Perineal stapled proctectomy : minimize the cost

By

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Definition

Rectal prolapse or rectal procidentia is the protrusion of the entire thickness of the rectal wall through the anal canal, It was one of the earliest surgical problems recognized by the medical profession

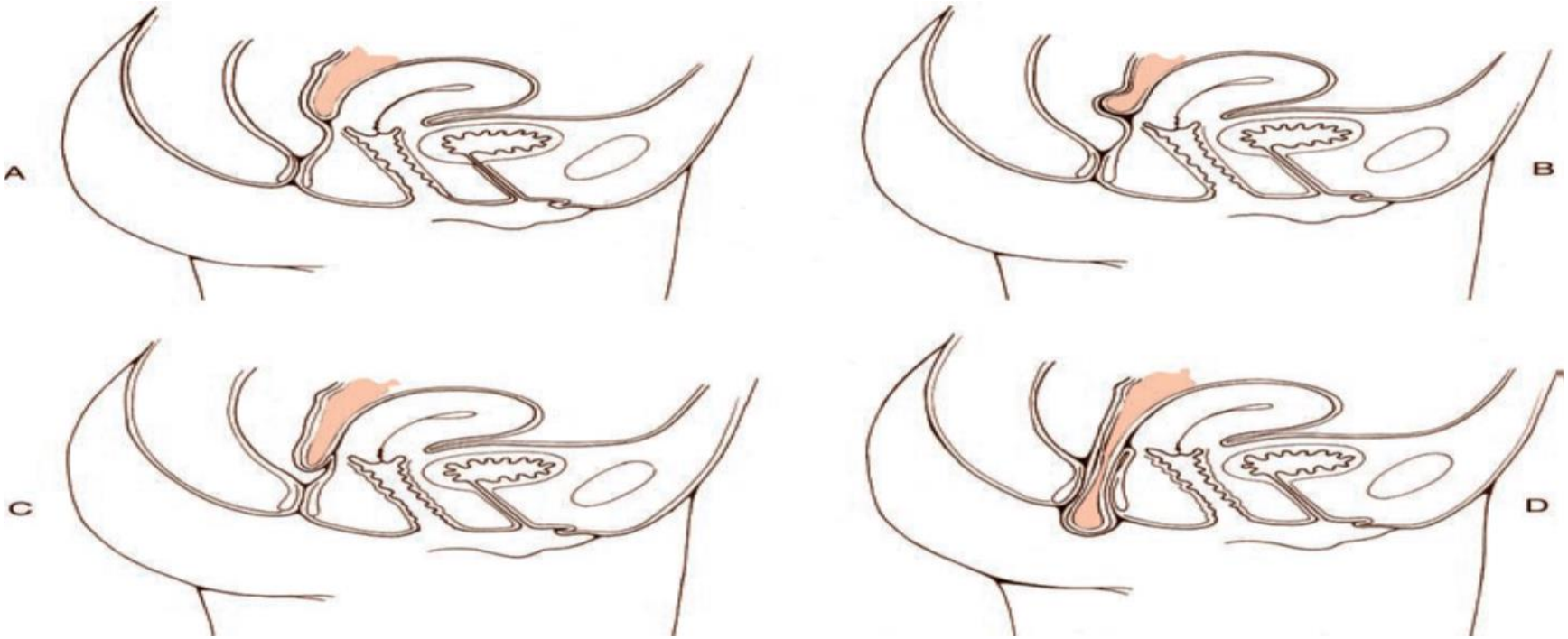
(Moschcowitz AV. The pathogenesis, anatomy and cure of prolapse of the rectum. Surg Gynecol Obstet 1912)

Etiology and pathophysiology

There are two theories concerning the etiology of rectal procidentia, but these two processes are the same.

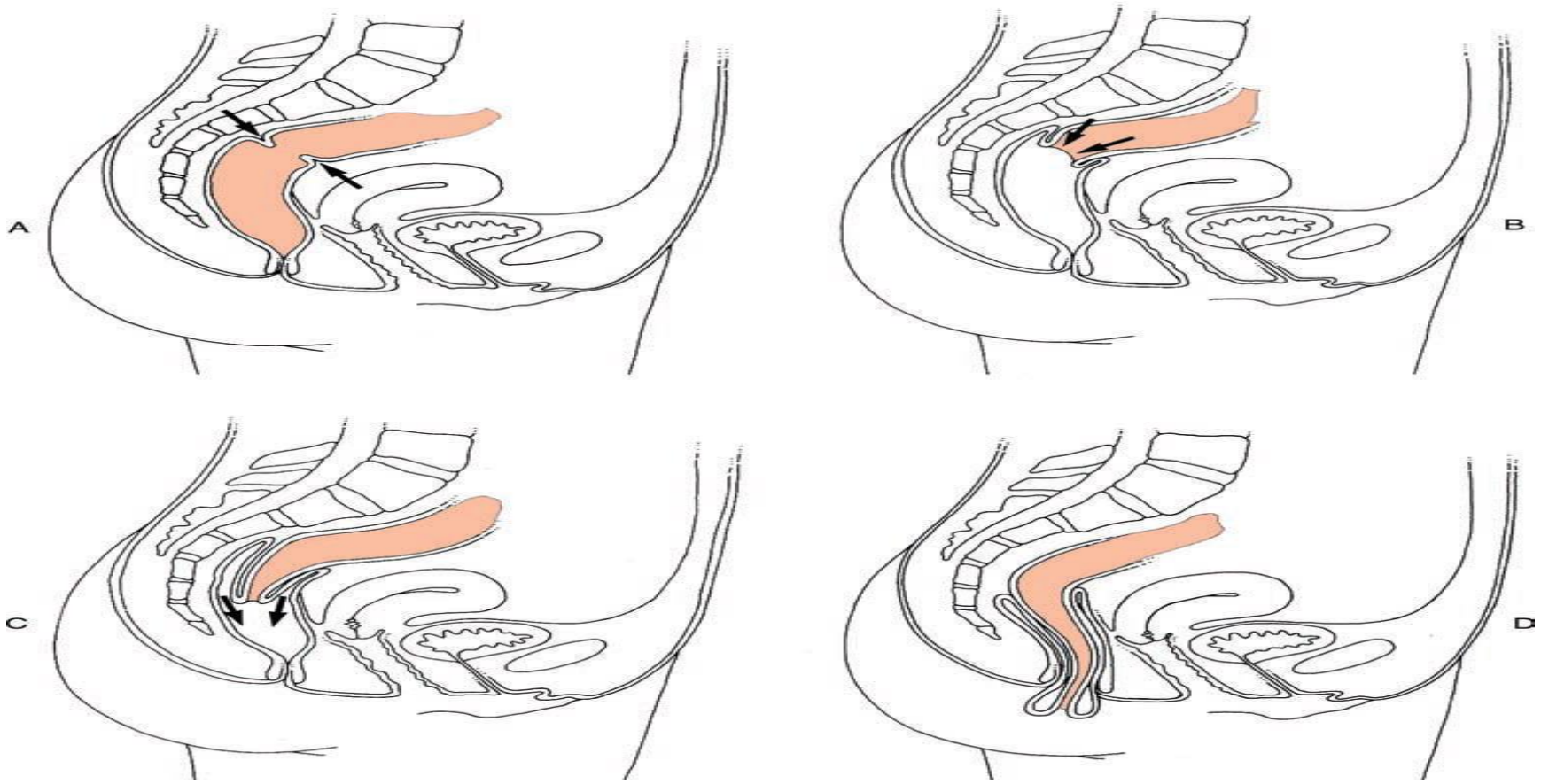
(Broden B, Snellman B. Procidentia of the rectum studied with cineradiography: a contribution to the discussion of causative mechanism. Dis Colon Rectum 1968)

Sliding hernia theory



(Philip H. Gordon and Santhat Nivatvongs. Principles and Practice of Surgery for the Colon, Rectum, and Anus, Third Edition 2007, p 415-450.)

Intussusception theory



(Philip H. Gordon and Santhat Nivatvongs. Principles and Practice of Surgery for the Colon, Rectum, and Anus, Third Edition 2007, p 415-450.)

