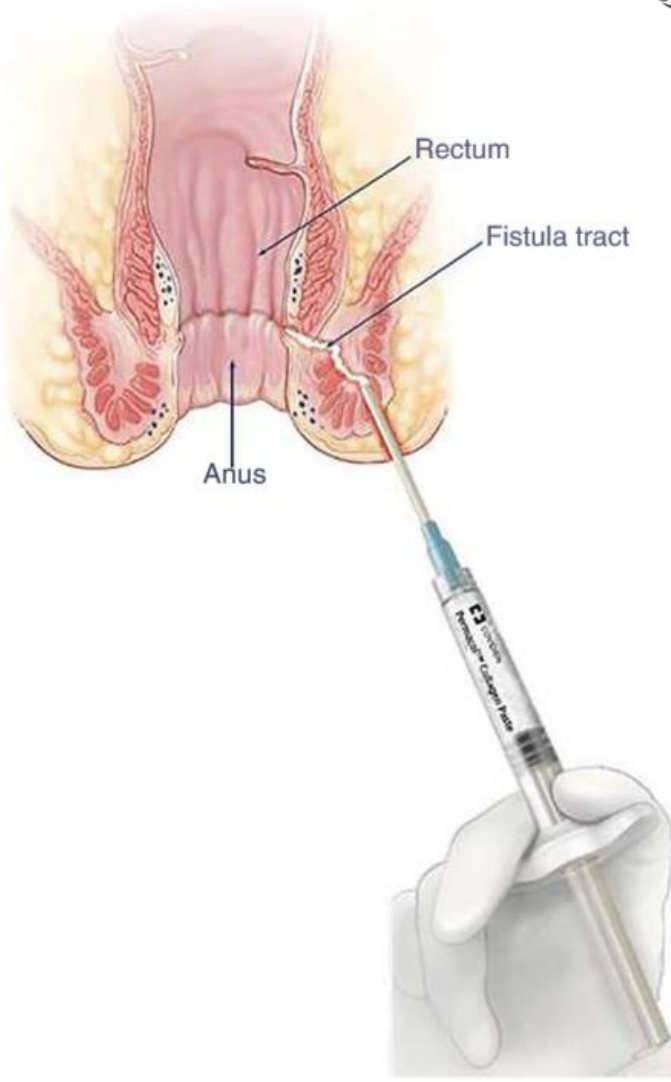


Figure 1 Treatment of an anal fistula with Permacol™ pas

Collagen paste (Permacol™)

- MAS

Table 2 Patient demographics and fistula characteristics.

Parameter	Permacol paste ($N = 30$)
Age	48 (25–78)
Gender	30
Female	
Male	
Body mass index (	
Recurrent fistula	
Yes	
Fistula type per Pa	
Intersphincteric	
Transsphincteric	
Extent of external	
Greater than or eq	
Less than 1/3	
Level of internal o	
Above dentate line	
At dentate line	
Below dentate line	
Length of fistula tr	
Prior treatment of draining/loose seton	
Yes	24 (80%)
Time between placement and removal of seton (days)	173 (28–1437)

Data are expressed as *n*, *n* (%) or median (range).

- Early results of the MASERATI 100 study (10 European centers).
- 30 patients (13 intersphincteric, 17 transsphincteric).
- Overall healing rates at 1 year follow up: 54%.
  - Intersphincteric fistula healing rates: 67%.
- 18/29 (67%) were very satisfied, while 11 were dissatisfied.
- No significant change in fecal incontinence score.

Colorectal Disease

l study of Permacol™
iminary results

L. Lenisa, B. Singh,

odi.13112 | Cited by: 13

ials.gov)

Collagen paste (Permacol™)

Variable	Value
Age	47.5 (20.0–78.0)
Gender	
Female	
Male	
BMI (kg/m²)*	
Diabetes	
Smoking	
Steroids/ immunodepressants	
ASA score	
Recurrent fistula	
Fistula type according to Parks' classification	
Intersphincteric	
Transsphincteric	
Extent of external sphincter involvement	
≥ one-third	
< one-third	47 (64.4)
Level of internal opening	99
Above dentate line	11
At dentate line	66
Below dentate line	22
Length of fistula tract (cm)	2.5 (0.5–6.5)
Prior treatment of fistula	86

- Final results of the MASERATI100 study.
- 100 patients (27 intersphincteric, 73 transsphincteric).
- Overall healing rates at 1 year follow up: 53.5%.
  - Intersphincteric fistula healing rates: 70.4%.
- No significant change in fecal incontinence score.
- By regression analysis, Intersphincteric fistulae were not associated with better healing.

