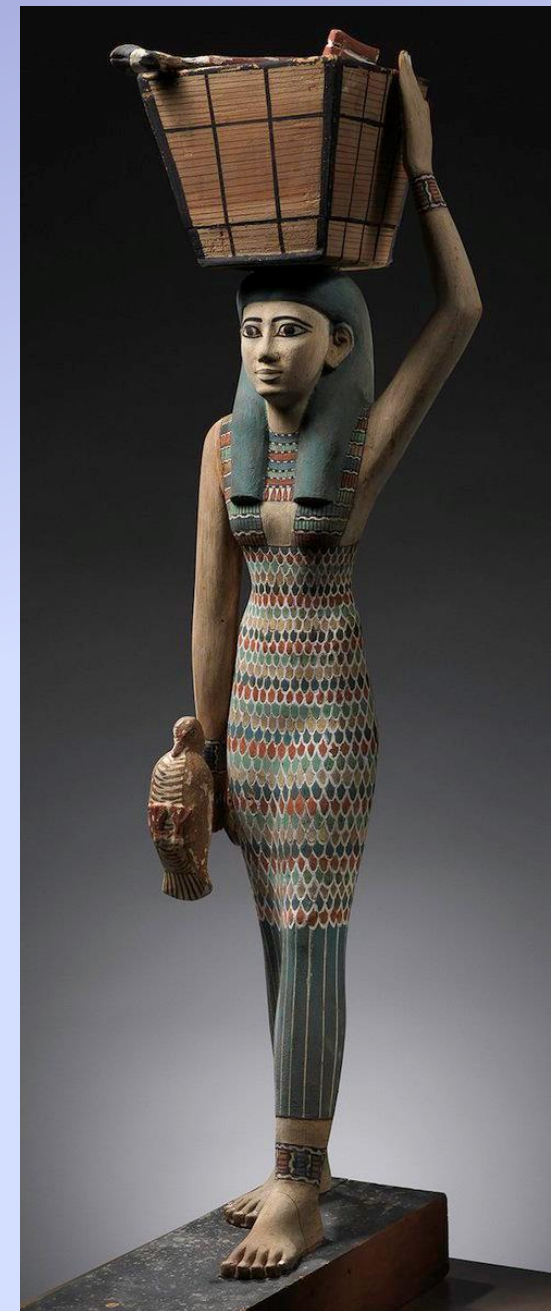


Vestibular Fistula, which surgical approach?



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Introduction

- Vestibular fistula is the most common anorectal malformation in the female
- Several techniques have been described for the treatment of vestibular fistula.
- Pena and deVries in 1982 reported posterior sagittal anorectoplasty (PSARP) as an operative procedure for high or intermediate imperforate anus (**Pena and DeVries, 1982**).

• Okada and his colleagues design anterior sagittal anorectoplasty (ASARP) for repair of AVF (**Okada et al., 1992**).

• Both approaches PSARP and ASARP, involved division of the levator muscles and muscle complex (the main components of the continence mechanisms), the perineal body, and the perineal skin (**Kamal, 2012**).

- This may be associated with wound complications like the scar of the perineal skin bridge between the fistula and the new anus.
- Also, wound infection, wound dehiscence, anal stenosis, rectal prolapse, recurrence of fistula, soiling, incontinence, constipation and unsatisfactory cosmetic outcome (**Ashrarur et al., 2012**).

- Those complication can be avoided by anal transposition, also known as trans-sphincter ano-rectoplasty (TSARP).



Aim of the work

The aim is to evaluate different surgical procedures in the management of vestibular fistula as regard **the immediate** (perineal body disruption, wound infection, etc.....), **delayed** (neoanus stenosis, retraction, etc.....) and **functional outcome** (bowel function, cosmetic appearance,.....).

**Approaches that we will compare
between are:**

- Trans-sphincter anorectoplasty (TSARP).
- Posterior sagittal anorectoplasty (PSARP).
- Anterior sagittal anorectoplasty (classic ASARP)
- Anterior sagittal anorectoplasty with external sphincter preservation (modified ASARP).

Patients and methods

- This was a prospective comparative study.
- The patients were female Upper Egyptians children with vestibular fistula seen at the Paediatric Surgical Units, Assuit and Aswan University Hospitals, during the period from January 2016 to January 2019.

Inclusion criteria

Female children with rectovestibular fistula from the age of six months up to twelve year old, which had been treated by single stage repair.

Exclusion criteria

- Recurrent cases,
- Patient with previous anorectal surgery.
- Patient with cognitive disorders.
- Patient with age less than six months or above twelve year old.
- Missed cases during the follow up period.

- The patients were separated into four groups according to approaches into classic ASARP, TSARP, PSARP, and modified ASARP.

- We divided the age distribution according to the age of continent and time of toilet training which was 3.5 years.

Preoperative preparation

- All patients underwent rectal washouts with normal saline four times per day, beginning 48 hours preoperative.
- Routine blood investigations .
- Abdominal ultrasonography, X-ray whole body and spine were done to exclude other bony anomalies.
- Echocardiography was done in selected cases when there was clinical suspicion of congenital heart abnormalities.



Operative techniques

- All cases performed under general anesthesia by endotracheal intubation.



- A urethral tube was inserted.

- Due to absent of Pena Muscle Stimulator, electrical stimulation using very low current diathermy or finger prick technique (by prick the new anal area with index finger) were used to find the contraction of the sphincter muscle complex posterior to the fistula site and to identify the center of the muscular complex.

Surgical technique for group A
patients: *anterior* *sagittal*
anorectoplasty (classic ASARP):



Figure 1: The patient was operated in the lithotomy position. The labia majora was fixed on both sides to the thigh using 3/0 silk sutures.



Figure 2: A circumferential 5/0 silk sutures were applied to the mucocutaneous junction of the fistula opening for traction.

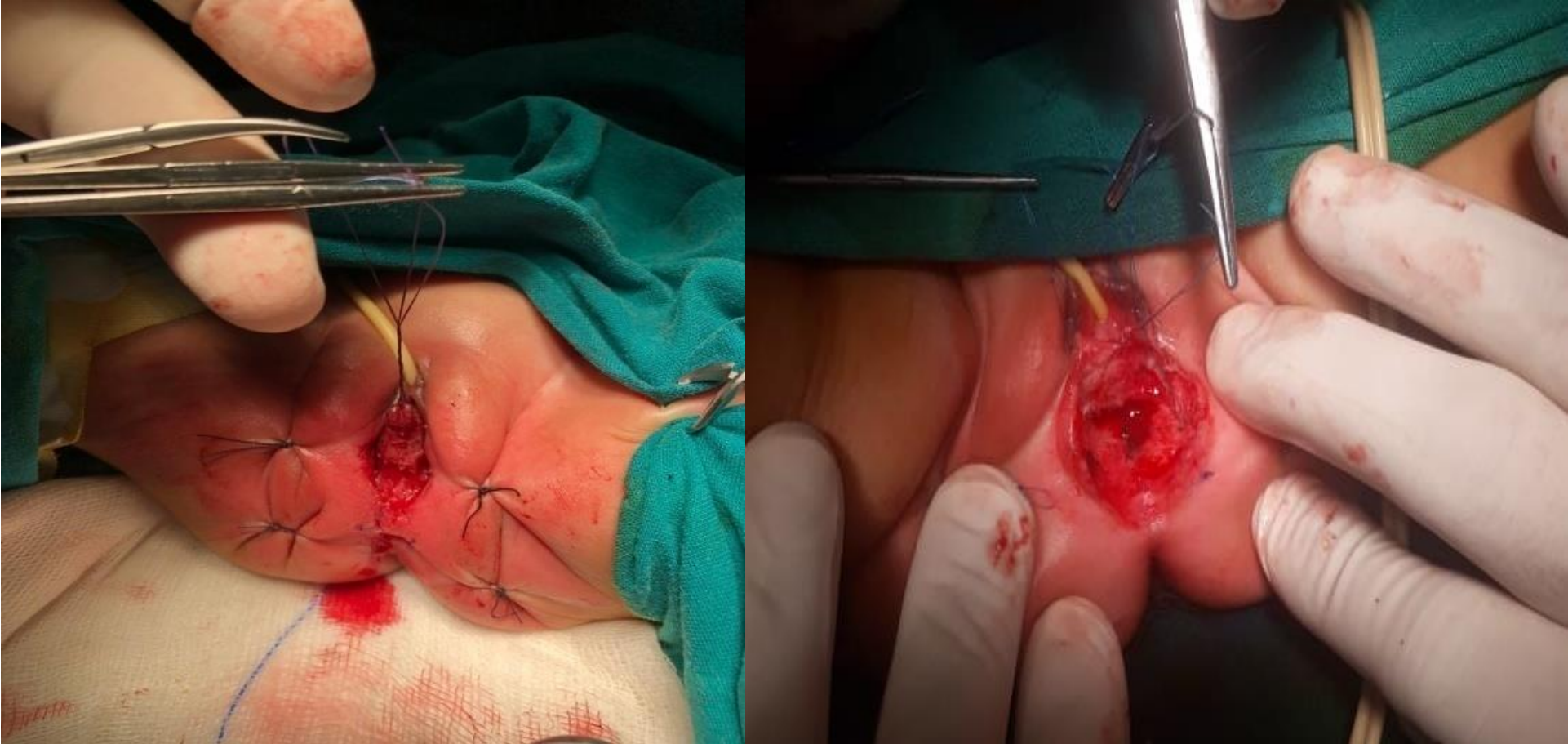


Figure 3: A midline incision was made from the posterior margin of the fistula to the posterior margin of the putative anal site previously identified, **dividing all the tissue in line include the muscle complex.**



Figure 4: Blunt dissection separate the rectum from the posterior encircling muscles up to the level of the sacral hollow.