Clinical features

- Rectal prolapse initially occurs with defecation and straining
- Tenesmus, bleeding and mucus discharge
- Chronic constipation and straining
- Incontinence (mucus leakage to complete fecal incontinence)

(Victor W. Fazio, James M. Church, Conor P. Delaney and Ravi P. Kiran, Current therapy in colon and rectal surgery, third edition, 2017, p 107.)

physical examination

- The anus may be patulous and everted bowel with concentric folds
- If the prolapse is not obvious?.....
- The prolapse may be incarcerated

(Victor W. Fazio, James M. Church, Conor P. Delaney and Ravi P. Kiran, Current therapy in colon and rectal surgery, third edition, 2017, p 107.)

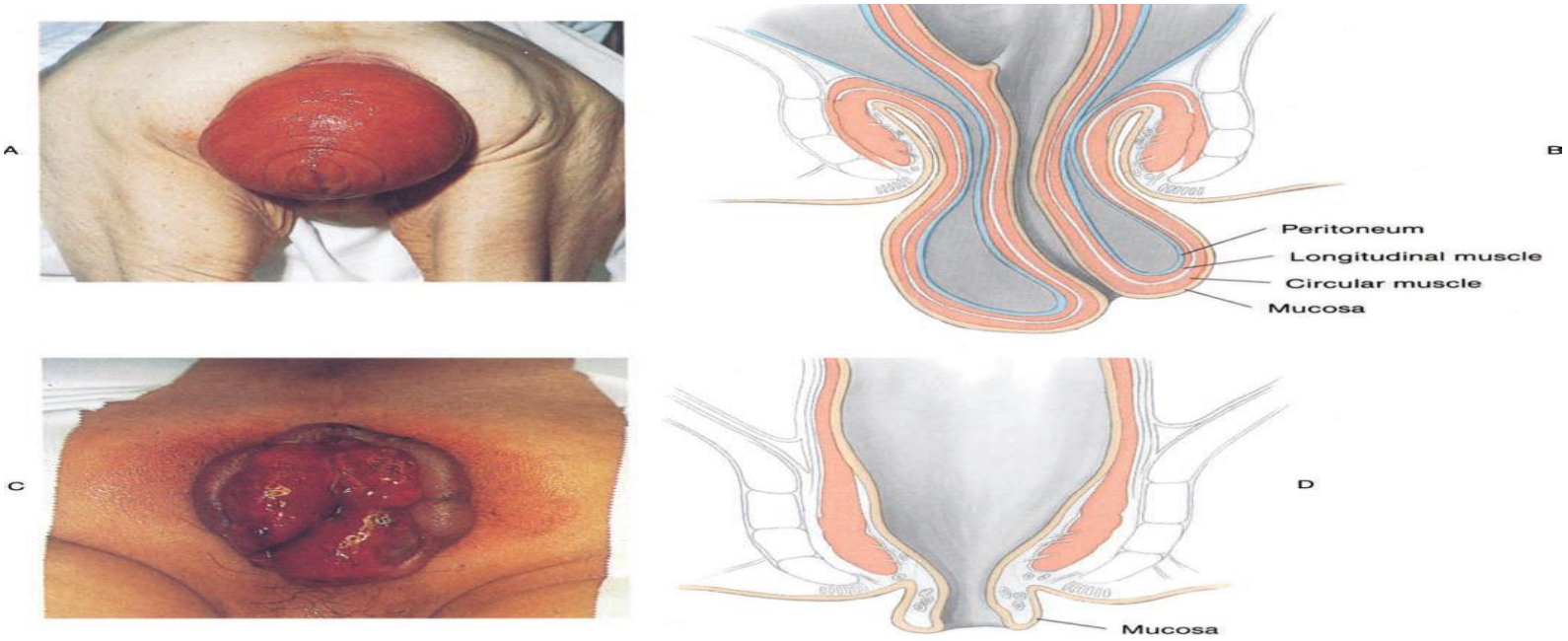
Investigations

- Anorectal physiological testing.
- Defecography.
- Pudendal nerve terminal motor latency.
- Colonic transit time.
- Dynamic endorectal Ultrasound……
- MRI defecography

(Victor W. Fazio, James M. Church, Conor P. Delaney and Ravi P. Kiran, Current therapy in colon and rectal surgery, third edition, 2017, p 107.)

Differential diagnosis

- Hemorrhoids, prolapsing polyps and anorectal neoplasia.



(Philip H. Gordon and Santhat Nivatvongs. Principles and Practice of Surgery for the Colon, Rectum, and Anus, Third Edition 2007, p 415-450)

Preoperative considerations

- *Rectal prolapse aggravates surgeons because of the proliferation of operative techniques that can be used for treatment.*
- *To choose the operative procedure for prolapse of the rectum, a surgeon must consider the mortality and morbidity rates*

(Goldberg SM, Gordon PH. Operative treatment of complete prolapse of the rectum. Najarian JS, Delaney JP, eds. Surgery of the Gastrointestinal Tract. New York: Intercontinental Medical Book, 1974:423–439)

Surgical treatment

What are the goals of the surgical treatment of rectal prolapse?

Surgical treatment

- Prolapse repair may be:
    1. perineal
    2. abdominal
- The abdominal approach may be :
    1. open
    2. laparoscopic
    3. SILS
    4. Robotic

Established techniques

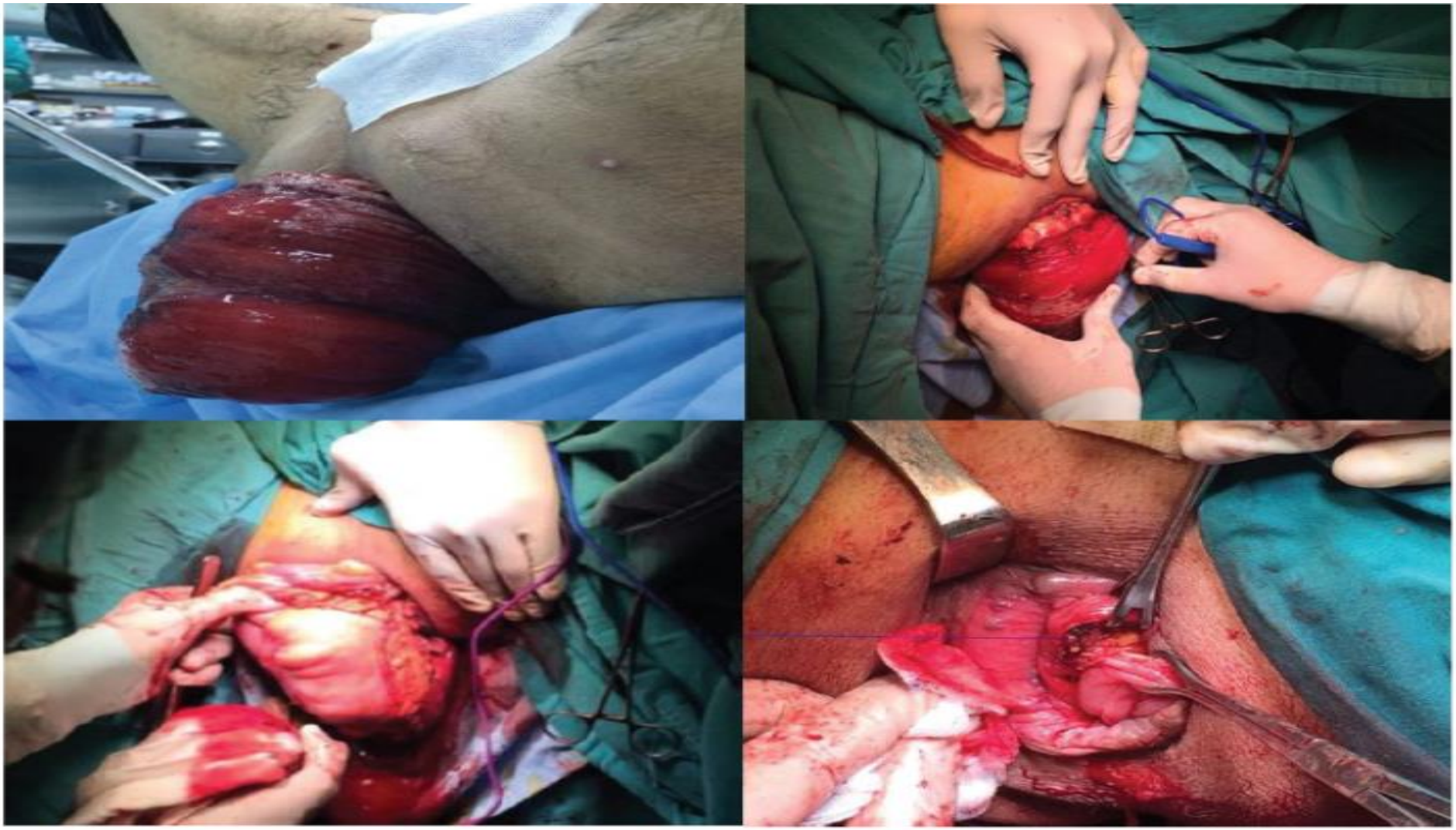
1. ***Anal encirclement (Thiersch procedure)***

   high failure rate.

