Anal stenosis: different surgical procedures

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No disclosure

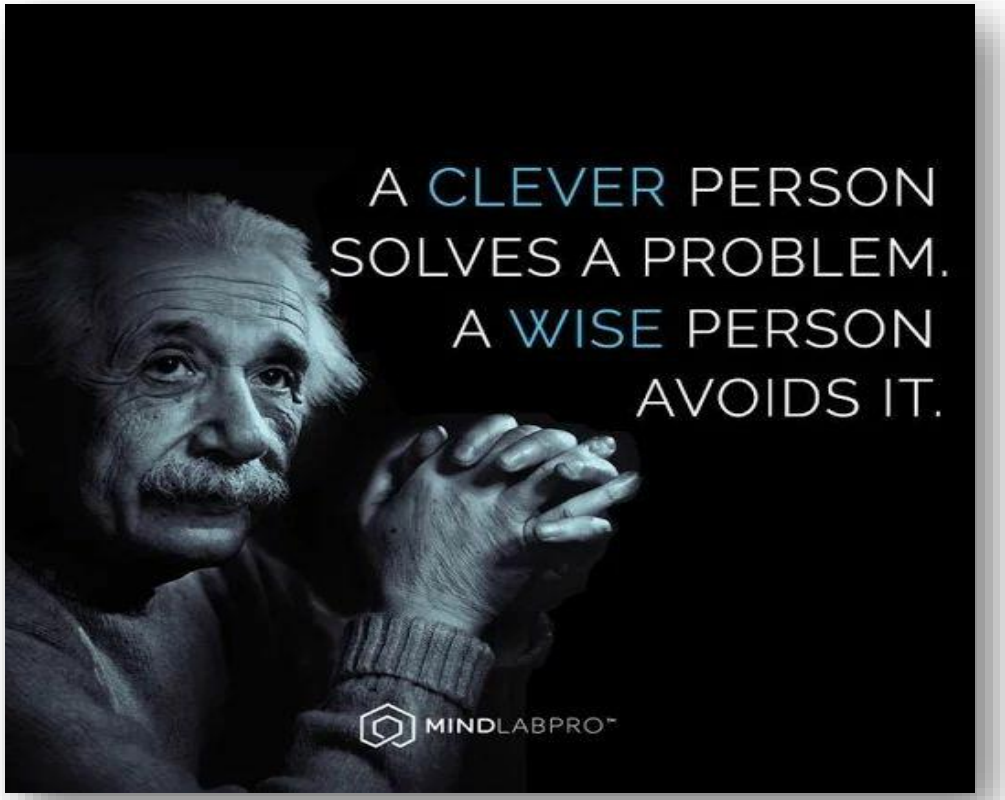
Background

- After aggressive hemorrhoidectomy (90%)
- Anatomical deformity affecting the diameter & elasticity.
- Severe pain during defecation.
- Change in the form of feces.
- Excessive use of laxative and/or enema

Kamabu K. et al., 2023

Classification based on the severity
Mild: Tight anal canal can be examined by a well-lubricated index finger or a medium Hill-Ferguson retractor.
Moderate: Forceful dilatation is required to insert either the index finger or a medium Hill-Ferguson retractor.
Severe: Neither the little finger nor the small Hill-Ferguson retractor can be inserted unless a forceful dilatation is employed.
Classification based on the level of stenosis
Low: Distal anal canal at least 0.5 cm below the dentate line
Middle: 0.5 cm proximal to 0.5 cm distal to the dentate line
High: Proximal to 0.5 cm above the dentate line

Milsom, J.W. and Mazier, 1986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PREVENTION
IS BETTER
THAN
CURE

- **L.I.S may be sufficient for mild cases.**
- **Flap surgery indicated for moderate to severe stenosis.**
- **The flap may include rectal mucosa, anoderm, peri anal or gluteal skin.**