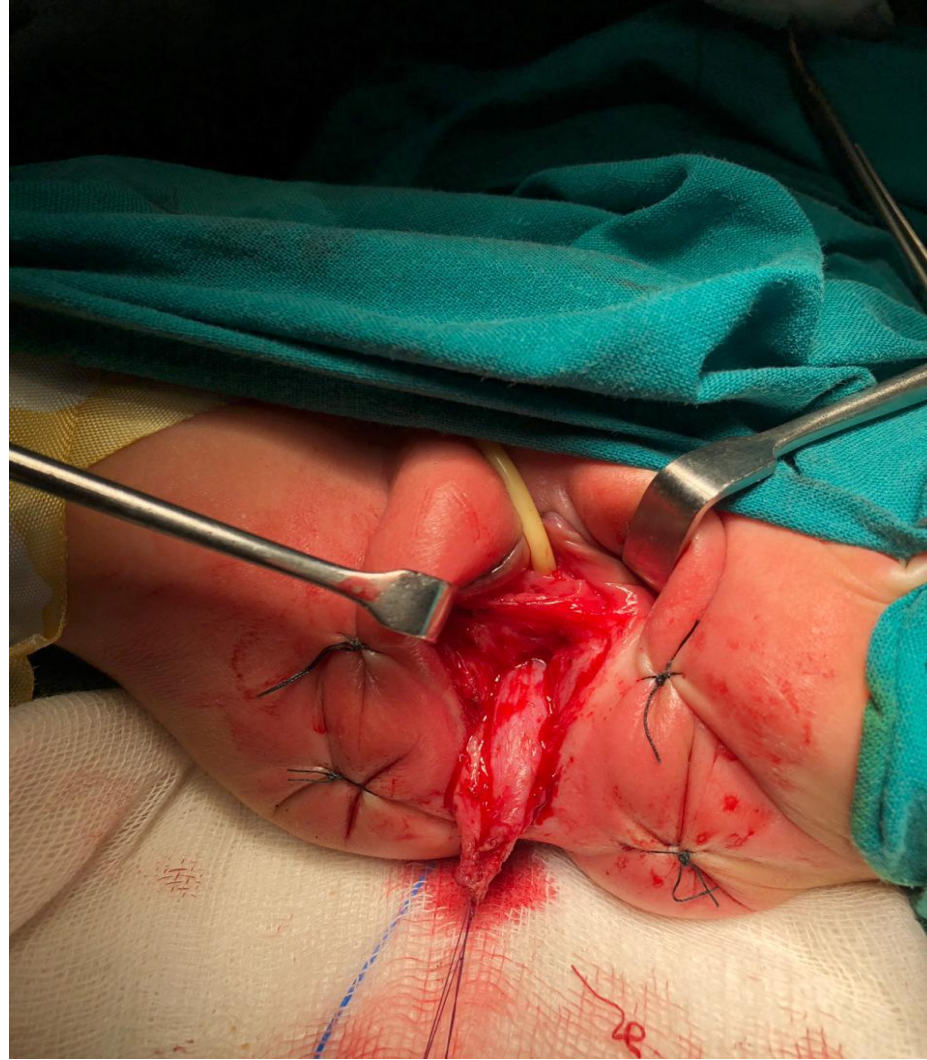


Figure 5: Separation of the rectum from posterior vaginal wall.

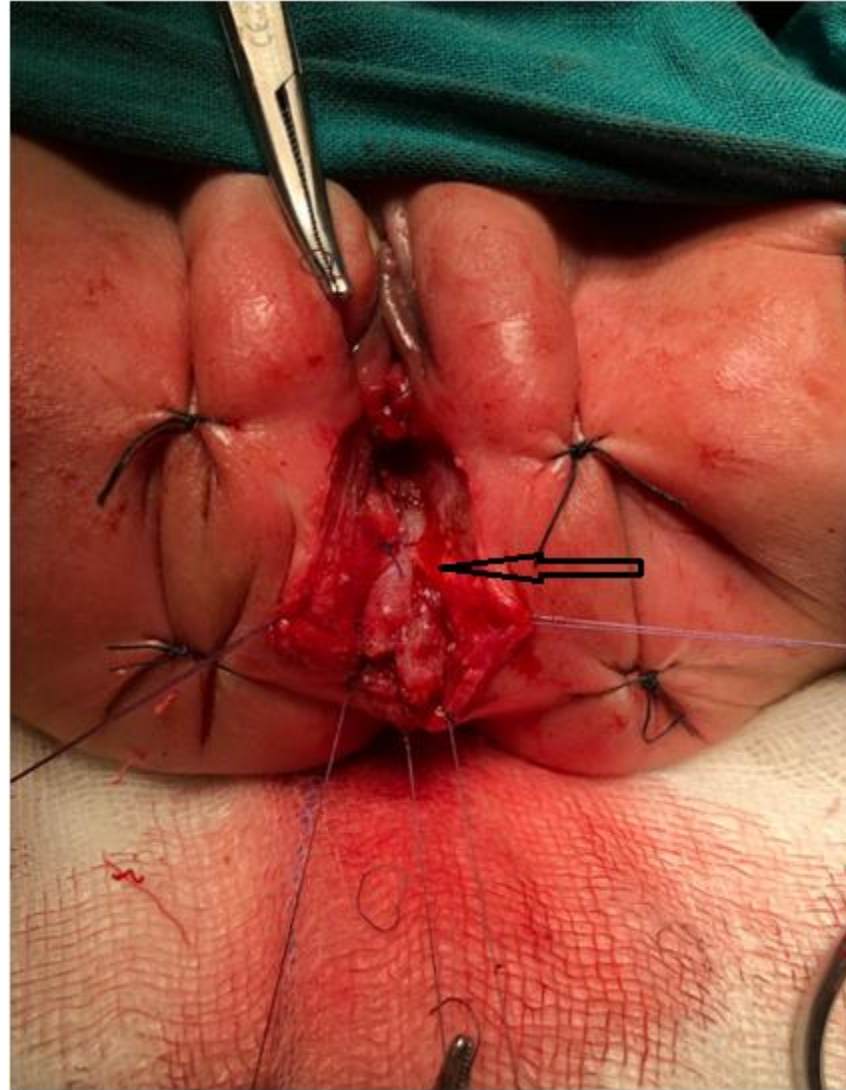


Figure 6: The margins of the sphincter were suture together anterior to the rectum taken bites in the serosa.

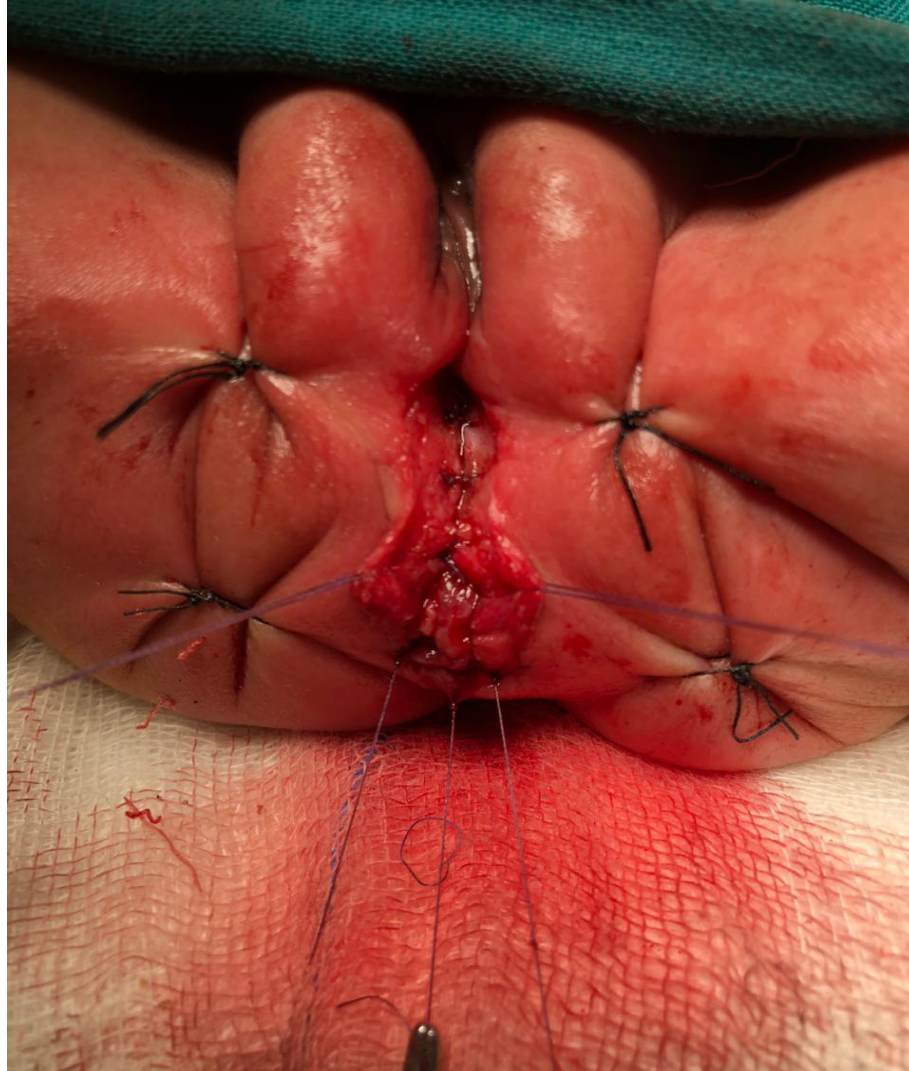


Figure 7: Perineum muscles were approximated in the midline between the rectum and vagina, thus reconstituting the perineum body.