2. Altemeier procedure

- perineal rectosigmoidectomy
- unfit patient
- incarcerated or strangulated

Altemeier procedure (kasr Alainy case)

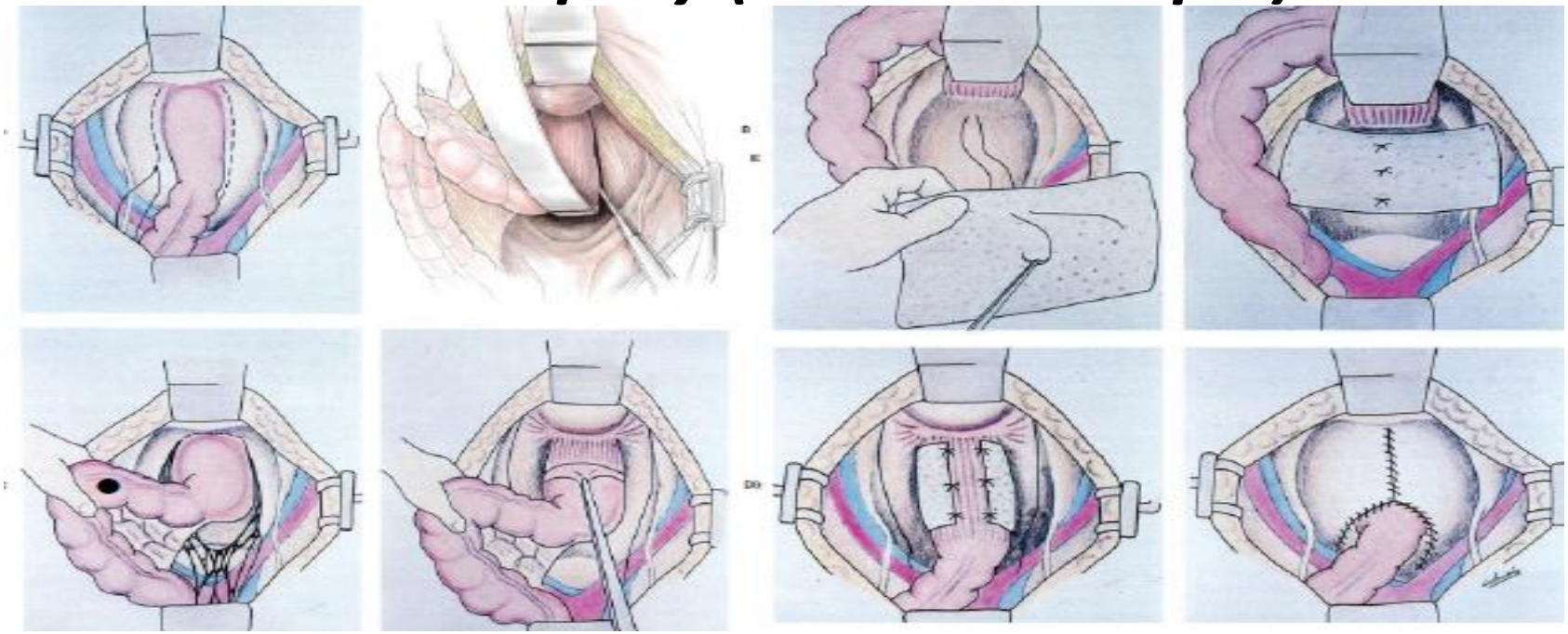


Established techniques

3. Delorme operation

Rectal mucosa striping + rectal muscle plication

4. Posterior rectopexy (Wells technique)



Established techniques

5. Ripstein Procedure……

6. Perineal Proctectomy, Posterior Rectopexy, and Levator Ani Muscle Repair

7. Stapled transanal rectal resection (STARR)

Double stapling using PPH stapler

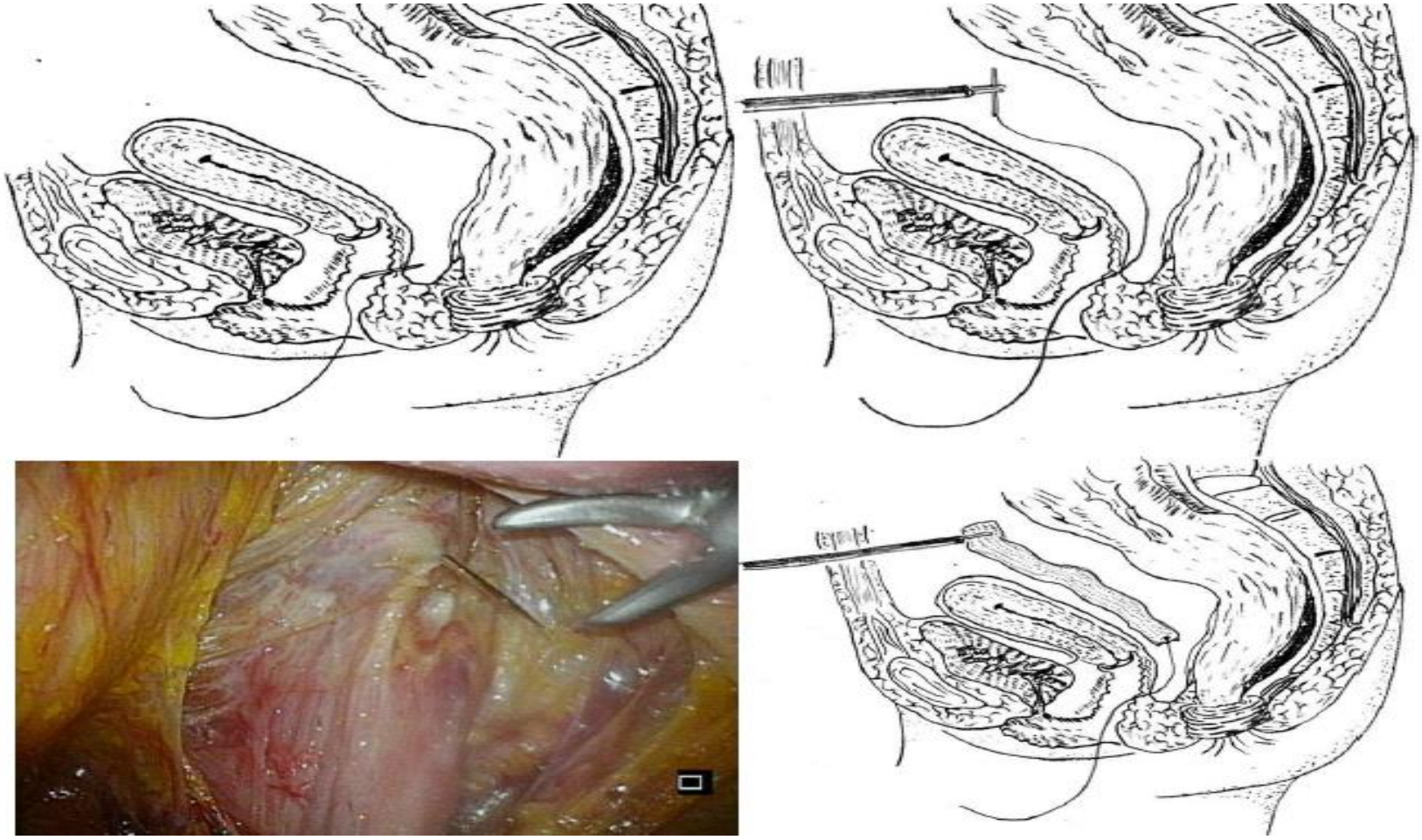
Modern techniques in treatment of rectal prolapse

