FIGO
International Federation of Gynecology and Obstetrics

FIGO Fistula Surgery Training Initiative
Live Online Training Session

Expert Surgical Workshop: Ongoing Incontinence Post VVF Repair

Trainers: Dr Andrew Browning and Dr Fekade Ayenachew

Objectives of the workshop

- Terminology
  - Post Obstetric Fistula Repair Incontinence (POFRI)
- What it is
- What to do to prevent it
- What to do to treat it
- Innovations

Incontinence after obstetric fistula repair
WHAT IS IT?

- Any incontinence after fistula repair.

  - Fistula-repair surgery has **three possible outcomes**:
    1) Successful closure of the fistula with restored continence (closed and dry)
    2) Successful closure of the fistula but with persistent incontinence (closed but wet)
    3) Failure to close the fistula (failed repair)

Incontinence after obstetric fistula repair

Effects of ongoing incontinence

- If the continuing urinary incontinence is tolerable/manageable (stated as not affecting the quality of life of the patient), continue conservative management (life style modification, physical therapy).
  - Professional support with trained practitioners important.
- If the continuing incontinence is severe, such that the woman is still leaking when walking and lying:
  - She will have difficulty reintegrating into her normal life
  - Depression will be ongoing
  - She will think that not much was actually achieved during the operation

Incontinence after obstetric fistula repair

- From 6% (early study in Addis Ababa, Ethiopia 1993)
- 33% (later study from Ethiopia 2002)
- 49% in one study from Uganda.
- **Causes include:**
  - Stress incontinence,
  - Detrusor over-activity
  - Mixed incontinence
  - Retention with overflow
  - Recurrence of the fistula
  - Missed, second fistula
  - Missed ureteric fistula

- ***The patient can leak as much trans-urethrally after surgery as she did through the original fistula***

Kelly J. *Ethiopia: an epidemiological study of vesico-vaginal fistula in Addis Ababa.* World Health Stat Q. 1995;48(1):15-7.

Nardos R, Phoutrides EK et al. *Characteristics of persistent urinary incontinence after successful fistula closure in Ethiopian women*. Int Urogynecol J. 2020 Nov;31(11):2277-2283.

Management cont.

- **Predictors of post repair incontinence**:
  - Urethral involvement:
    - *The urethra is involved in up to two-thirds of fistulas.*
    - *OR 8.4 for ongoing incontinence*
    - *Compare Goh vs Waaldijk classification*
  - Size of the original fistula
    - *The risk for persistent incontinence increases by 1.34 times for each 1 cm increase in the diameter of the defect.*
  - Vaginal scarring
    - *The risk for persistent incontinence is 2.4 times greater.*
  - Bladder size
    - *The risk for persistent incontinence is 4.1 times greater. A small bladder capacity in this study means the bladder capacity was less than 100 ml of fluid at the end of surgery as filled with the dye test.*

- Browning A. *Risk factors for developing residual incontinence after vesicovaginal fistula repair.* Br J Obstet and Gynaecol 2006; 113:482-485.

Diagnosis of ongoing incontinence

- Dye test
- Post void residual
- Pad test
- Bedside cystometry
- Formal urodynamics
  - 7% retention with overflow
  - 1.5% fistula recurrence
  - 49% USI
  - 2% detrusor overactivity.
  - 42% mixed

- Formal urodynamics
  - 100% USI
  - 0% detrusor overactivity

Compare non obstetric VVF- 47%USI, 43% DO, 17% poor compliance

- Goh J, Krausse H et al. *Urinary symptoms and urodynamics following obstetric genitourinary fistula repair*. Int Urogynecol J. 2013 Jun;24(6):947-51
- Nardos R, Phoutrides EK et al. *Characteristics of persistent urinary incontinence after successful fistula closure in Ethiopian women*. Int Urogynecol J. 2020
- Nov;31(11):2277-2283.
  Hilton P. *Urodynamic findings in patients with urogenital fistulae.* Br J Urol. 1998 Apr;81(4):539-42

Management of ongoing incontinence

The aim is to improve the patient's quality of life

- **Conservative Management**
  - **Pelvic Floor Muscle Exercises**
    - If the incontinence is mild, leaking only on coughing or mild exercise, 50% of women will be cured after six months.
    - If the incontinence is more severe, with leaking while walking, sitting and lying, only 18% will be improved at six months.(Urethral plugs can be helpful in this group)

Browning A, Menber B, Obstetric fistula in Ethiopia; a six month follow up after surgical treatment. Br J Obstet Gynaecol 2008 Nov;115(12):1564-9.