Figure 8: After midline skin closure, anoplasty was completed with mucocutaneous suture of vicryle 4-0.



Fig.9: Postoperative view for ASARP after two weeks and six weeks.



Surgical technique for group B patients:
trans-sphincter anorectoplasty
(TSARP), also known as trans-fistula
anorectoplasty (TFARP):

This procedure used the same position (lithotomy position), exposure and perifistula traction sutures as in the previous operation.

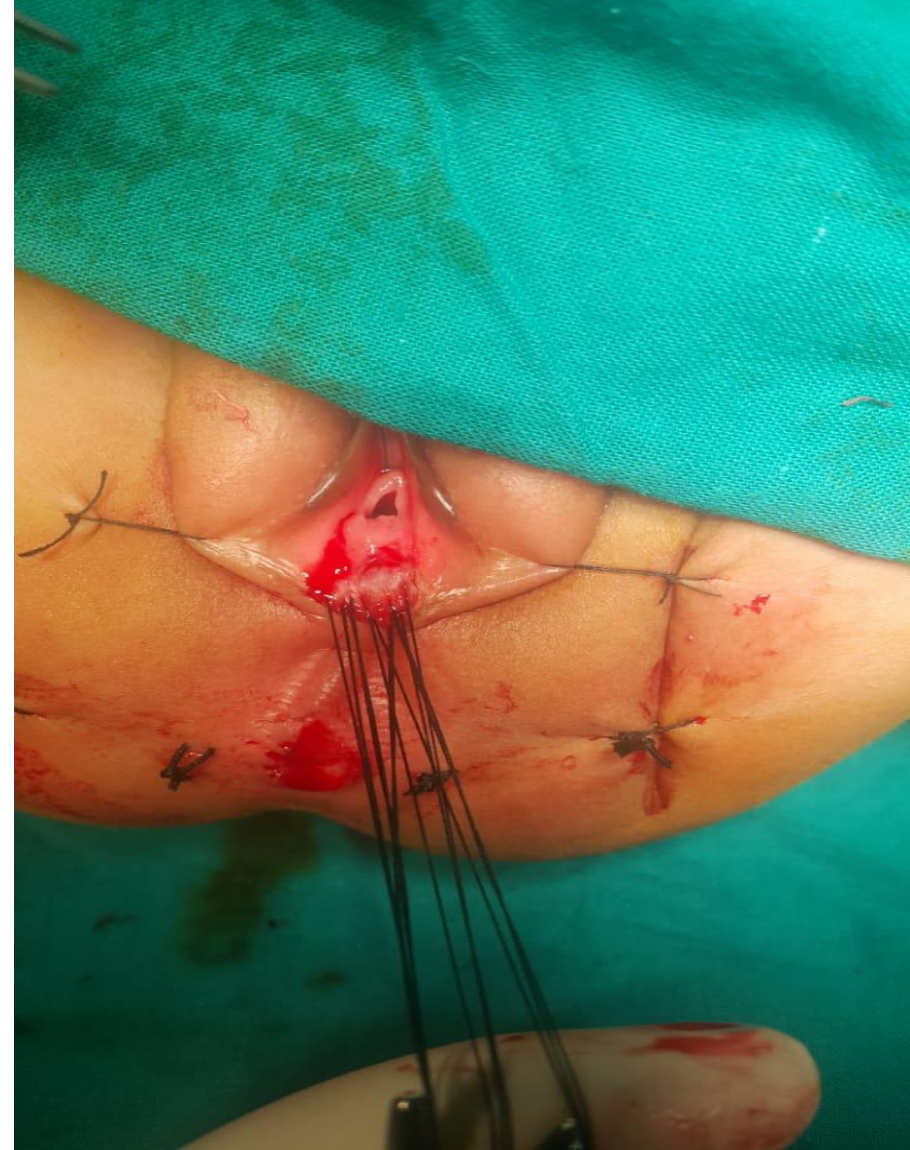
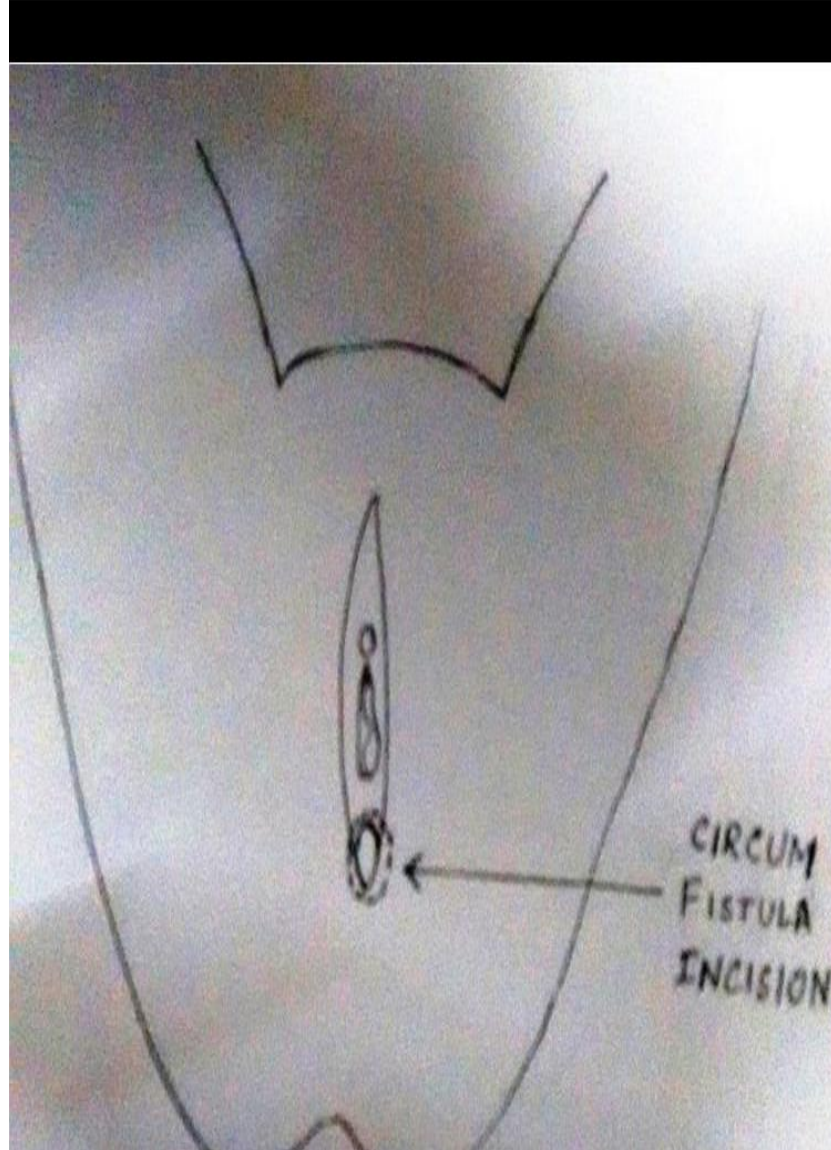


Figure 10: Incision around the fistulous opening.

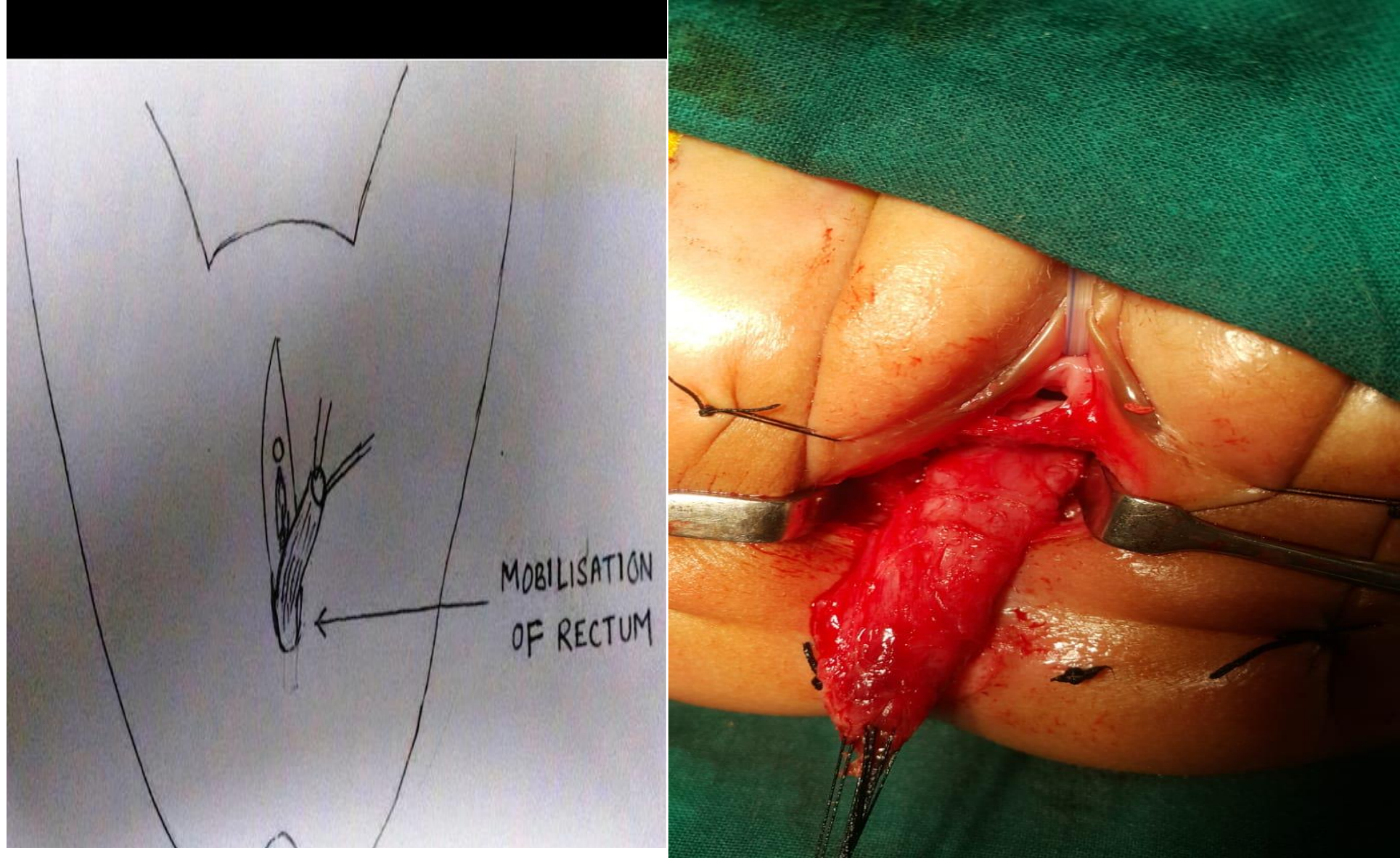


Figure 11: Mobilization of rectum.