1. ***Laparoscopic ventral mesh rectopexy:-***

It is accepted treatment for external and internal rectal prolapse. it is also effective in managing recurrent obstructed defecation following STARR

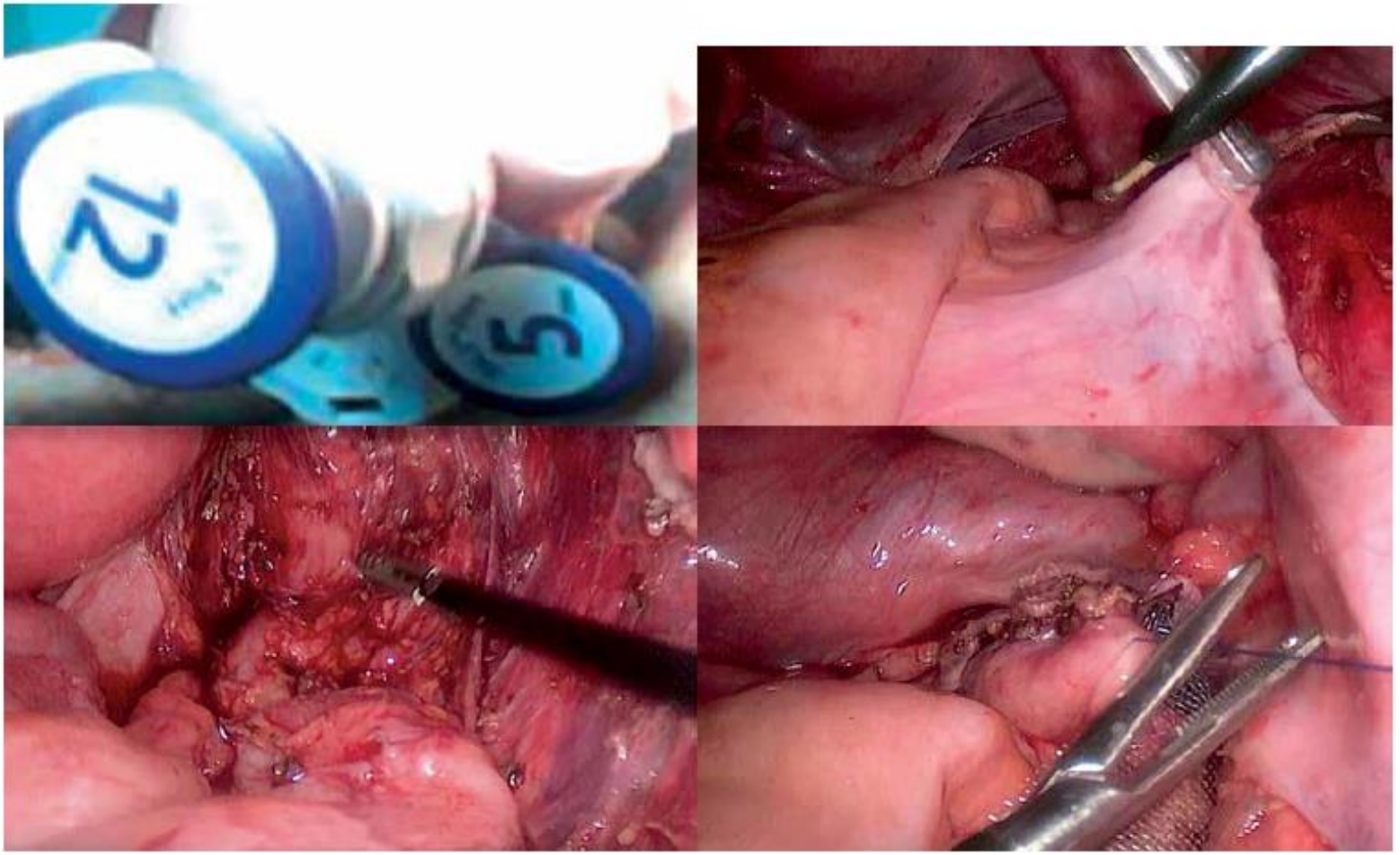
(Mercer-Jones MA, D'Hoore A, Dixon AR et al. Consensus on ventral rectopexy: report of a panel of experts. Colorectal Dis 2014; 16: 82–8.)

2. *A novel technique of laparoscopic ventral mesh rectopexy*



(Tsunoda, T. Takahashi, T. Ohta and H. Kusanagi, A novel technique of introducing the mesh at the distal dissection while performing laparoscopic ventral rectopexy. Colorectal Disease, 2016: 18, O334–O336.)

3. Single-port laparoscopic mesh rectopexy (SILS)



(Ghada Morshed Ahmed, Single port laparoscopic mesh rectopexy Gastroenterology Rev.2016 (11):123-126)

4. *Laparoscopic Protack rectopexy*

- The growing concern about mesh complications.
- posterior rectal mobilization.
- The rectum is then retracted to reduce the prolapse.
- The peritoneal attachments on either side of the rectum are protacked to the sacral promontory.

(Karim A, Cubas V, McArthur D. PTU-220 Laparoscopic protack rectopexy for the management of full thickness rectal prolapse. Gut} 2015;64. A159-A160)

5. *Robotic venteral mesh rectopexy*

- Feasible and safe.
- Time consuming and expensive.
- The short term results are comparable with those of laparoscopy.

(J.-L. Faucheron, B. Trilling, S. Barbois, P.-Y. Sage, P.-A. Waroquet, F. Reche. Day case robotic ventral rectopexy compared with day case laparoscopic ventral rectopexy: a prospective study Tech Coloproctol: DOI 10.1007/s10151-2016-1518-3.)

5. *Robotic venteral mesh rectopexy*

Patients	Laparoscopic surgery	Robotic surgery	*p*
$N = 20$	10	10	
Median operative time (range)	52.5 (38–103)	94 (78–150)	0.001
Median room occupancy (range)	144.5 (123–169)	254 (222–339)	0.001
Surgical complications	1 (bleeding)	0	>0.999
Conversion	0	0	NS
Reoperation	0	0	NS
Median LOS (range)	11 (7.75–79.5)	11 (8.15–32.2)	0.967
Median maximal pain day 1 (range)	3.5 (2–7)	2 (0–6)	0.045
Hospital admission	4[a]	2[b]	0.628
Postoperative complications	0	0	NS

LOS length of stay, in hours

[a] Pain ($n = 3$) and urinary retention ($n = 1$) in the laparoscopic group

[b] Pain ($n = 1$) and urinary retention and vomiting ($n = 1$) in the robotic group

5. *Robotic venteral mesh rectopexy*

Items	Laparoscopic surgery	Robotic surgery	*p*
Instruments and disposables			
Ports	90.00	122.00	
Endo universal 65°®	232.00	232.00	
Protack®	221.00	221.00	
Meshes	45.00	45.00	
Stitches	13.00	13.00	
Intuitive instruments® 0.00	1275.00		
Miscellaneous	29.00	37.00	
Total	630.00	1945.00	<0.001
Median cost of room occupancy (range)[a]	1014 (863–1186)	1783 (1558–2380)	<0.001
Median human resources (range)[b]	1113 (947–1301)	2261 (1976–2314)	<0.001
Robotic maintenance[c]	0.00	2127	<0.001
Admission[d]	972	972	NS
Postoperative complications	0	0	NS
Total cost per procedure	3729	9088	<0.001

[a] Cost for using the operating room at our institution: 7.02 € per minute

[b] Cost for operating room human resources: 7.70 € per minute including one surgeon, one anesthetist, two nurses, one registrar

[c] Not included: amortization, in disfavor of the robot (laparoscopic column around 150,000 €—Da Vinci robot around 2,500,000 €)