...e,
...njection for
...rlacius-Ussing,

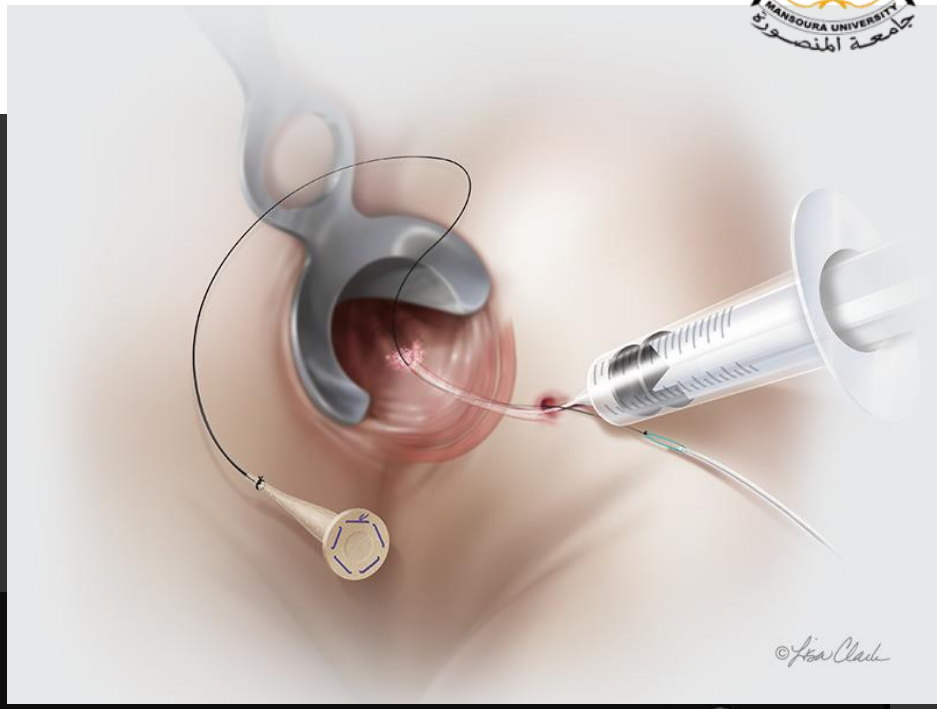
Collagen paste (guidelines)

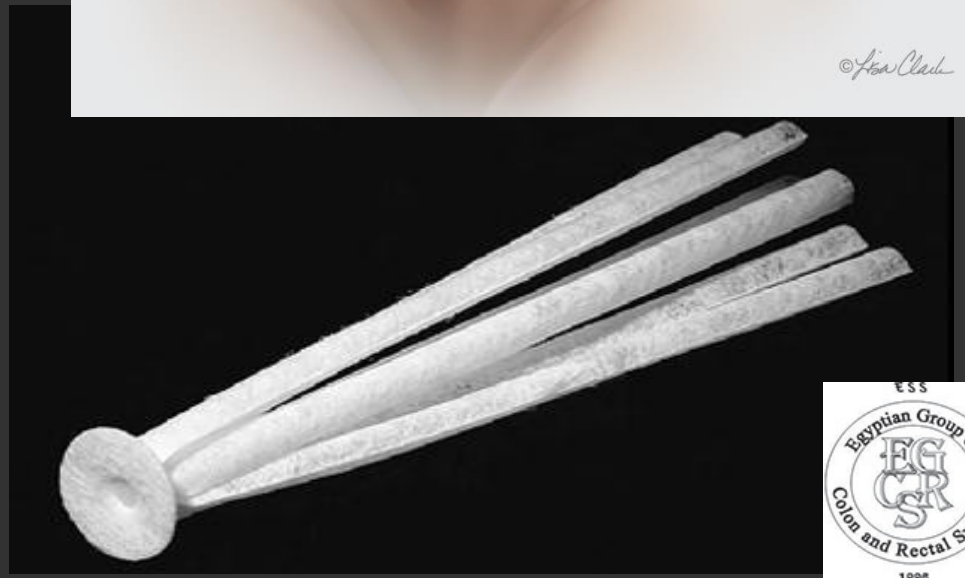
Deutsche Gesellschaft fur Koloproktologe	The current range of trials on the application of collagen paste for anal fistulas **does not** allow definite conclusions. Recommendation grade: C
ASCRS American Society of Colon and Rectal Surgeons	Did not mention
SICCR Società Italiana di Chirurgia Colo-Rettale	Permacol injection **may be** used to treat complex anal fistula. In conclusion, there is **insufficient information** on this treatment. Grade of recommendation: 2B
ESCP European Society of COLOPROCTOLOGY	Did not mention
The Association of Coloproctology of Great Britain and Ireland	Did not mention