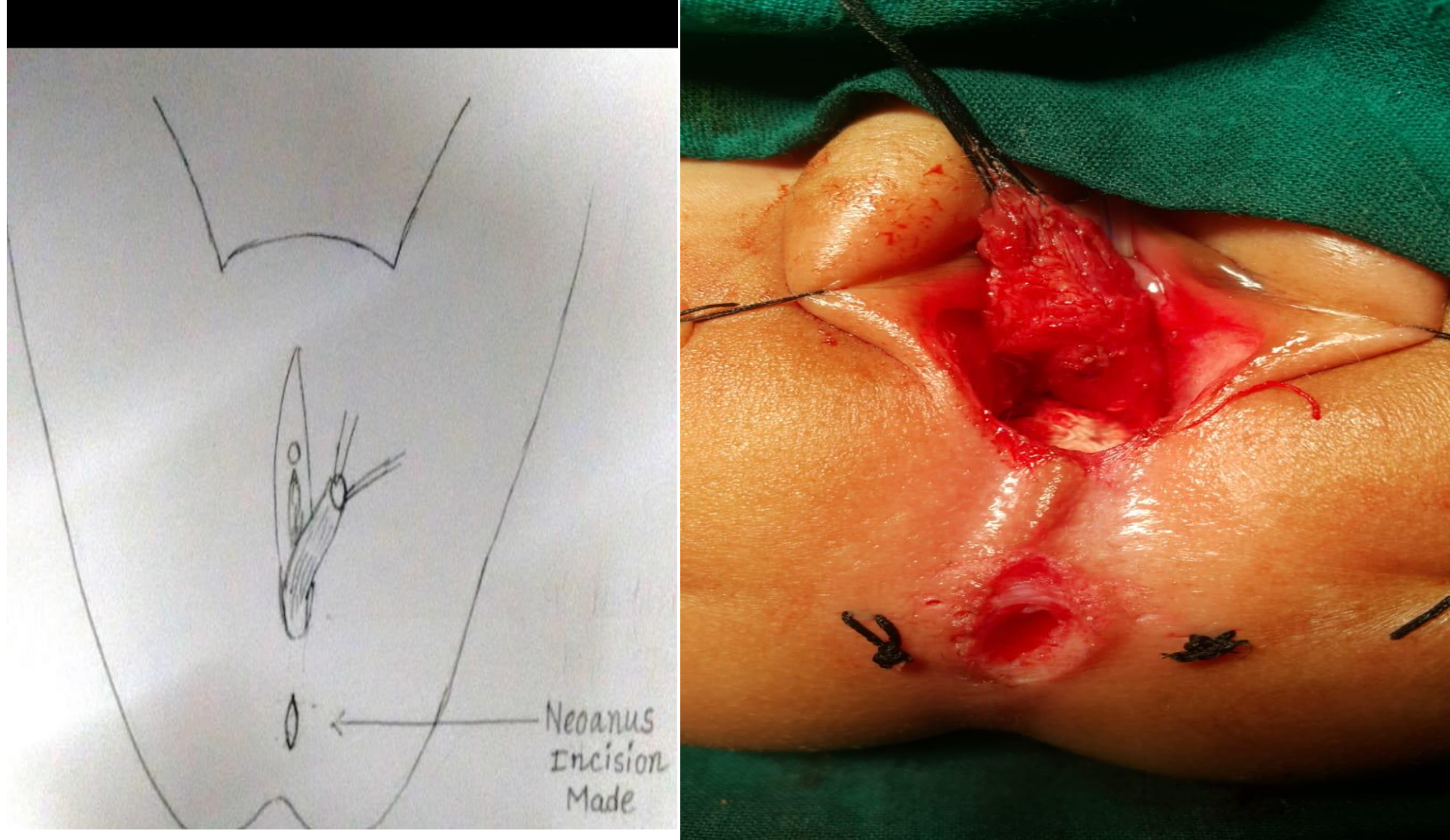


Figure 12: No incision was made over the perineum and perineum was kept intact. A vertical incision of about 2 cms was made at that proposed anal site previously confirmed.

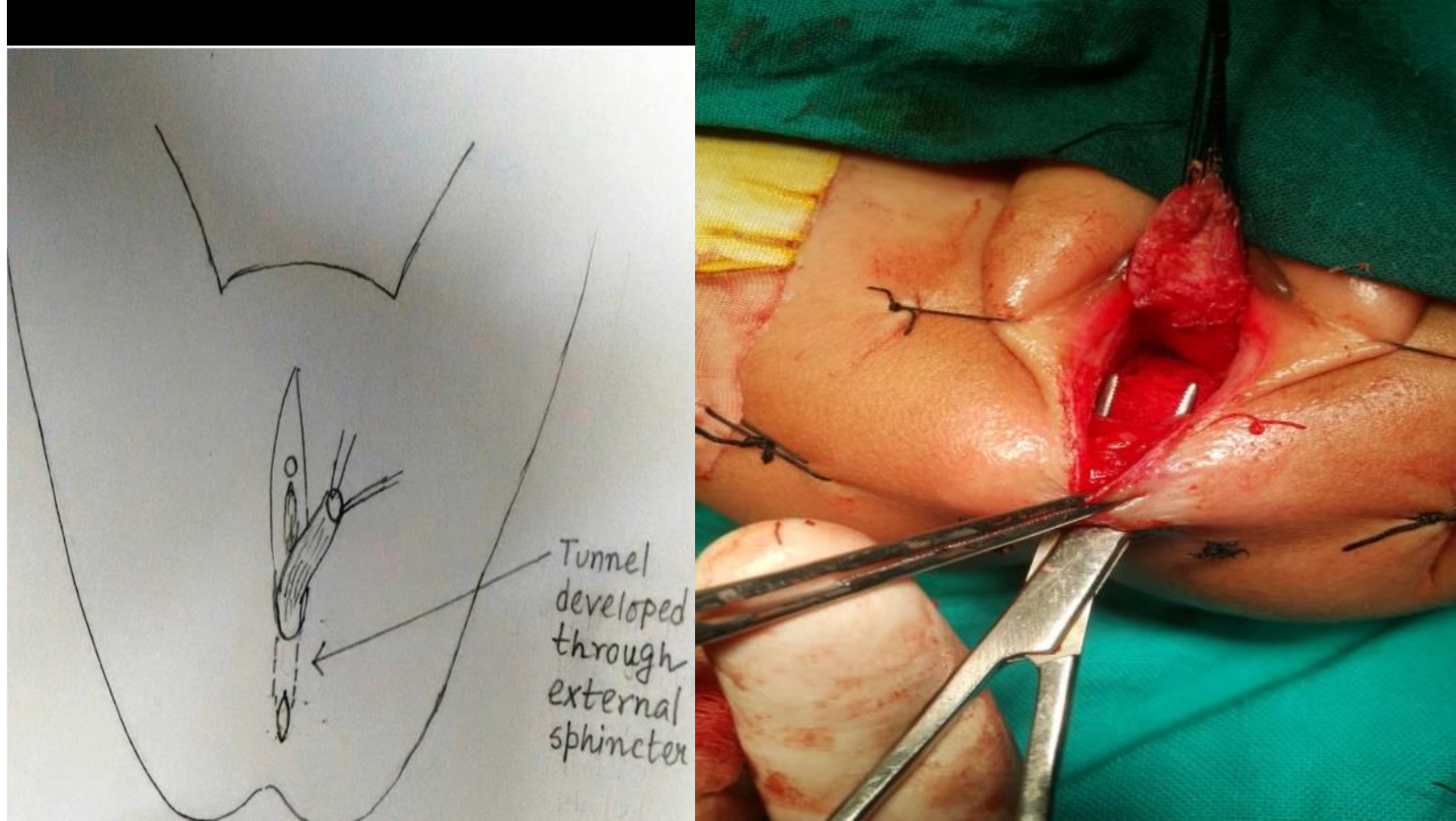


Figure 13: An opening created in the muscle complex (expected site of neoanus) using artery forceps, through which mobilized rectum was pulled by grasping its traction sutures (Tunnel developed for mobilization of rectum).