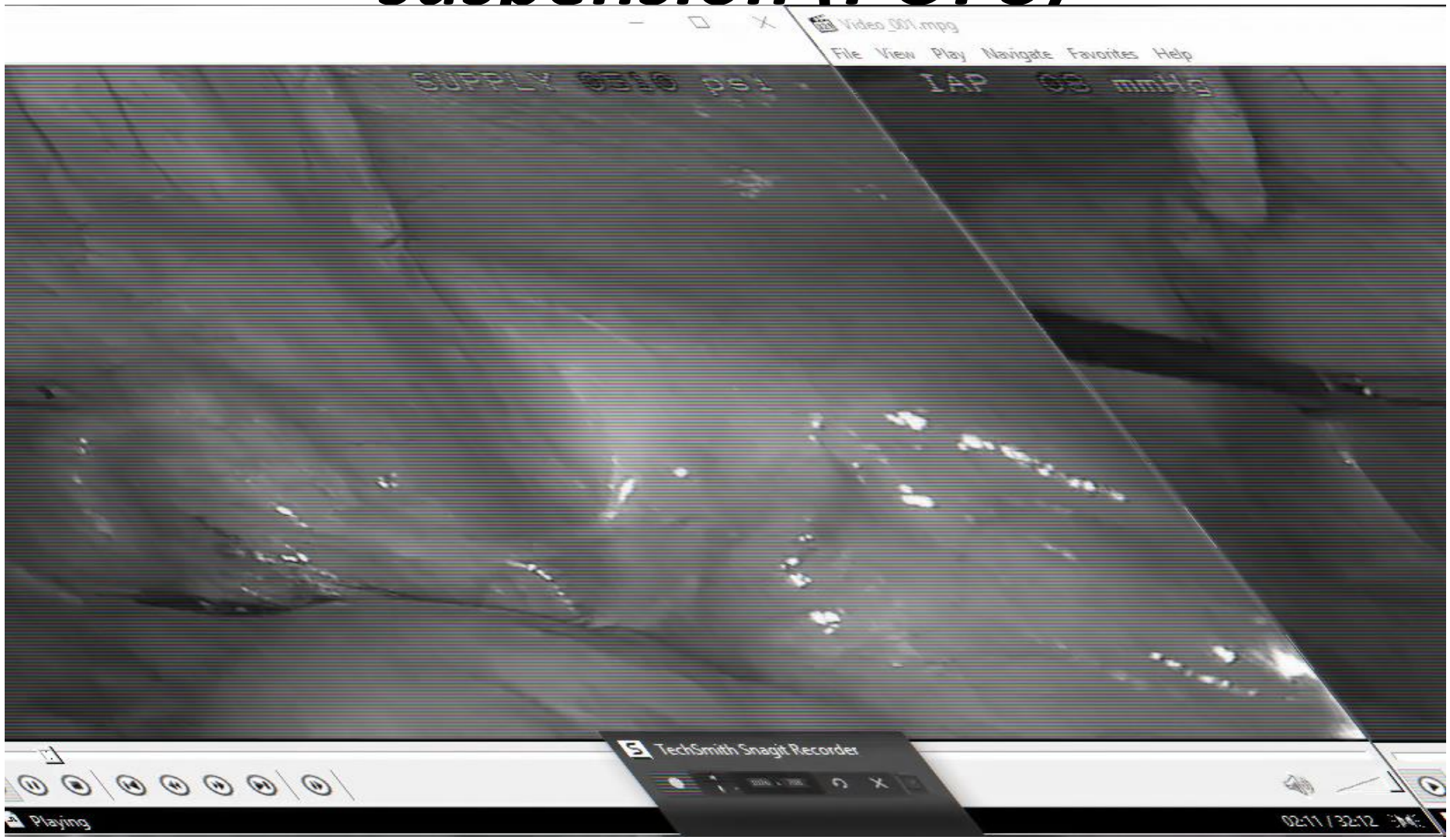
[d] Cost for the hospital stay (11 h in both groups). Pain killers and other medications (for example laxatives, enemas, suppositories) costs to treat patients "on demand" were not included

6. Laparoscopic Resection Rectopexy

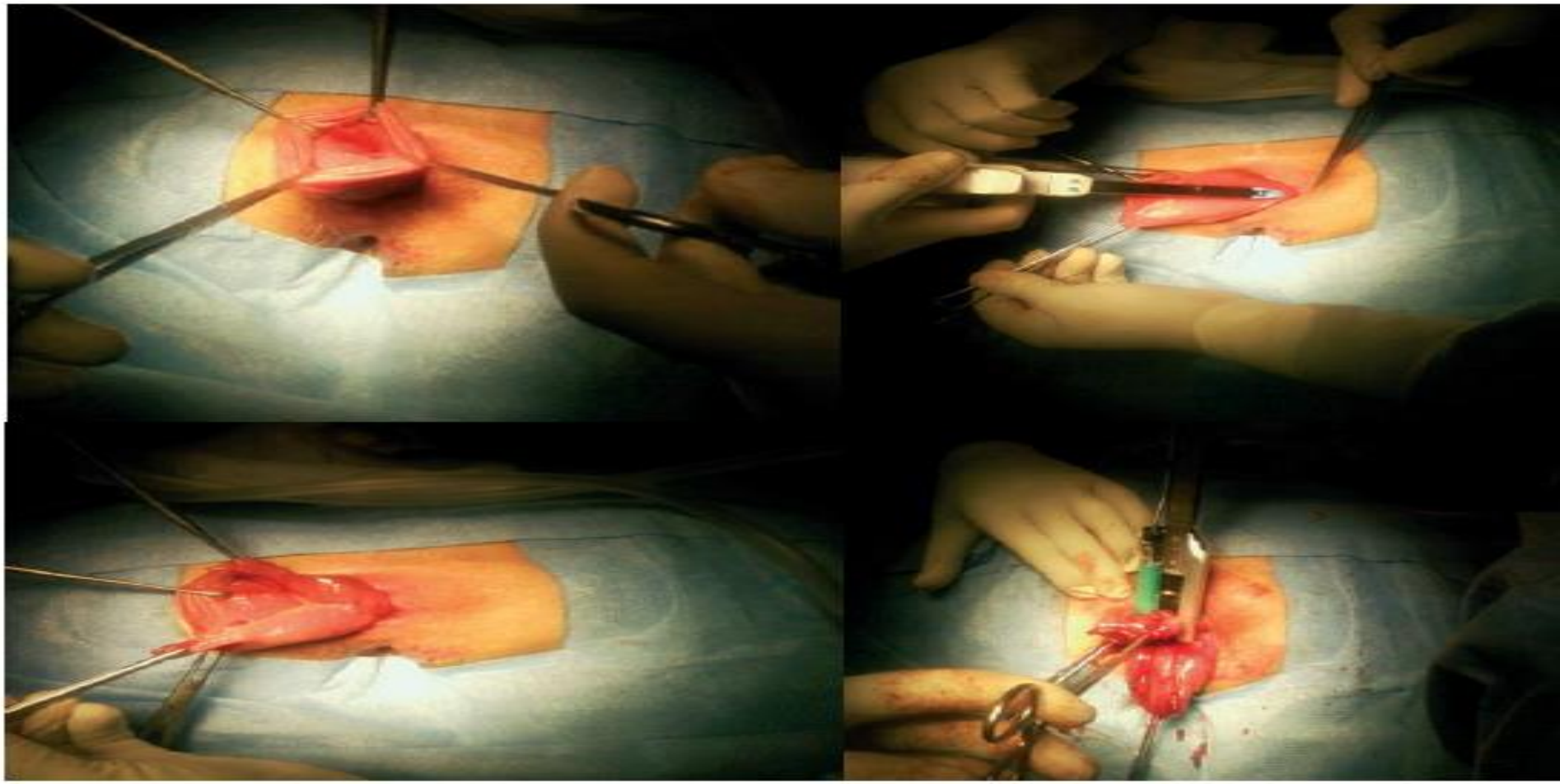
- Several studies have compared long-term outcome after laparoscopic or open rectopexy with or without resection
- In those studies, functional outcome and recurrence rates were similar between laparoscopic abdominal surgery and open surgery

(Person B, Cera SM, Sands DR, Weiss EG, Vernava AM, Nogueras JJ, Wexner SD. Do elderly patients benefit from laparoscopic colorectal surgery? Surg Endosc: 2008 22:401–405.)