Fisutla plugs

- Surgisis© biomedical product made of porcine small-intestinal submucosa.
- Gore Bio-A© is 100% synthetic bioabsorbable material Polyglycolic Acid :

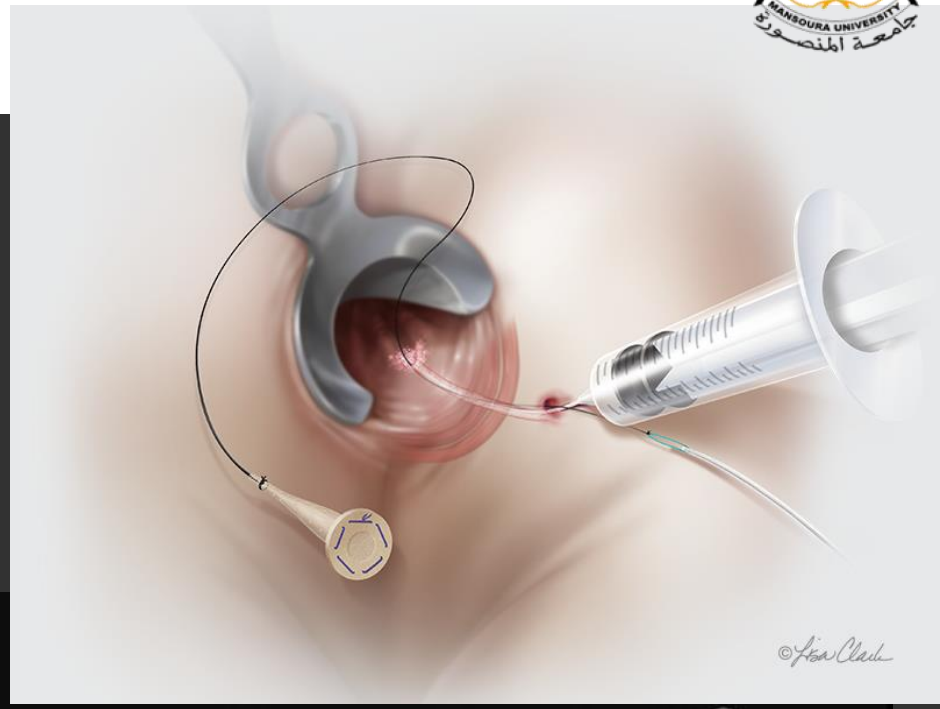
  Trimethylene Carbonate (PGA:TMC).
- The fistula is cleaned with H_2O_2.
- Plug was inserted through the internal opening.
- Excess fistula plug was trimmed from both ends .
- The plug was secured at the internal opening.
- External opening left for drainage.
- Proposed as sphincter saving tech. for complex fistulae.