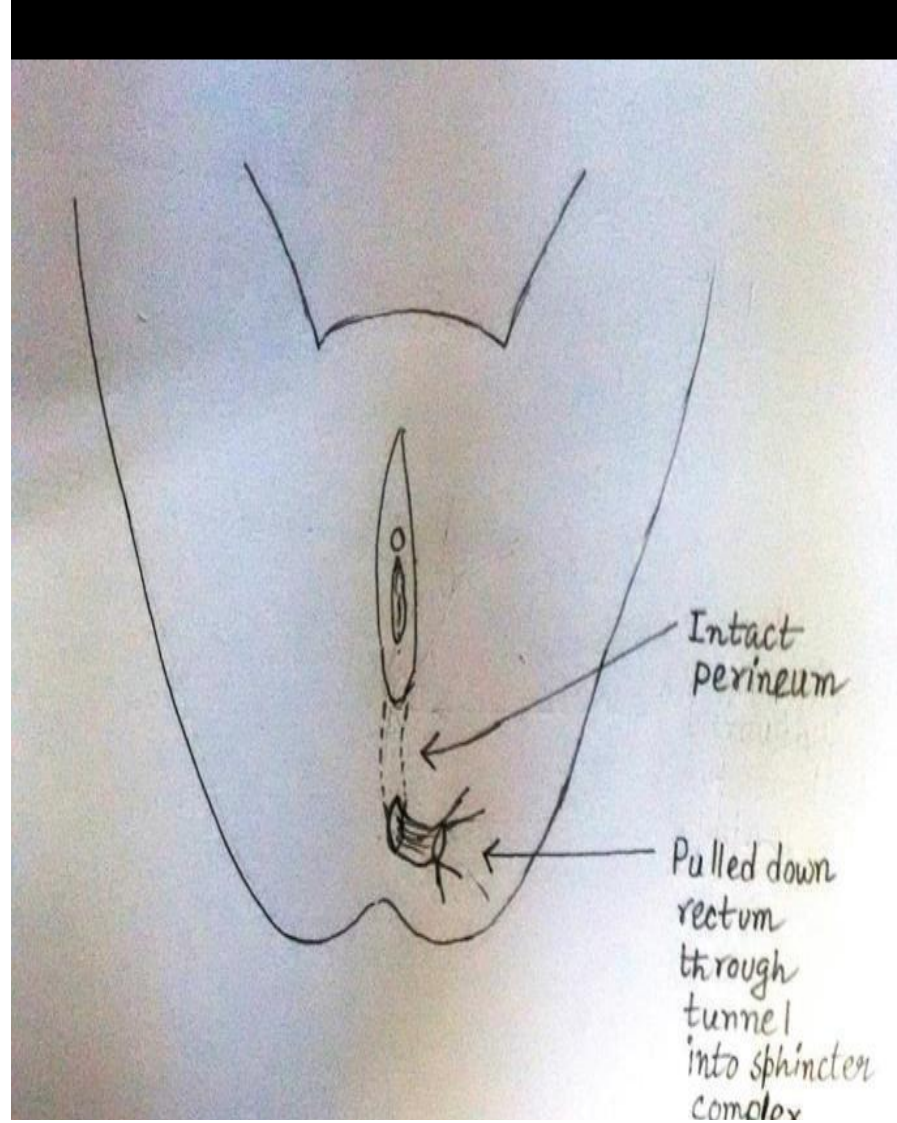


Figure 14: The rectum transposed after pulled by grasping its traction sutures.

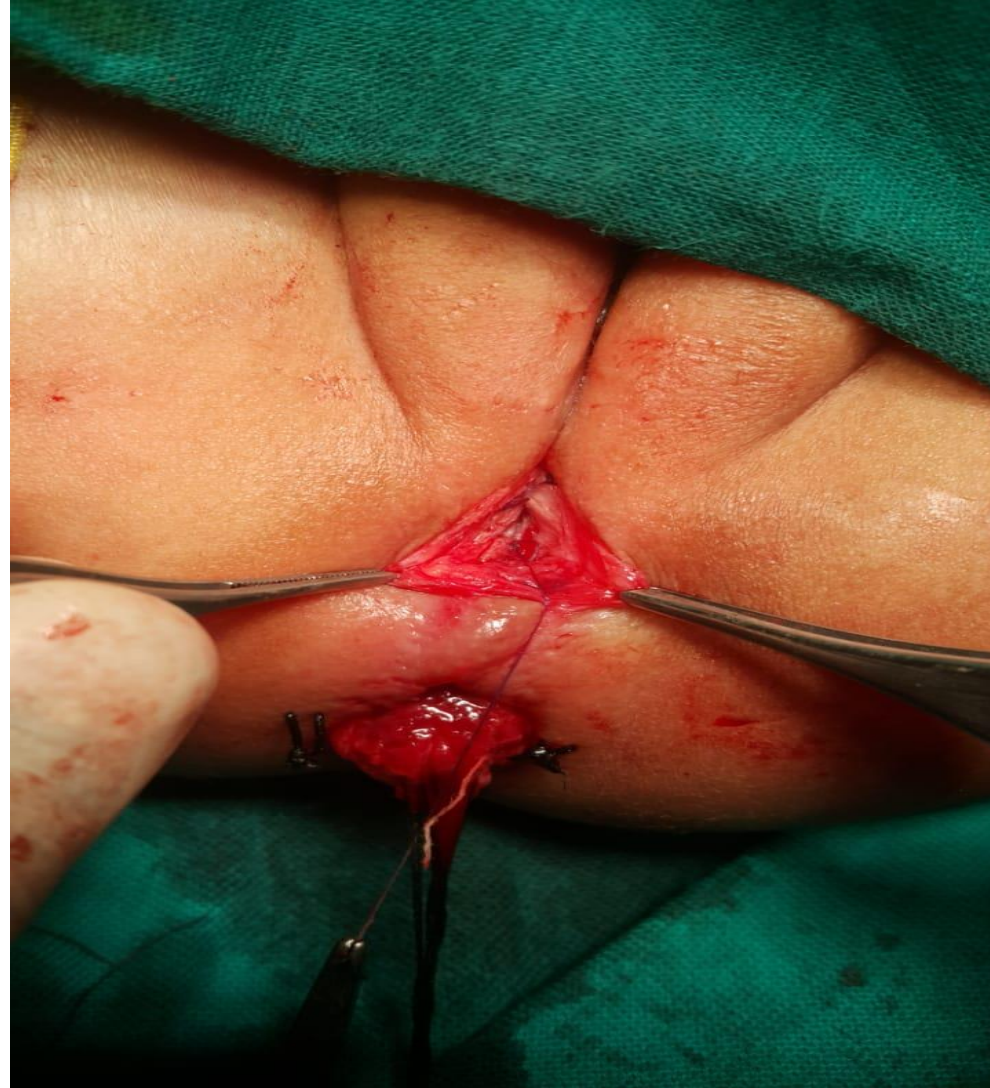


Figure 15: The vestibular wound and its underling perineal muscles were closed with 4'0 vicryl interrupted stitches in two layers.

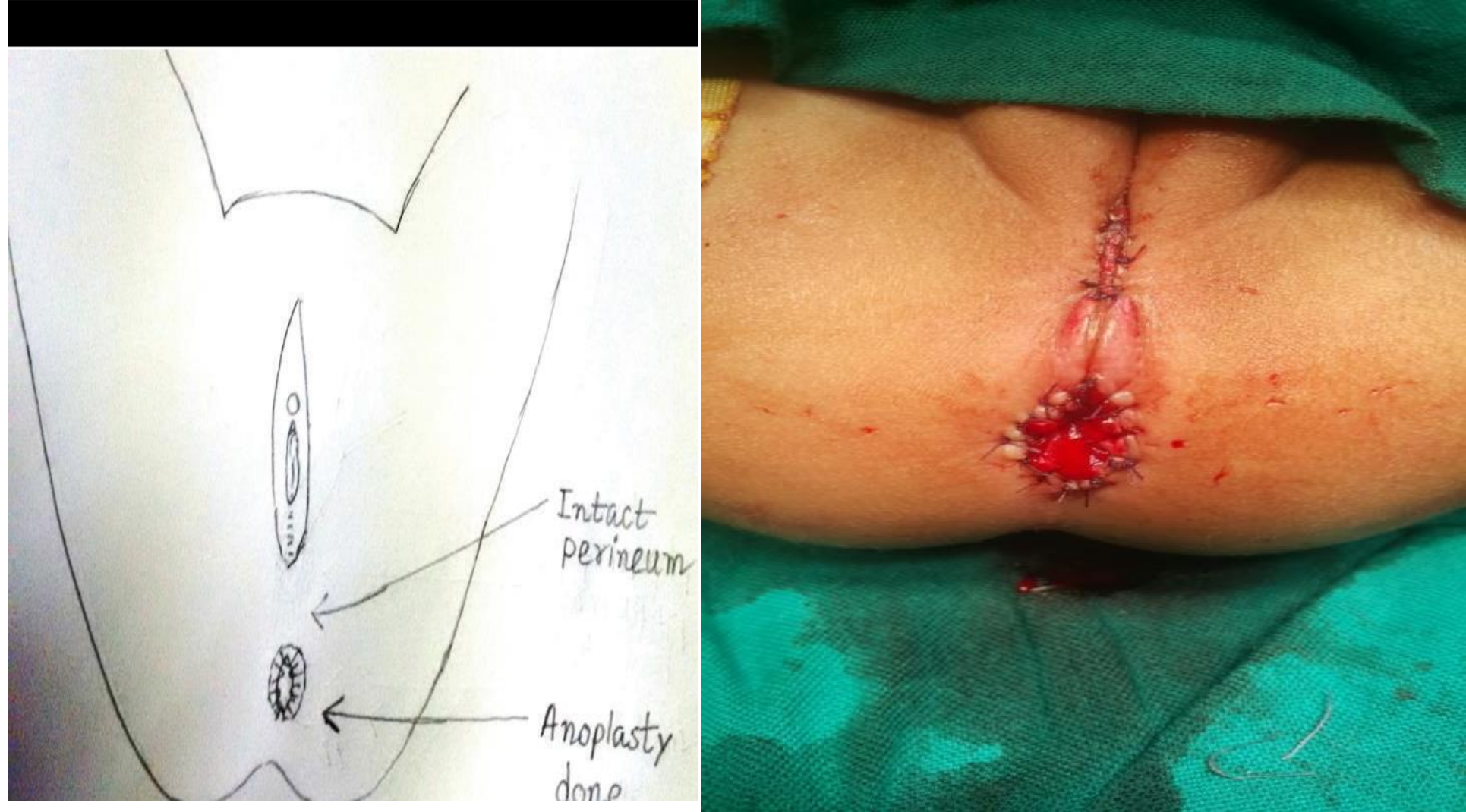


Figure 16: Anoplasty was done with 12 stitches with 4'0 vicryl.