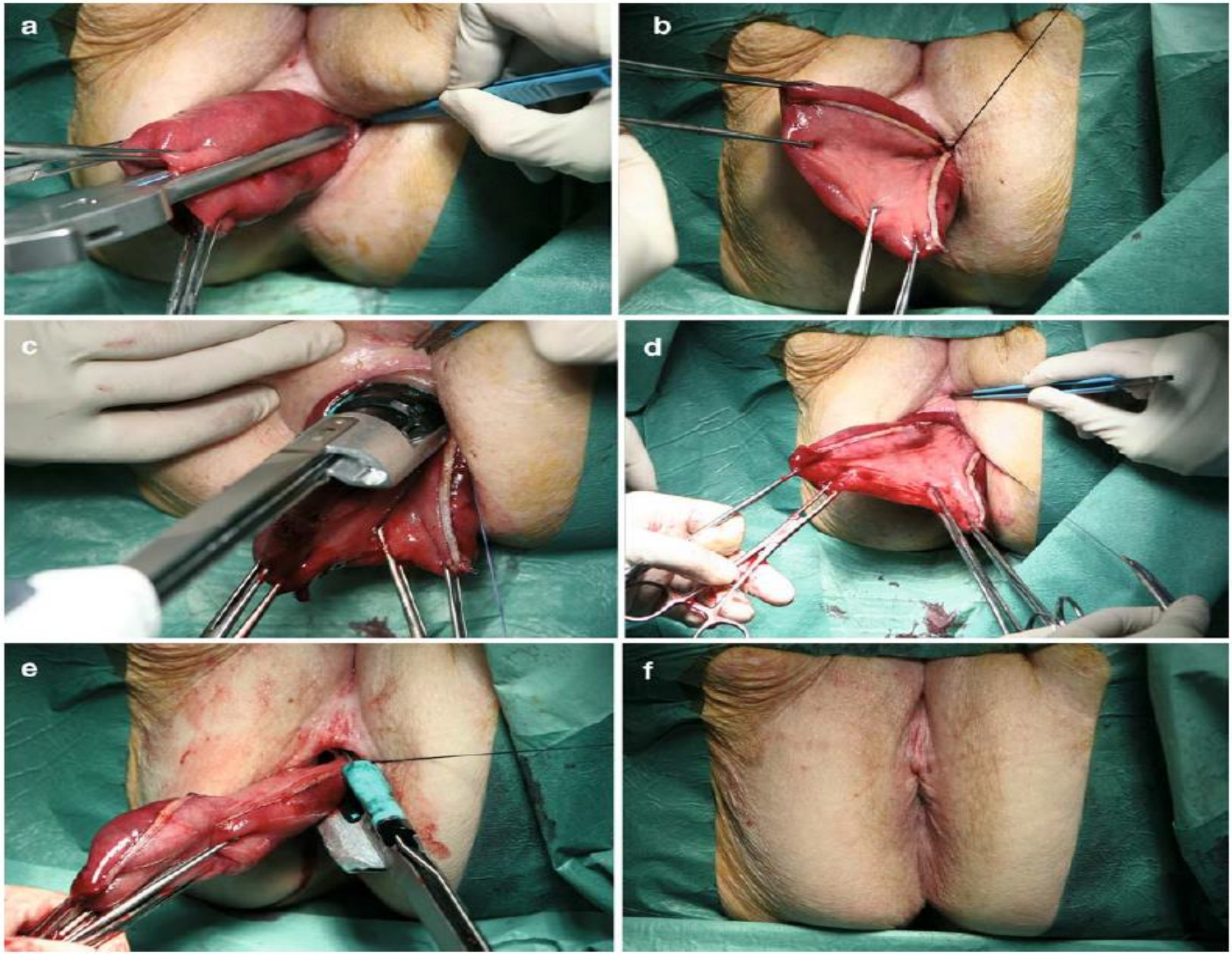
7. Pelvic organ prolapse suspension (POPS)



8. Stapled transanal rectal resection (STARR) (Trans STARR technique)



(Seung-Hyun Lee, Paryush Lakhtaria, Jorge Canedo, Yoon-Suk Lee, Steven D. Wexner. Outcome of laparoscopic rectopexy versus perineal rectosigmoidectomy for full-thickness rectal prolapse in elderly patients Surg Endosc, 2011: 25:2699–2702**.)**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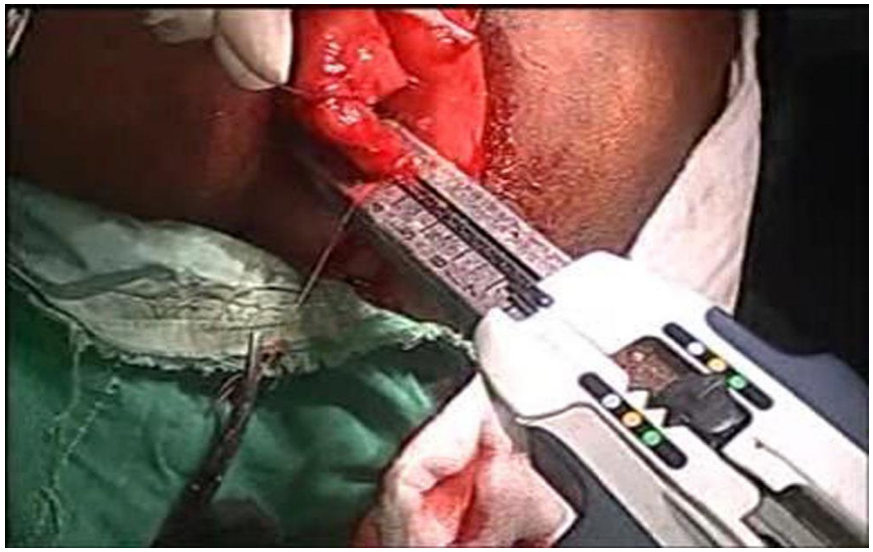