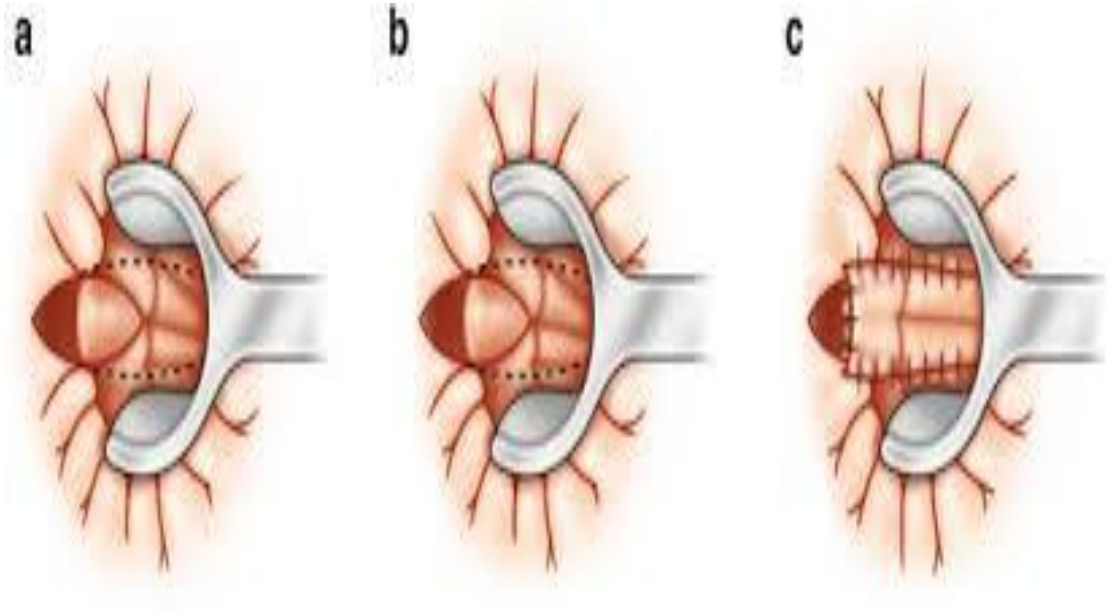
- *Jenetzky E et al., 2012*

- **Advancement flaps**
- **Island (adjacent tissue transfer) flaps**
- **Rotational flaps**

Sezai Leventoglu et al., 2022

Mucosal advancement flap:

for proximal and mid anal canal stenosis



Good functional outcomes

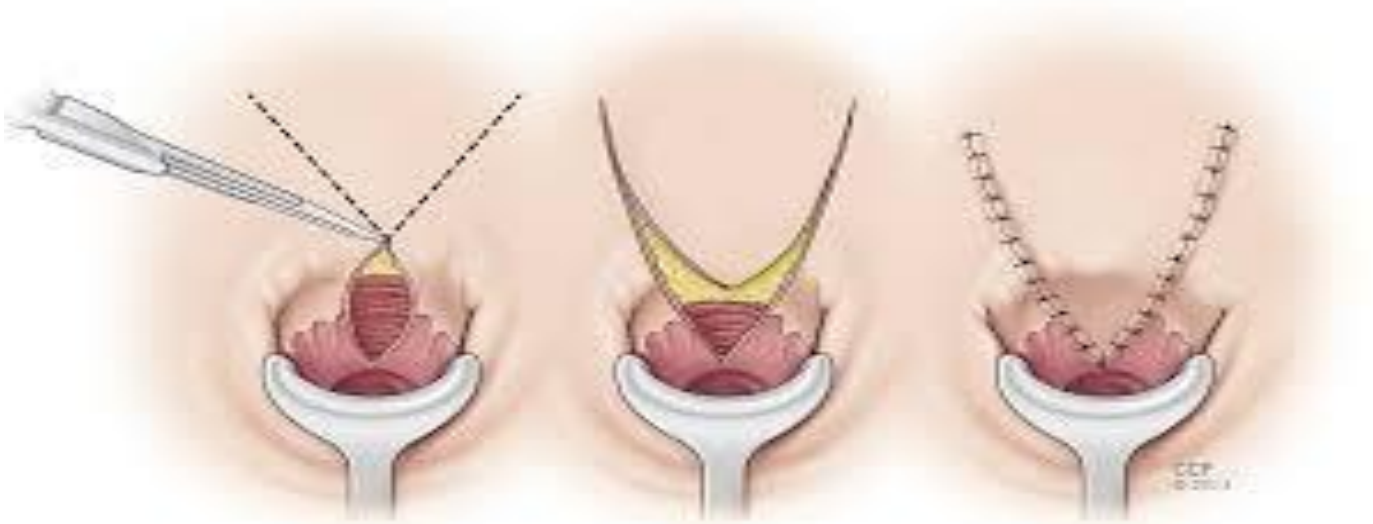
Healing rate (94%)