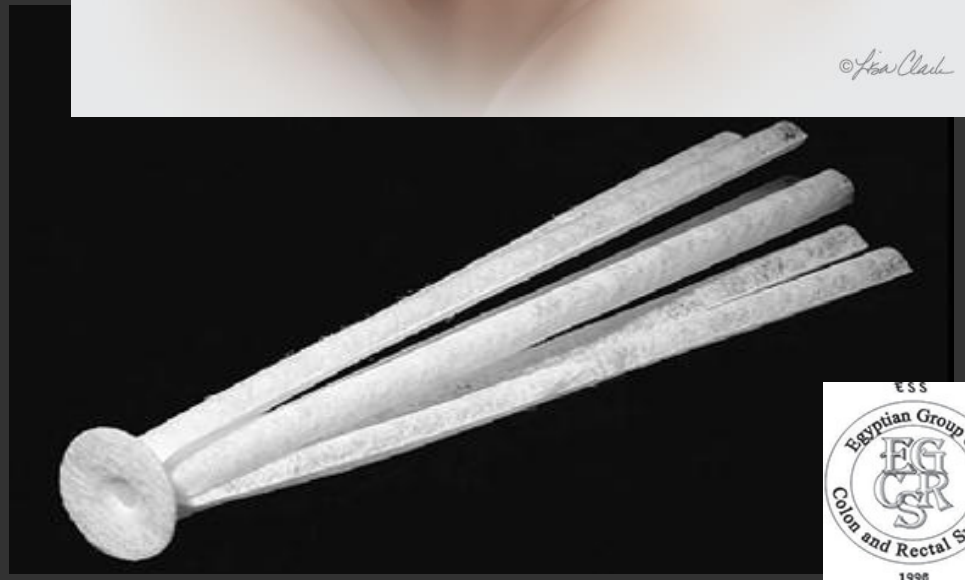




Fisutla plugs

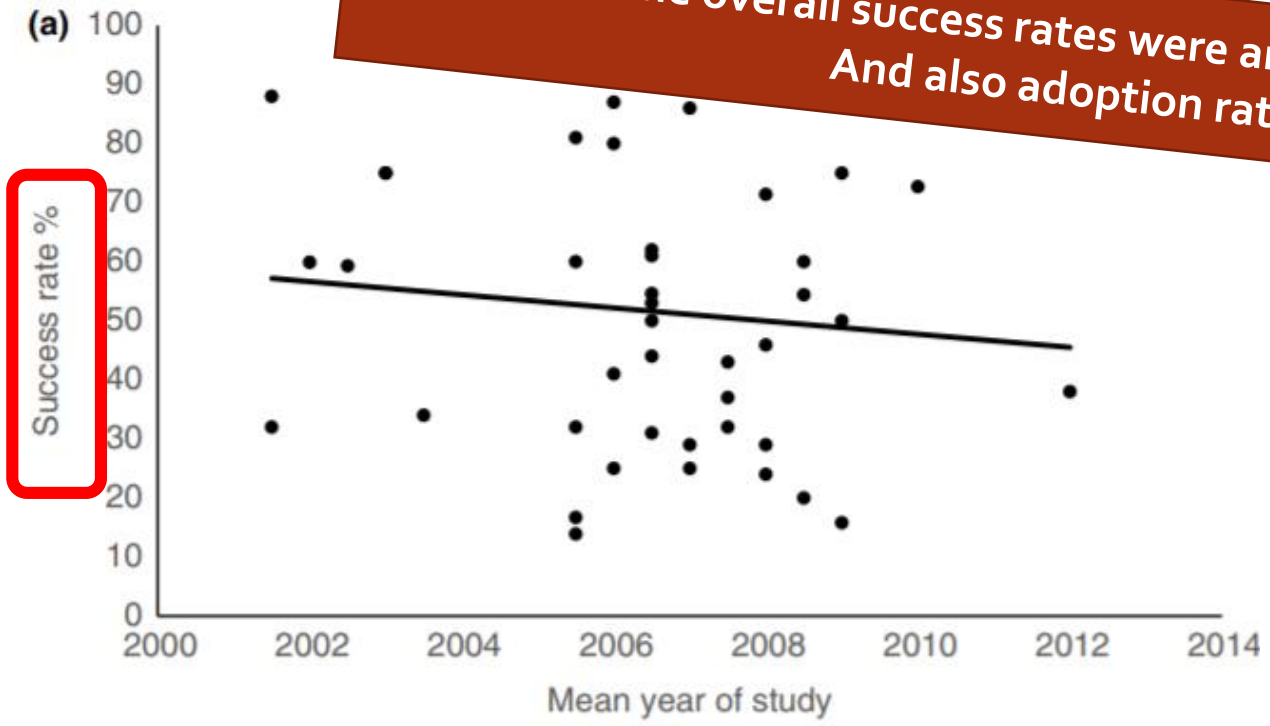
Author	Year	Number	Follow up	Healing %
Robb et al.,	2004	17	12 m	65%
Champagne	2006	46	12 m	83%
Poirier et al,	2006	28	3 m	54%
Ky et al.,	2007	42	3 m	81%
Christoforidis	2007	57	3 m	40%
Cintron et al,	2007	28	3 m	54%
Abbas et al.,	2007	17	7 m	24%
Safar et al.,	2007	39	4 m	14%
Van koperen	2007	27	8 m	41%
Thekkinkattil	2007	38	6 m	39%
Herold et al.,	2008	18	6 m	39%