Figure 17: Postoperative view one month later.



Surgical technique for group C patients:
*anterior sagittal anorectoplasty with
external sphincter preservation or
(ASARP modified):*

This procedure used lithotomy position, the same exposure, and perifistula traction sutures as used in the previous operation.



Figure 18: A midline skin incision was made from the posterior margin of the fistula to the posterior margin of the putative anal site.



Figure 19: Dissection of the fistula from the posterior encircling muscles posterior and vaginal wall anterior.



Figure 20: A cruciate incision was done at the putative anal site.



Figure 21: An artery forceps was then passed in the center of muscle complex deep to its anterior rim without cutting it.



Figure 22: The neorectum passed in the center of the muscle complex.

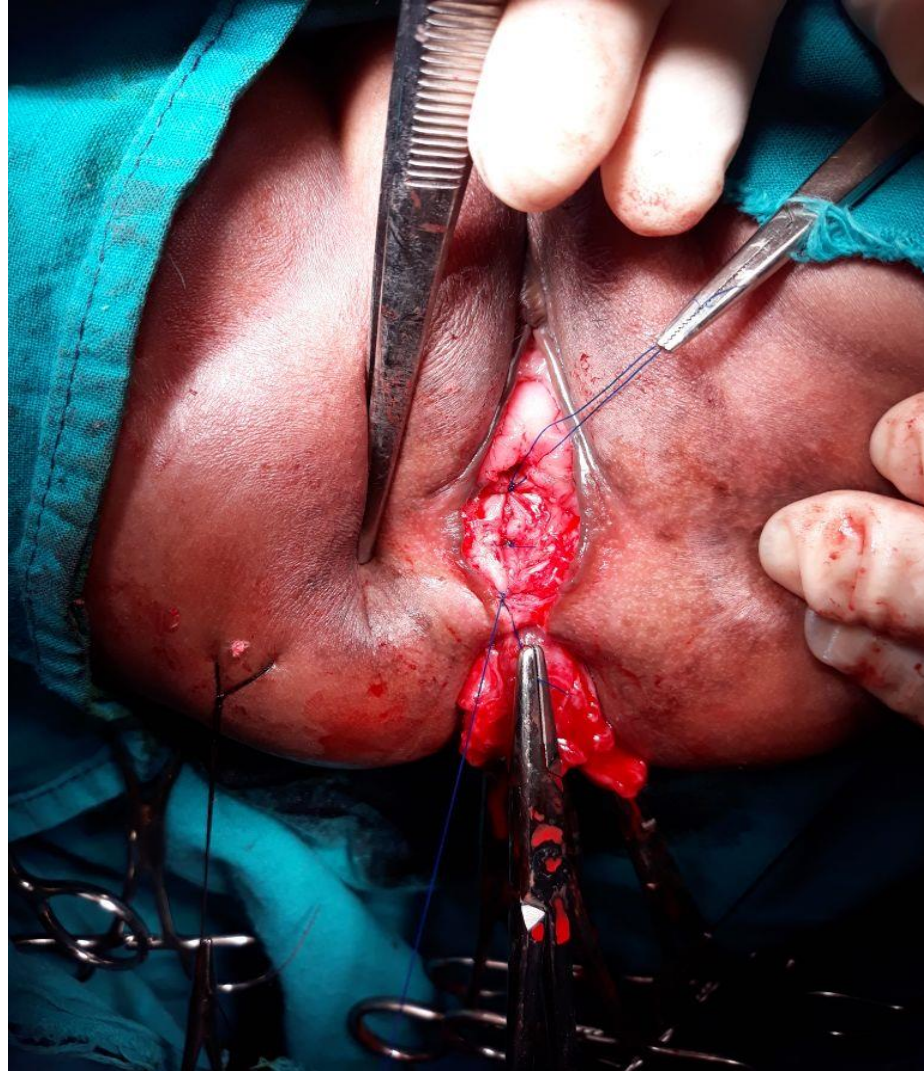


Figure 23: The vestibular wound and its underling perineum muscles were approximated in the midline between the rectum and vagina in two layers.

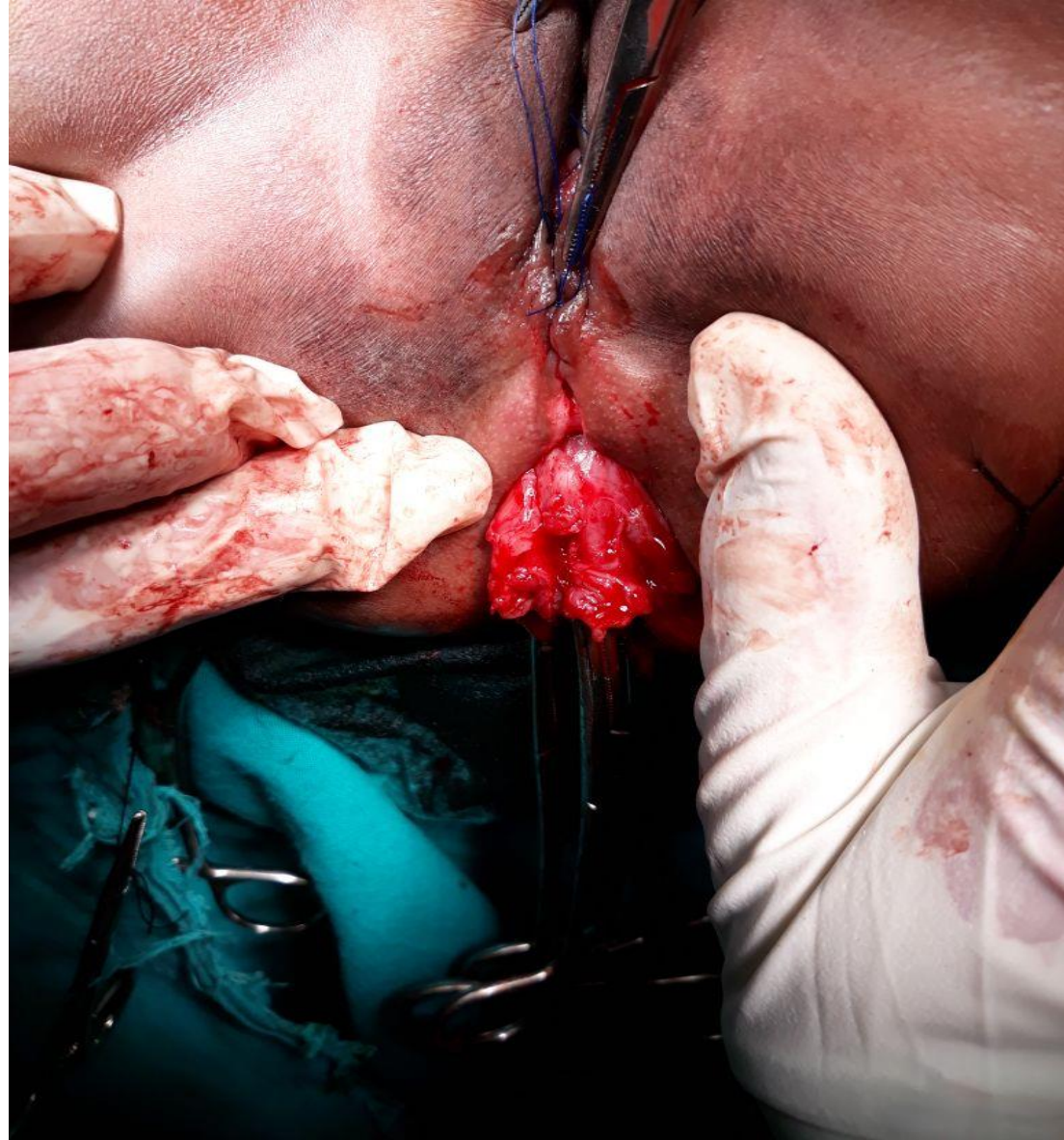


Figure 24: Perineal skin was closed with 4/0 vicryle.



Figure 25: The neoanus allowed 12 sized Hegar's dilator or more.



Figure 26: Postoperative view one month later.



Surgical technique for group D
patients: *posterior sagittal*
anorectoplasty technique (PSARP):



Figure 27: A) The patient was placed in prone position.