With a complication rate (3%)

Damian Casadesus et al., 2007

Y-V Advancement Flap:

- For lower stricture below the dentate line
- Healing rate (90%)



Filingeri V et al., 2006

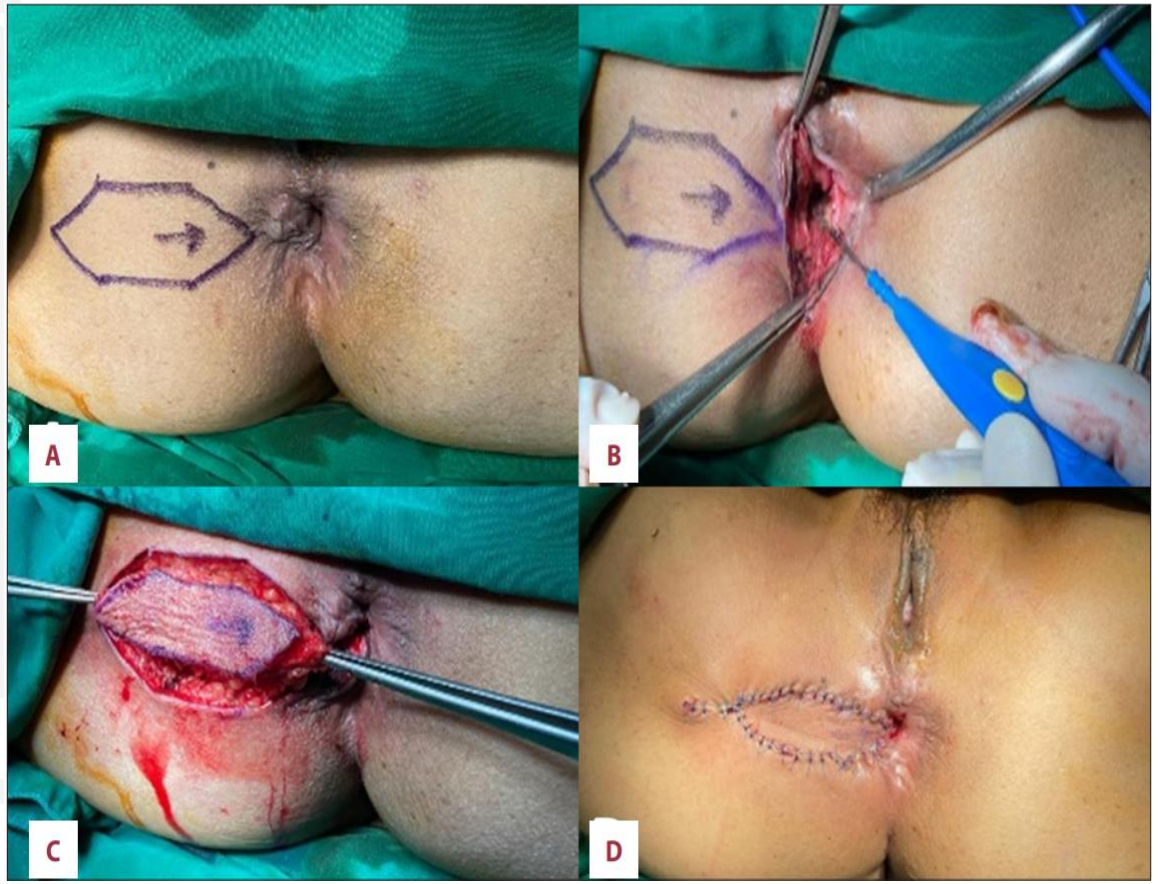
V-Y Advancement Flap:

- The alternative of Y-V flap
- Can be done bilaterally
- Healing rate (69%-94%)

Alver O et al., 2008

Diamond (Rhomboid) Flap:

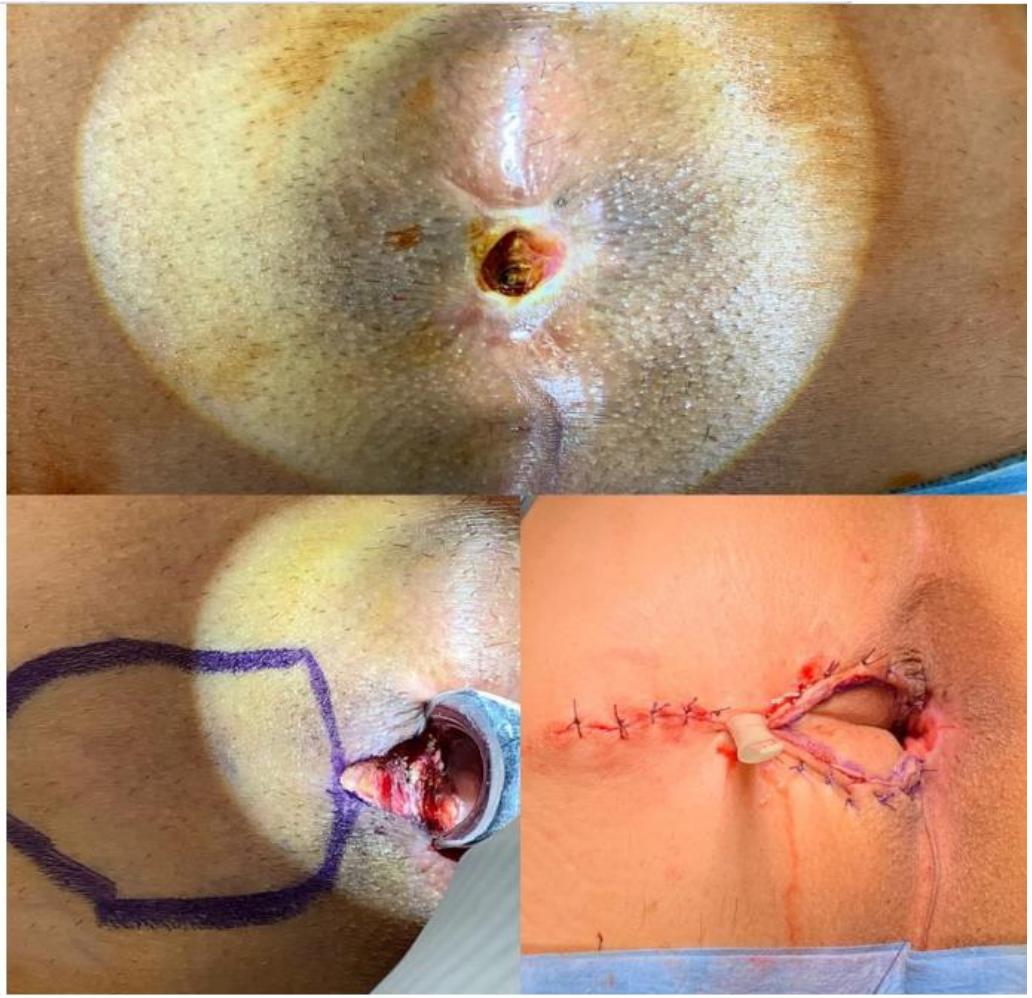
- First described by Caplin & Kodner (1986)
- Moderate and severe AS.
- healing rate (100%)



Naresh K. Chovatia et al., 2024

House Flap:

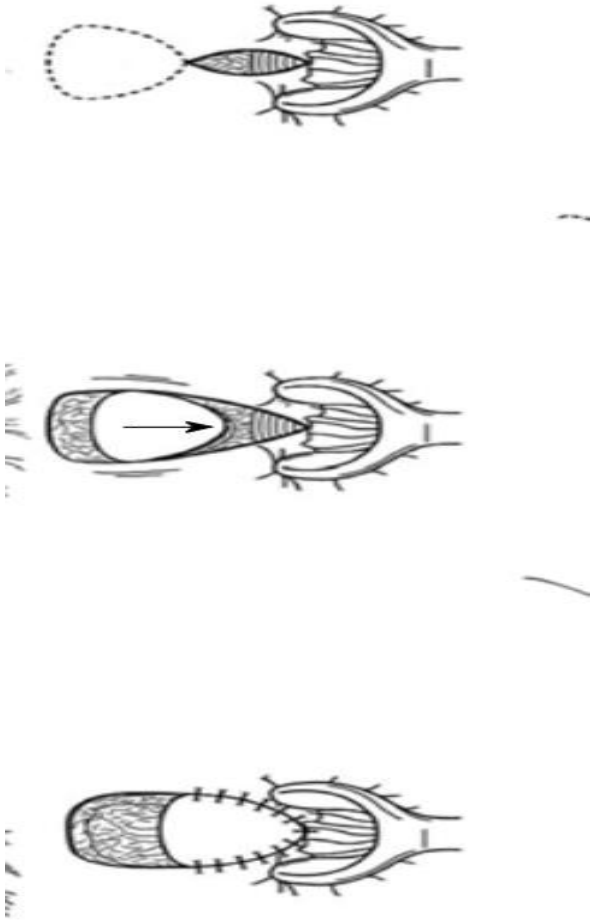
- Stenosis from the dentate line to peri anal skin.
- Wider flap.
- Healing rate (89%-100%).