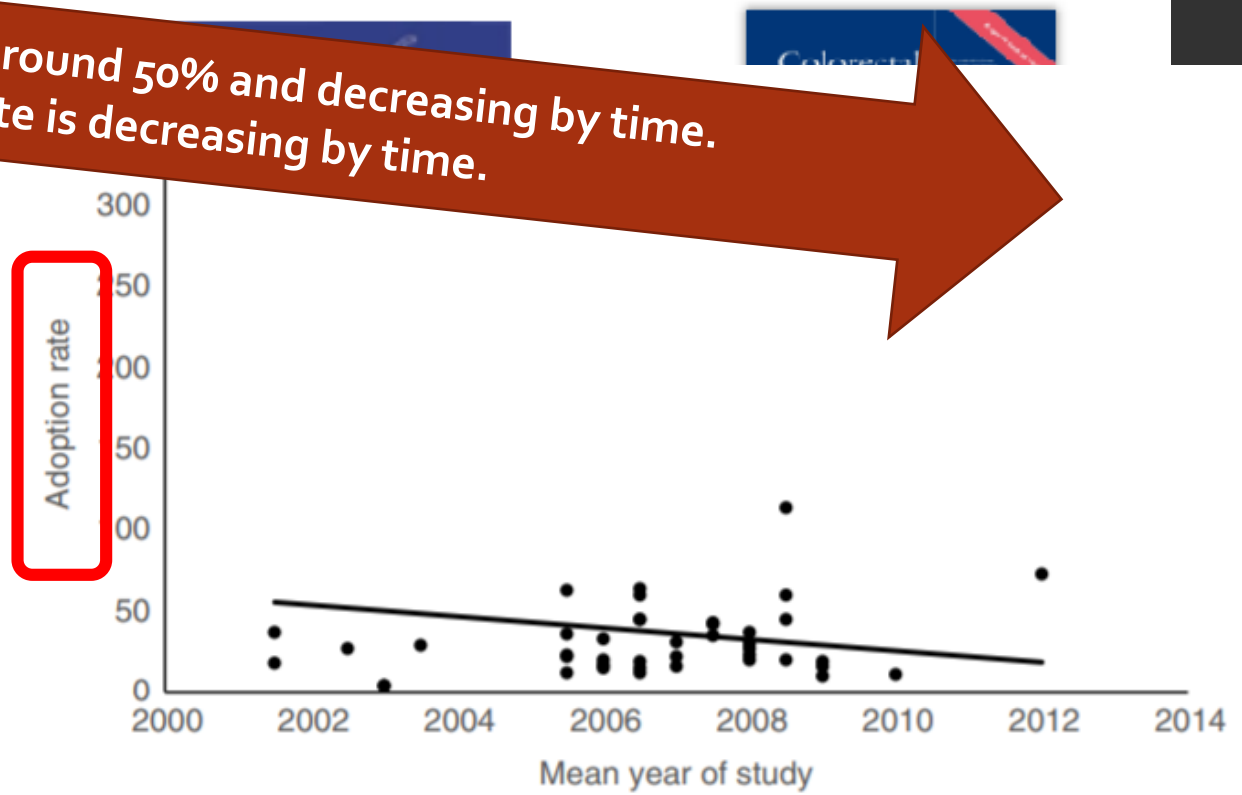




Fisutla plugs

The overall success rates were around 50% and decreasing by time.
And also adoption rate is decreasing by time.





First published: 14 March 2016 | https://doi.org/10.1111/codi.13330 | Cited by: 7

Fistula plug (guidelines)

Deutsche Gesellschaft fur Koloproktologe	Plugging has added a new option for the treatment of high anal fistula, but the healing rates are quite low. Nevertheless, it seems to be a secure and simple method resulting in low complication rates and minor disturbance of continence. Recommendation grade: B
ASCRS American Society of Colon and Rectal Surgeons	The fistula plug is a relatively ineffective treatment for fistula-in-ano. Grade of Recommendation: Weak recommendation. Evidence, 2B.
SICCR Società Italiana di Chirurgia Colo-Rettale	Simple anal fistula may be treated with novel techniques including …,…,…,…and the anal fistula plug. Grade of recommendation: 2C
ESCP European Society of COLOPROCTOLOGY	Fistula plugs are a valid option for treating perianal fistula. Evidence 1b
The Association of Coloproctology of Great Britain and Ireland	Did not mention