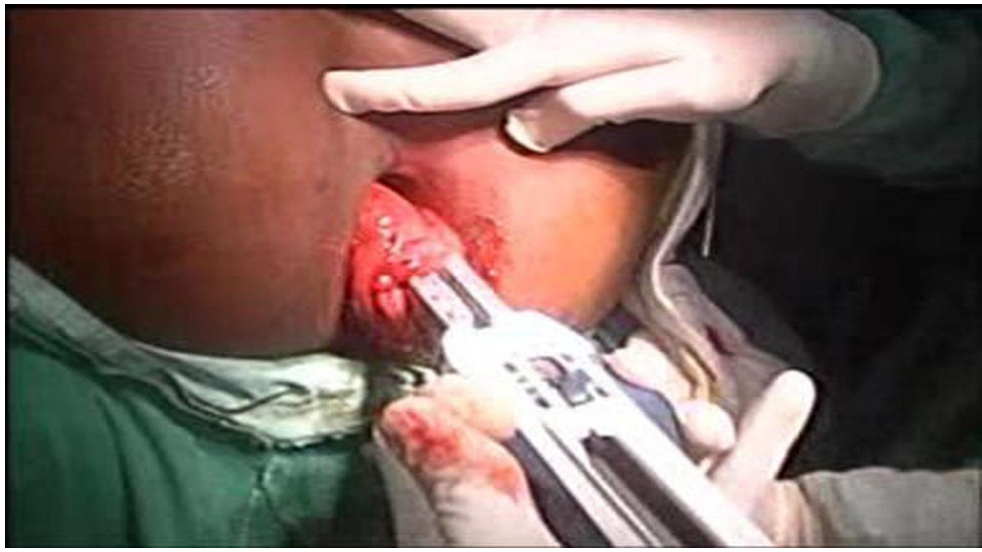

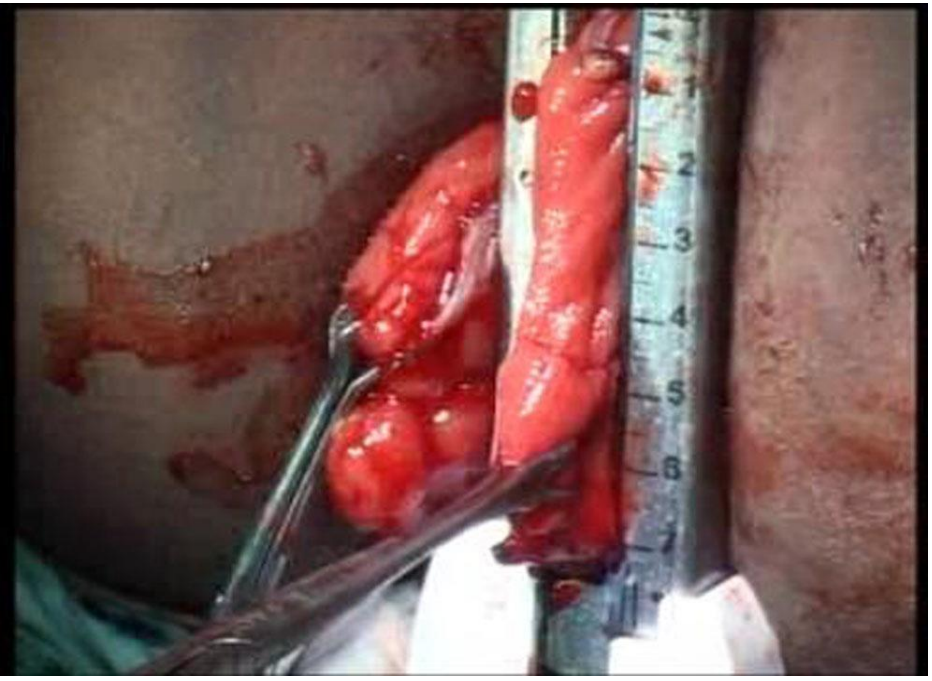
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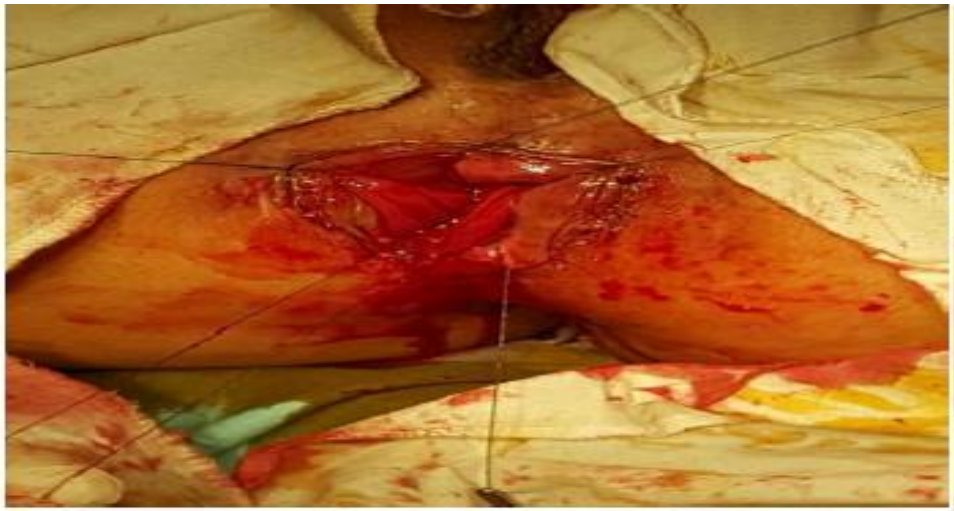
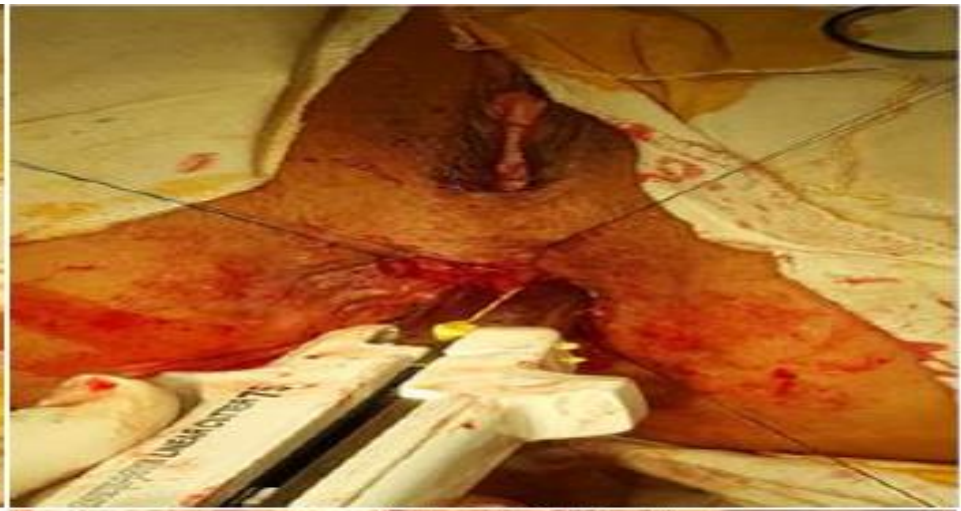
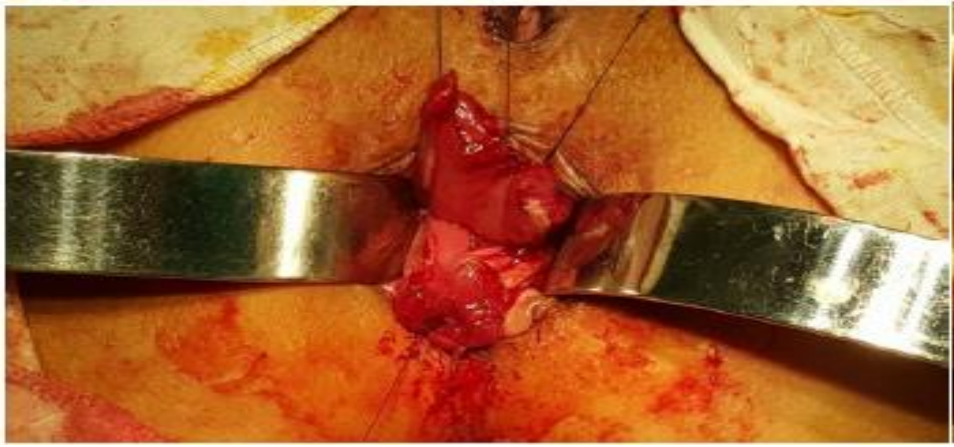
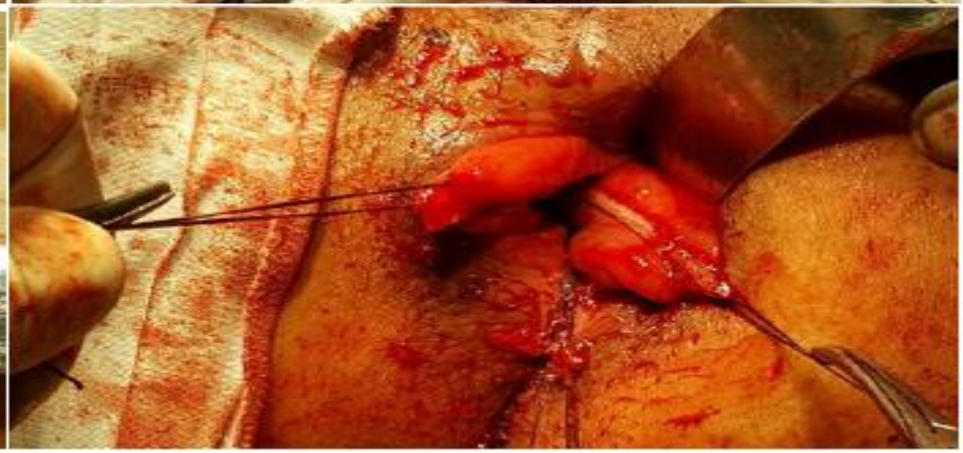
9. *Perineal Stapled Prolapse Resection*