Kinyamaniyi K. et al., 2023

U Flap (Island Flap Anoplasty):

- AS with mucosal ectropion
- The donor site is left open
- Healing rate (91%)

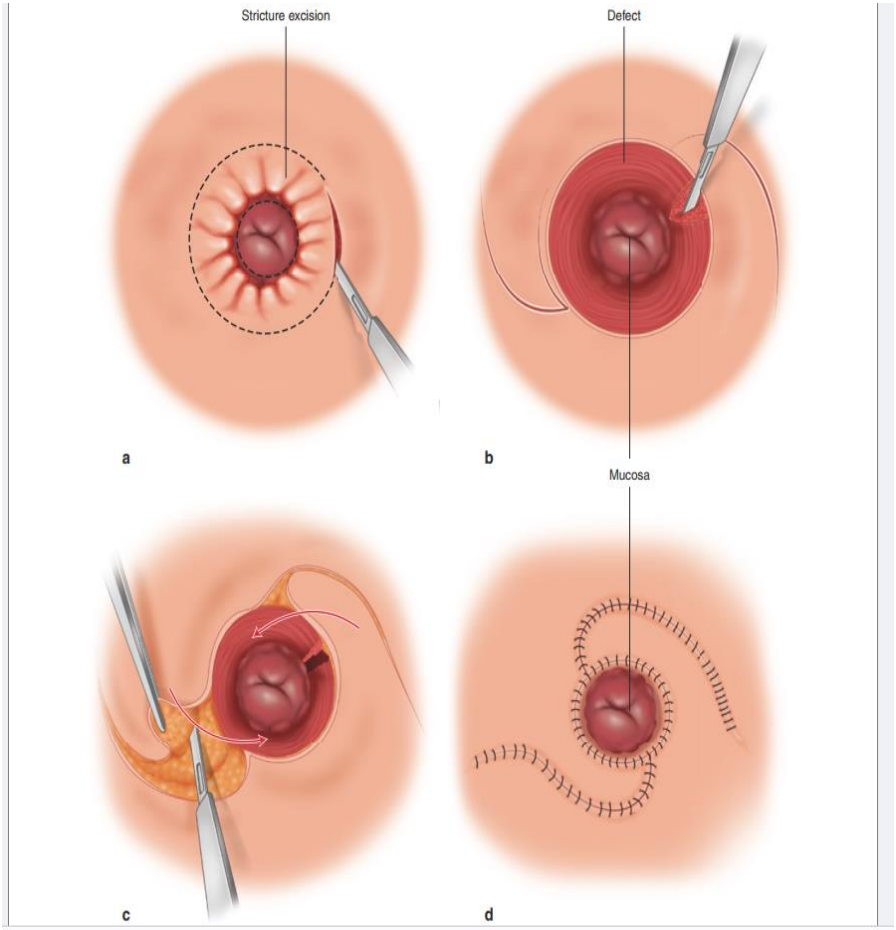


Brisinda, G et al., 2009

Rotational S Flap:

- To cover a large defect after circumferential excision of a stenotic scar.
- Described for repair of peri anal Paget's disease
- Healing rate (94%)

Handaya Y et al., 2019



Surgical Technique	Indications	Advantages	Disadvantages
Mucosal advancement flap	Middle or high mild anal stenosis		The risk of ectropion unless the wound is left open
House flap	Moderate to severe anal stenosis	Provides adequate extension in the anal canal diameter	
Diamond flap	Moderate to severe anal stenosis	Covers the defect in the anal canal while sparing the sphincter complex	
Y-V flap/V-Y flap	Mild to moderate anal stenosis		Flap's tip prone to ischemia and lacks sufficient extension of the anal canal diameter
Rhomboid flap/Modified rhomboid flap	Moderate to severe anal stenosis	Enables a tailored anoplasty in different sizes	
U-flap	Excising the mucosal ectropion		Leaving the wound open results in delay of recovery
Rotational S-plasty	Moderate to severe anal stenosis	Provides a large tissue rotation without compromising vascular supply	