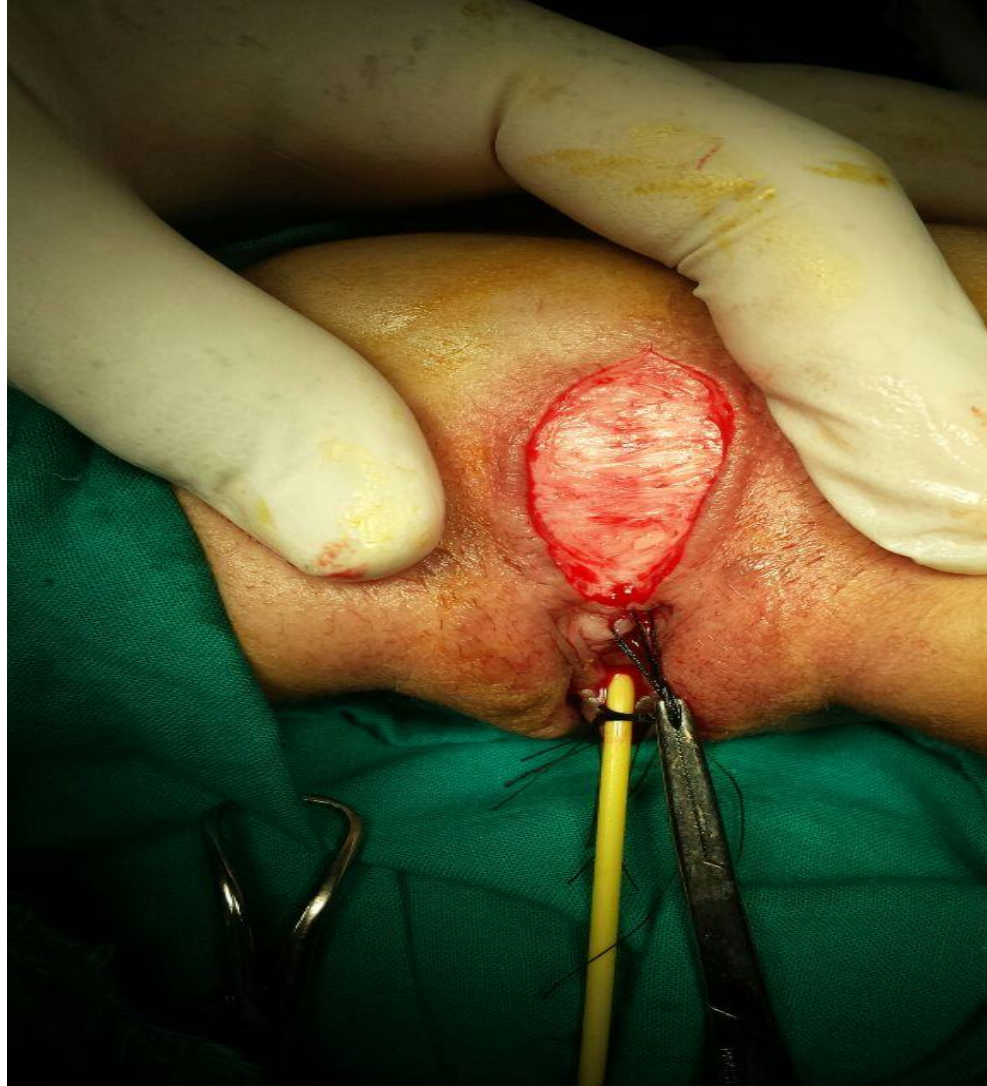


Figure 28: Peirfisula traction sutures. A midline incision was made beginning a few centimeters below the coccyx and it was extended to the fistula.

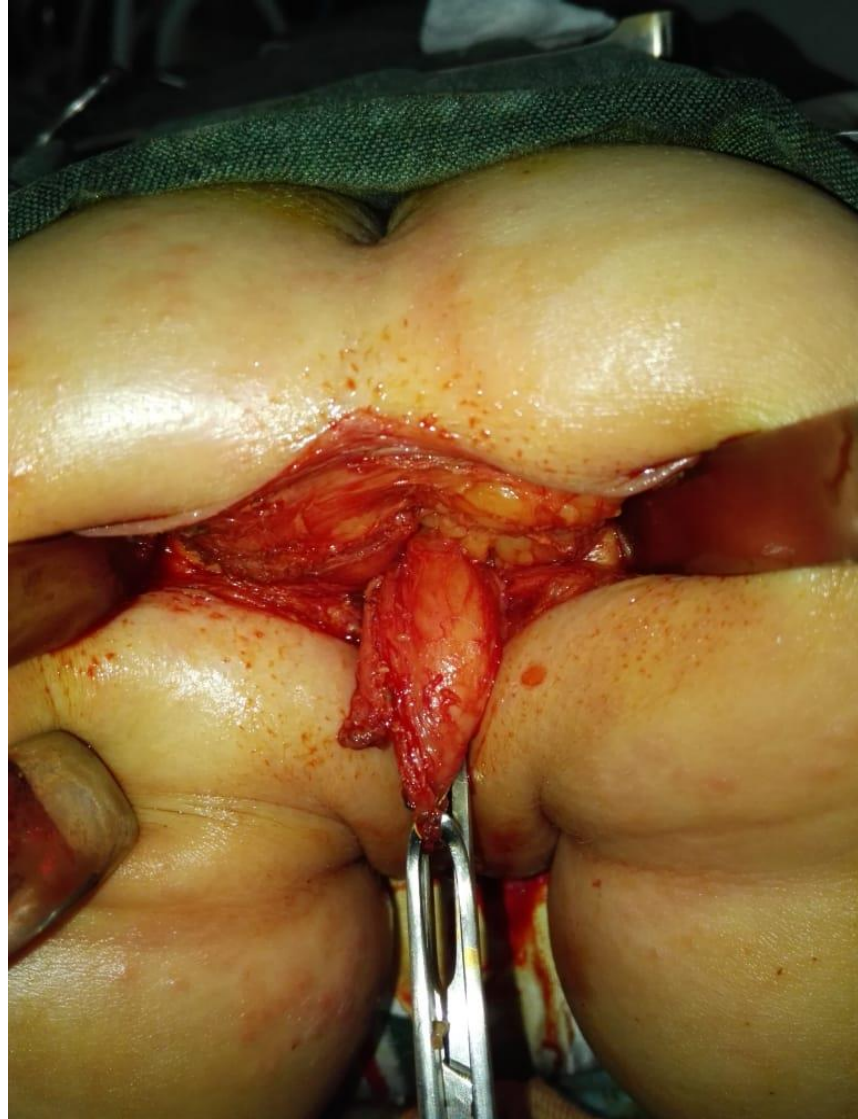


Figure 29: Midline incision with equal quantity of muscles on both sides, the rectum can be identified.



Figure.30: Full separation of the rectum from vagina and surrounding posterior muscles.

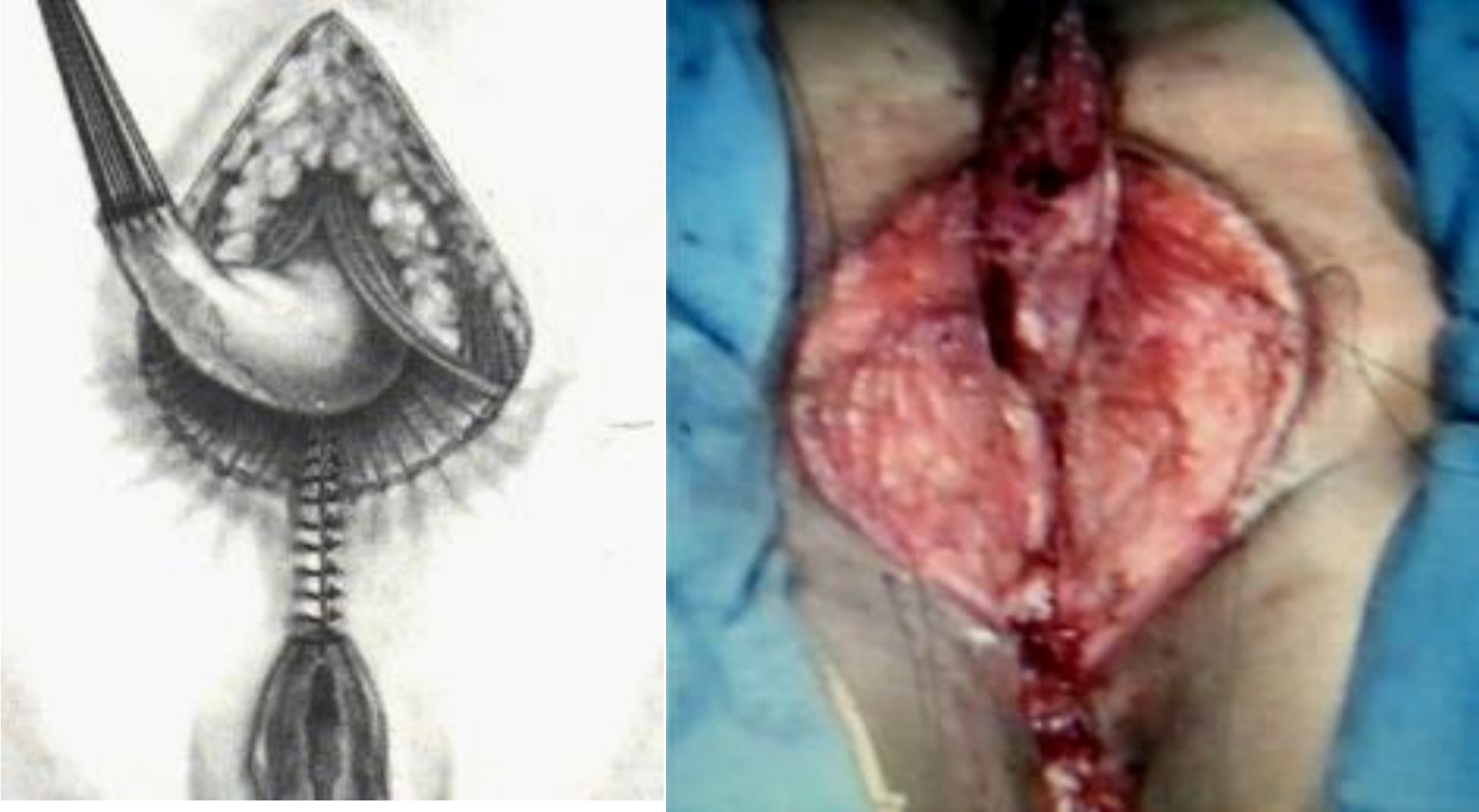


Figure 31: The perineum was reconstructed.