Fill

My

Secure | https://www.goremedical.com/products/bioafistulaplug

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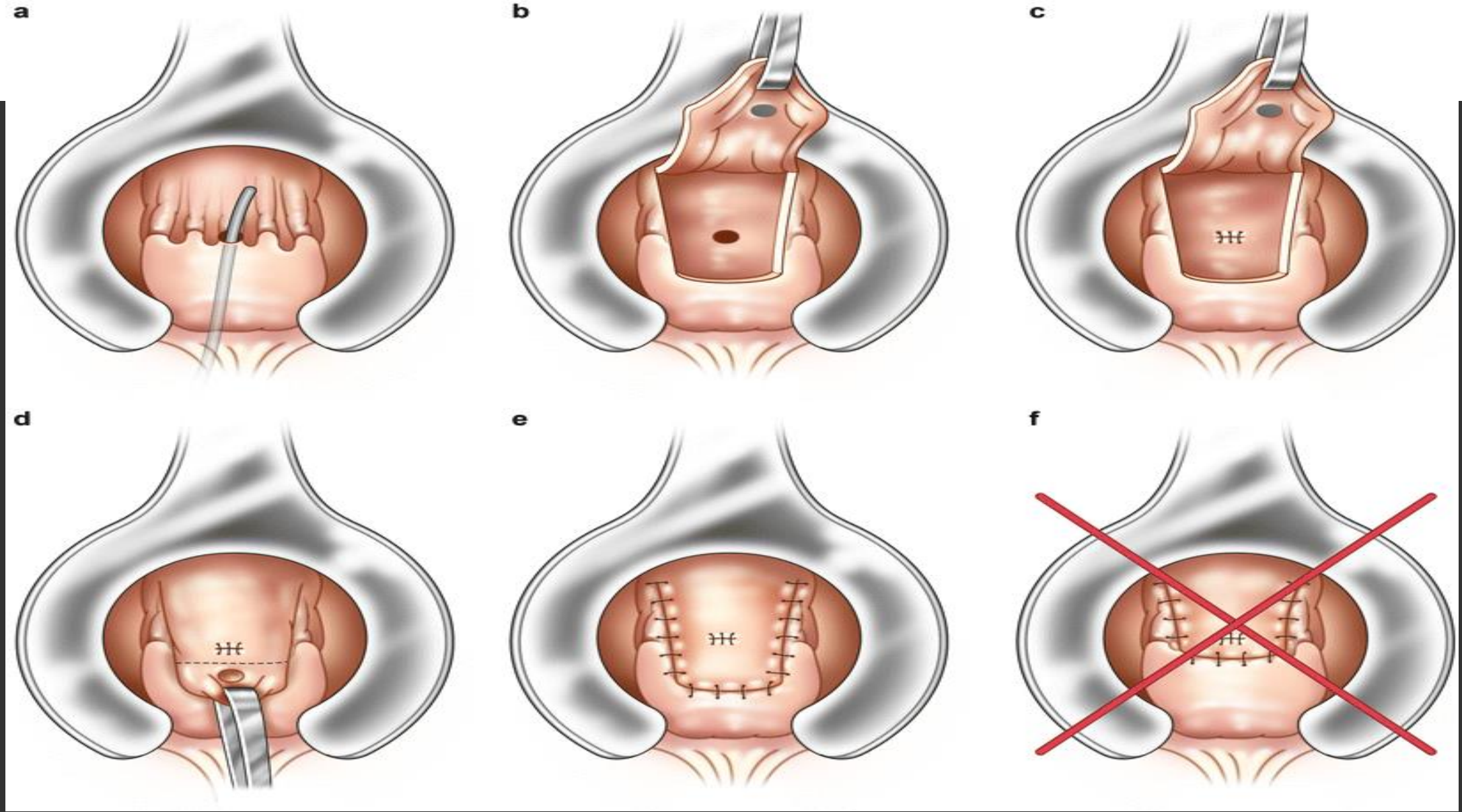
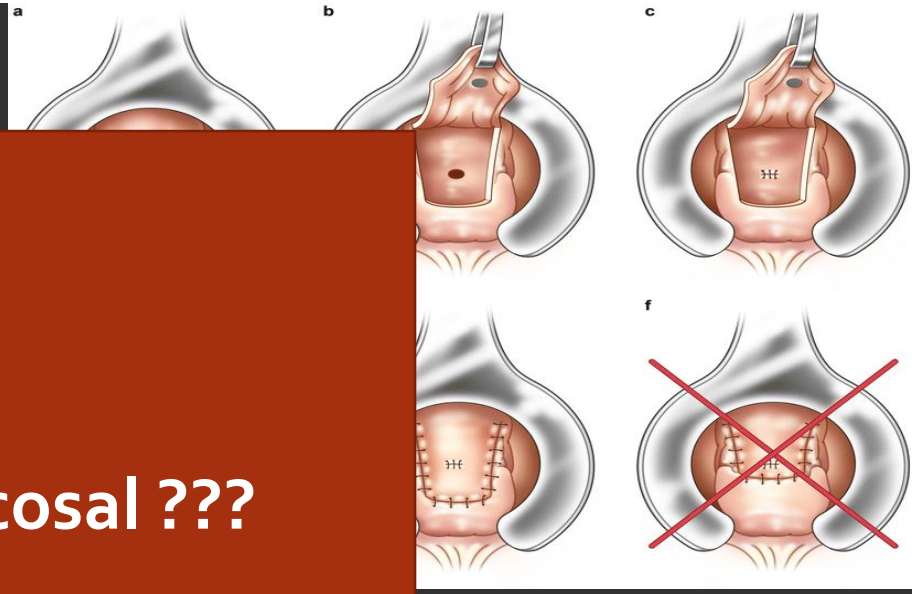
Advancement flap