Sezai Leventoglu et al., 2022

Functional outcomes:

Authors	Study Method	Total N of Included Patients	Indications for Anoplasty (N of Patients)	Surgical Techniques	Functional Outcomes	Surgical Outcomes (N of Patients)	Mean Follow-Up (Months)
Rakhmanine et al. [20]	Retrospective	95	Hemorrhoidectomy (35) Chronic anal fissure (10) Perianal fistula (4) Anal carcinoma (1) Various (10)	Mucosal advancement flap	Reported as good in 74 patients and as poor in 8 patients	Abscess (1) Seepage of liquid stool (2)	50
Alver et al. [21]	Retrospective	28	Chronic anal fissure (14) Anal stenosis (8) Rectovaginal fistula (1) Perianal fistula (3) Anal carcinoma (1) Obstetric injury (1)	House flap	Reported as good in 8 patients with anal stenosis	Wound dehiscence (3) Recurrence of rectovaginal fistula (1)	26
Sentovich et al. [22]	Retrospective	29	Anal stenosis (21) Ectropion (4) Bowen's disease (2) Key-hole deformity (2) Perianal fistula (1)	House flap	Reported as good in 26 patients and as poor in 3 patients	Donor-site separation (14) Urinary retention (8) Sepsis (4)	28
Farid et al. [23]	Prospective-randomized	60	Anal stenosis (60)	Rhomboid flap/Y-V flap/House flap	Better anal caliber increase and improvement in GI-QLI score with house-flap		12
Gulen et al. [25]	Retrospective	18	Anal stenosis (18)	Diamond flap	Significant increase in anal caliber and improvement in ODS score	Wound dehiscence (4)	35
Maria et al. [27]	Comparative	42	Anal stenosis (42)	Diamond flap/Y-V flap	Reported as good in 89% of patients with Y-V flap, and 100% with diamond flap	Wound dehiscence (1) Ischemia in tip of the flap (1)	24
Sloane et al. [28]	Retrospective	9	Anal stenosis (9)	Rhomboid flap	Reported as significant improvements in 9 patients	Single quadrant stenosis (1)	12
Gallo et al. [29]	Retrospective	50	Anal stenosis (50)	Modified rhomboid flap	Significant increase in anal caliber and improvement in ODS and CCI score	Ischemia of donor site (1) Wound dehiscence (2)	97
Pearl et al. [30]	Retrospective	25	Anal stenosis (20) Ectropion (5)	Island flap (U-shaped and Diamond-shaped)	Reported as excellent in 64% of patients and good in 25% of patients	-	19
Gonzalez et al. [33]	Comparative	17	Anal stenosis (13) Perianal fistula (2) Key-hole deformity (1) Chronic anal fissure (1)	Rotational S-plasty/Advancement flap	Reported as good in 16 patients	Sepsis (1)	18

Abbreviations: N, number; GI-QLI, gastrointestinal quality of life inventory; ODS, obstructed defecation syndrome; CCI, Cleveland Clinic Incontinence.

Sezai Leventoglu et al., 2022

Post operative care and complications:

- Patients discharged on post op. day 1.
- Patients are instructed not to sit directly on the repair site.
- Prophylactic antibiotics.
- The reported complications are urinary retention, wound dehiscence, wound infection, flap ischemia, incontinence and bleeding.

Alver, O et al., 2008

How to choose the right procedure?

- Based on the surgeon familiarity and the anal anatomy.
- Extension and severity of AS
- Y-V anoplasty is not used for stricture above the dentate line.
- V-Y anoplasty is used in severe low AS with good results.
- U flap anoplasty is used for AS associated with mucosal ectropion.
- If < 50% involved ⟹ advancement flap is sufficient.
- If ≥ 50% involved ⟹ a rotational flap is considered

Brisinda, G et al., 2009

Conclusion

- **Prevention** of AS is better than cure.
- A well performed hemorrhoidectomy should minimize the risk of AS.
- **The anatomy** of the anorectum and perineum is very complex, and knowledge of this area is essential.
- The **preparation** of flaps is important for treatment success.
- No one procedure fits all solution.
- Regarding functional outcomes, we need more **high-quality studies** objectively evaluating patients' QOL using standardized scoring systems and questionnaires

Thank you