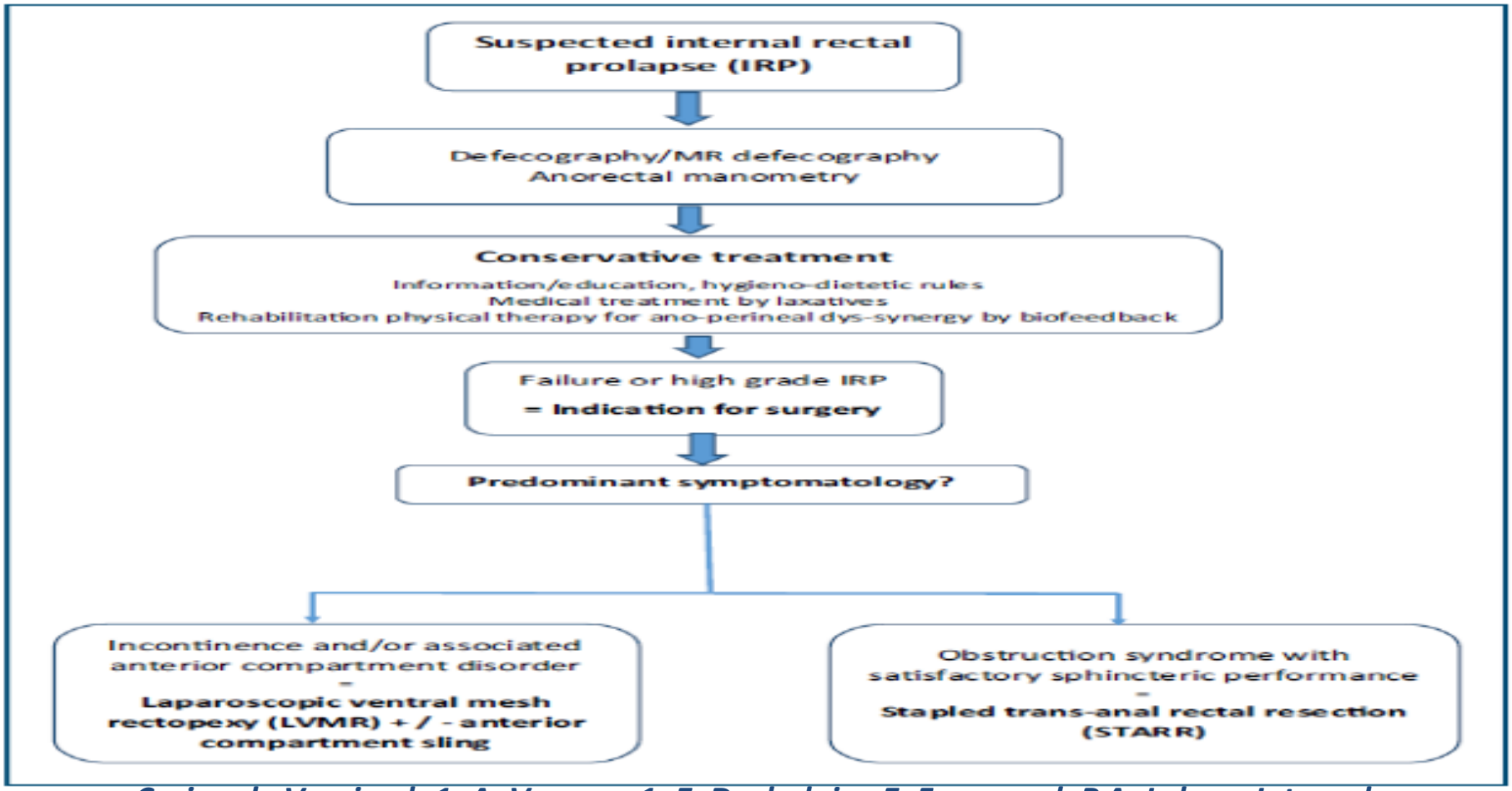
[kasr Alainy cases]

Summary

Guidelines for treatment of rectal prolapse include the preoperative evaluation , The nonsurgical and surgical techniques, all these items were graded according to the grades of recommendations.

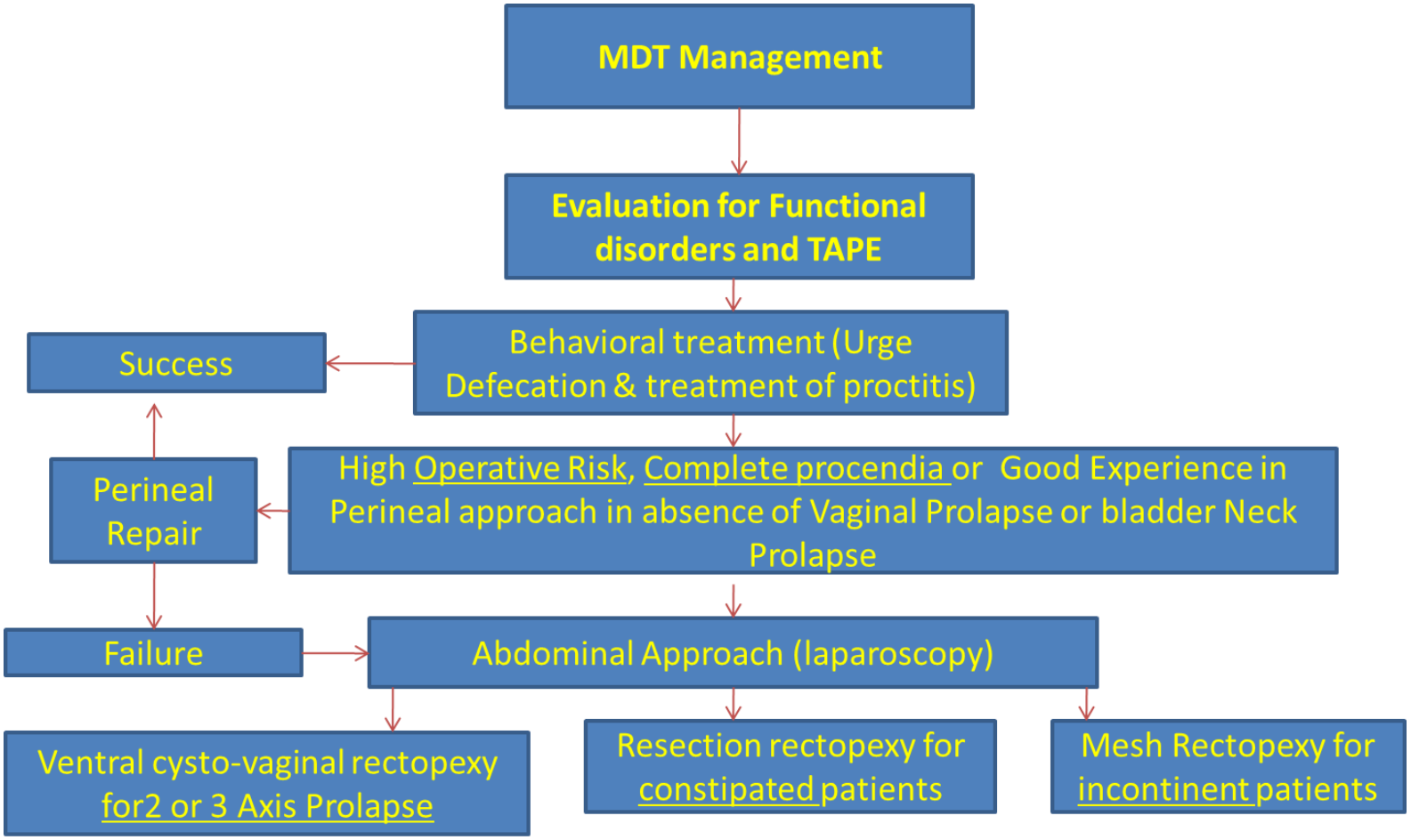
(Madhulika Varma, Janice Rafferty,W. Donald Buie, Practice Parameters for the Management of Rectal Prolapse Dis Colon Rectum 2011; 54: 1339–1346)

Summary



Cariou de Vergiea,b,1, A. Venarac,1, E. Duchalaisa,E. Frampasd, P.A. Lehura Internal rectal prolapse: Definition,assessment and management in 2016. J Visc Surg. 2016:16.30165-5)

Rectal Prolapse (Evaluating the many Choices)



Conclusion

There are multiple procedures and approaches for surgical treatment of rectal prolapse, and the choice between them is regulated by multiple factors such as internal or external prolapse, bowel function, general condition of the patient and associated comorbidities.

Thank you