Advancement flap
(Technical considerations)



- Proposed as sphincter saving technique for complex fistulae.

The general key compon

- Create a flap that is suffi
- The base of the flap prox
- The flap is raised by a cu
- It is better not extend th

  avoid stricture formatior
- Care should be taken not to raise a flap that is too thin.
- Flap should be sutured distal to the internal opening.

But,

Full thickness, partial or mucosal ???

Core out or curette the track ???

Advancement flap

- 26 studies including 1655 patients.
- Overall recurrence rate: 21%
  - Full thickness: 7.4% (best)
  - Partial thickness: 19%
  - Mucosal: 30.1%
  - Coring-out & curettage had similar recurrence rates (19 vs 21%)
- Overall incontinence rate: 13.3%
  - Full thickness: 20.4% (worst)
  - Partial thickness: 10.2%
  - Mucosal: 9.3%
  - Coring-out & curettage had similar incontinence rates (14.3 vs 12%)

Advancement flap

Table 5 Flap repair for anal fistulae (n = 3).

Study, Year	Participants	n	Interventions	Outcome	Follow-up	Notes
Ho KS, 2005 [23]	High transsphincteric fistulae confirmed on preoperative ultrasound	20		Quality of Life score (mean): 123 *vs* 124 (ns)		Conventional therapy arm: 8/10 had fistulotomy and
Perez, 2006 [6]	Complex fistulae	60				
Gustafsson, 2006 [7]	Intersphincteric or higher anal fistulae	83				

n, study sample size.

Vs Fitulotomy--> No significant diff. in healing, incontinence, Recurrence, QOL.

- The only study to separately report results of advancement flap in simple fistulae.
- 64 patients with simple fistula.
- Healing rates 37/64 (57%).
- No significant diff. in healing rates between complex and simple fistulae.
- Application of local antibiotic gentamicin–collagen doesnot make any difference In terms of healing and recurrence.

Flap (guidelines)

Deutsche Gesellschaft fur Koloproktologe

ASCRS American Society of Colon and Rectal Surgeons

SICCR Società Italiana di Chirurgia Colo-Rettale

ESCP European Society of COLOPROCTOLOGY

The Association of Coloproctology of Great Britain and Ireland

All the guidelines reported the flap procedure as a sphincter saving technique for treatment of complex anal fistulae, as almost all the studies were on complex fistulae patients as we have seen.

Flap

My Recommendation

- Flap procedure is a valid sphincter saving option in complex fistulae patients.
- In simple fistula, It can be used to treat an anal fistula where simple fistulotomy is thought likely to result in impaired continence or when the patient is refusing to accept the risk.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