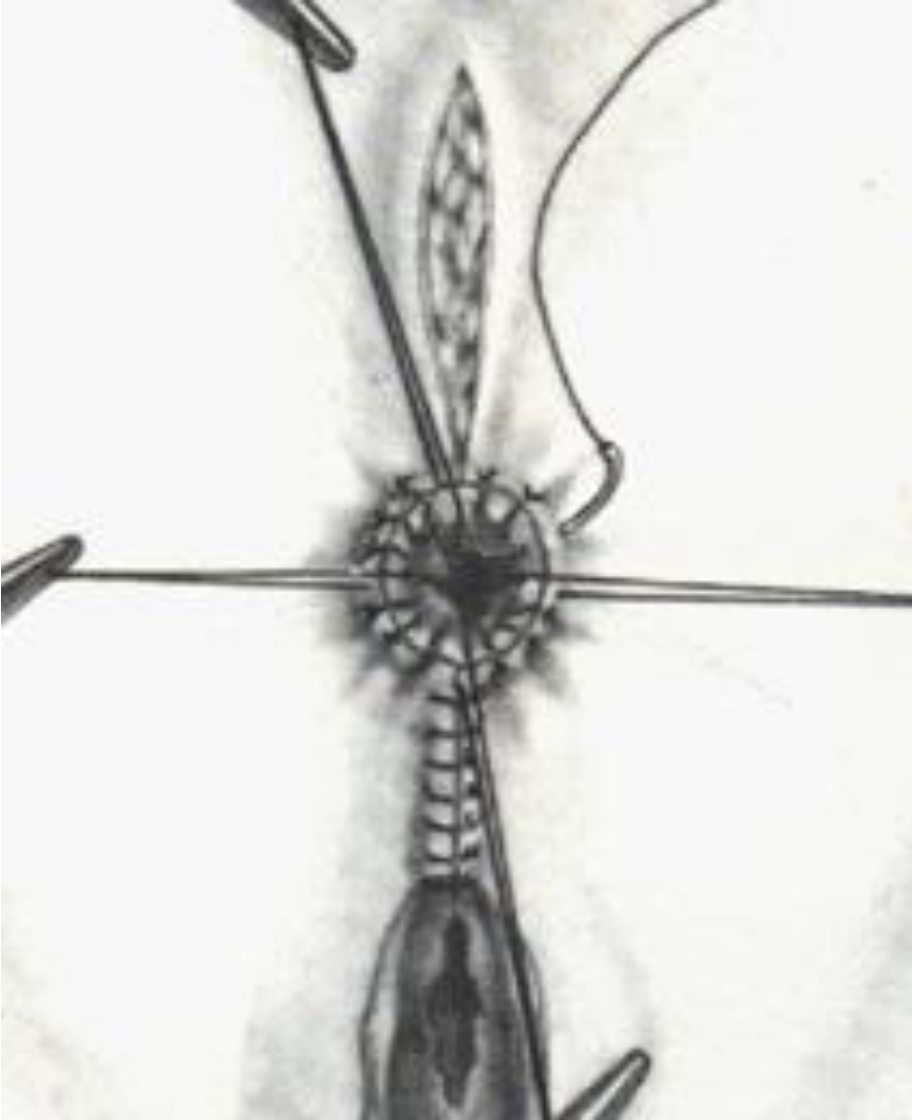


Figure 32: Final reconstruction of the perineal body and anoplasty.



Figure 33: The neoanus allowed 12 sized Hegar's dilator.



Figure 34: Complete healing at six weeks of the surgery.



Follow up

- All patients underwent regular follow up; the period of assessment ranges from 9 months to 3 years till date.
- During each visit the following points were noted: appearance, size of the neoanus, condition of the wound.
- Data regarding early complications like wound infection, wound dehiscence, skin excoriation.
- Delayed complications like, mucosal prolapse, fistula formation, stenosis was collected.
- Information about whether scheduled dilatation was followed, bowel habits, continence, soiling was gathered.

Approaches of examination according to the age:

- For younger children who had not attained the age for continence (<3.5 years), anocutaneous reflex and anal squeeze on per rectal digital examination were performed.
- Fecal continence score for those three years or more were applied according to Templeton score where operative outcome is designated as “good”, “fair “ and “poor”

Table 1. Quantitative assessment of fecal continence (Ditesheim and Templeton)

• Toilet training for stool:	
a. Successful.	1
b. Occasionally successful (awareness of impending stool)	0.5
c. No awareness of impending stool.	0
• Fecal continence:	
a. None or rare.	1
b. Three per week or less.	0.5
c. More than three per week.	0
• Extra under-paints or liners needed for soiling:	
a. Never.	1
b. Only when having diarrhea.	0
c. Always.	0
• Rashes or dermatitis:	
a. No current problems.	0.5
b. Some current problems.	0
• Social problems:	
a. None.	1
b. Infrequent odor; doesn't miss school, But no overnights, dates and camping, etc.	0.5
c. Frequent odor affects school and play.	0
• Activity restrictions:	
a. None.	0.5
b. Avoid swimming, sports, etc.,	0

Total score (range): Good= (4-5 points); Fair = (2-3.5 points)/ Poor = (0-1.5) (Templeton, 1985).



Discussion

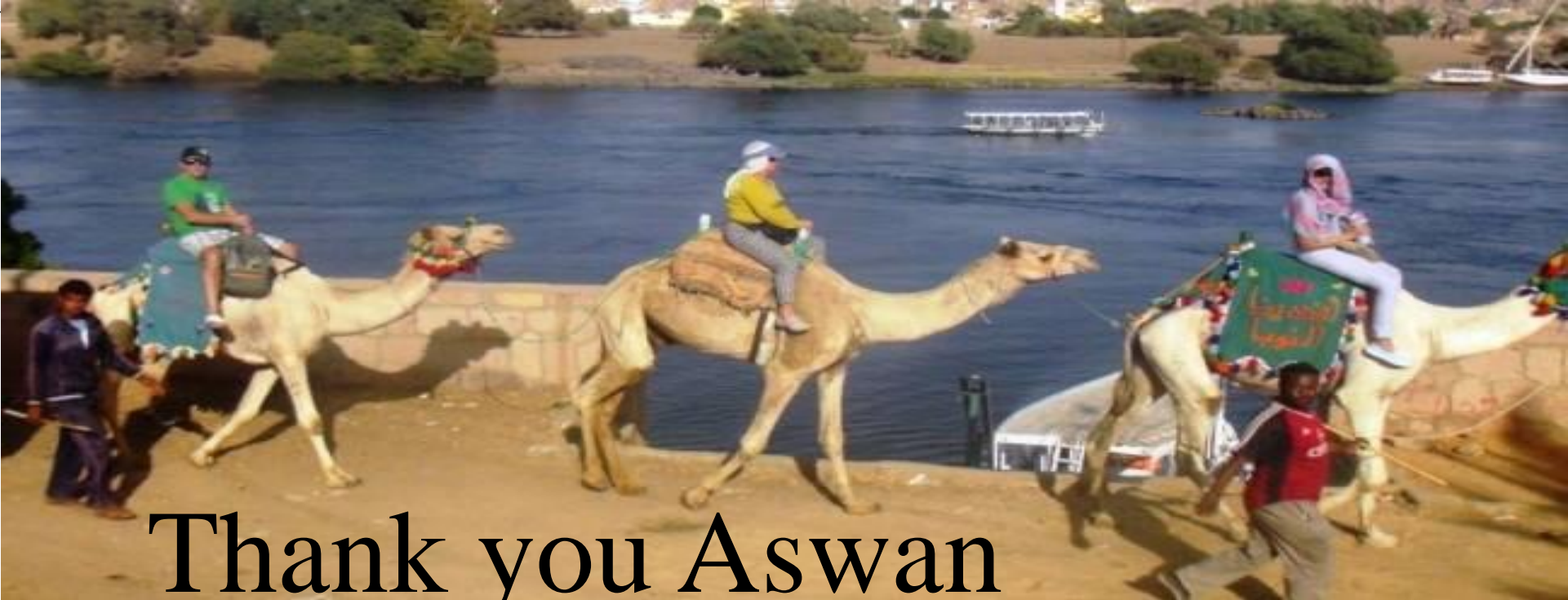
- In our study, constipation was more common in the modified ASARP and TSARP groups .
- Anal soiling and fecal incontinence were frequently detected in PSARP and classic ASARP groups.
- This might be explained by having an intact muscle complex in the TSARP and modified ASARP groups and divided muscle complex and it's rejoining in other groups.

- We overcome constipation by conservative treatment, so, it disappears with a child growing.
- Postoperative anal soiling and incontinence improved with time in groups of TSARP and modified ASARP by meal modification, enema, and toilet training but not improved in some cases of PSARP and classic ASARP groups which might be attributed to the disruption of the muscle complex.

Conclusion

- All single stage procedure are suitable for repair of vestibular fistula in infant as well as in child female with good functional outcome.
- TSARP proved to achieve the best postoperative cosmetic appearance, parent satisfaction and functional outcome followed by modified ASARP.

- PSARP is the best-visualized type of the operation so, it had the lowest percentage of vaginal wall injury



Thank you Aswan



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Citations — 22

h-index — 2

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