Principles

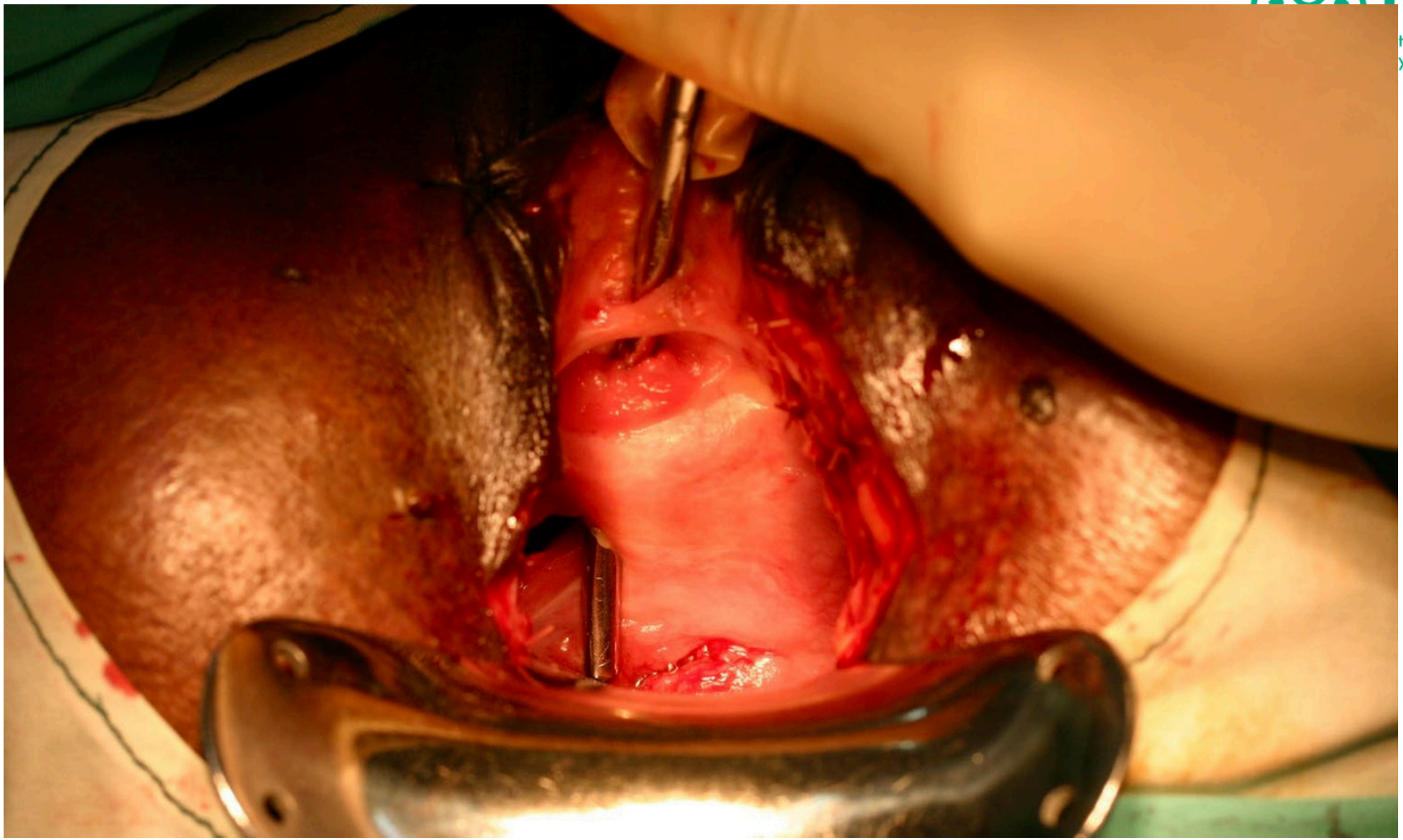
RESTORE NORMAL ANATOMY

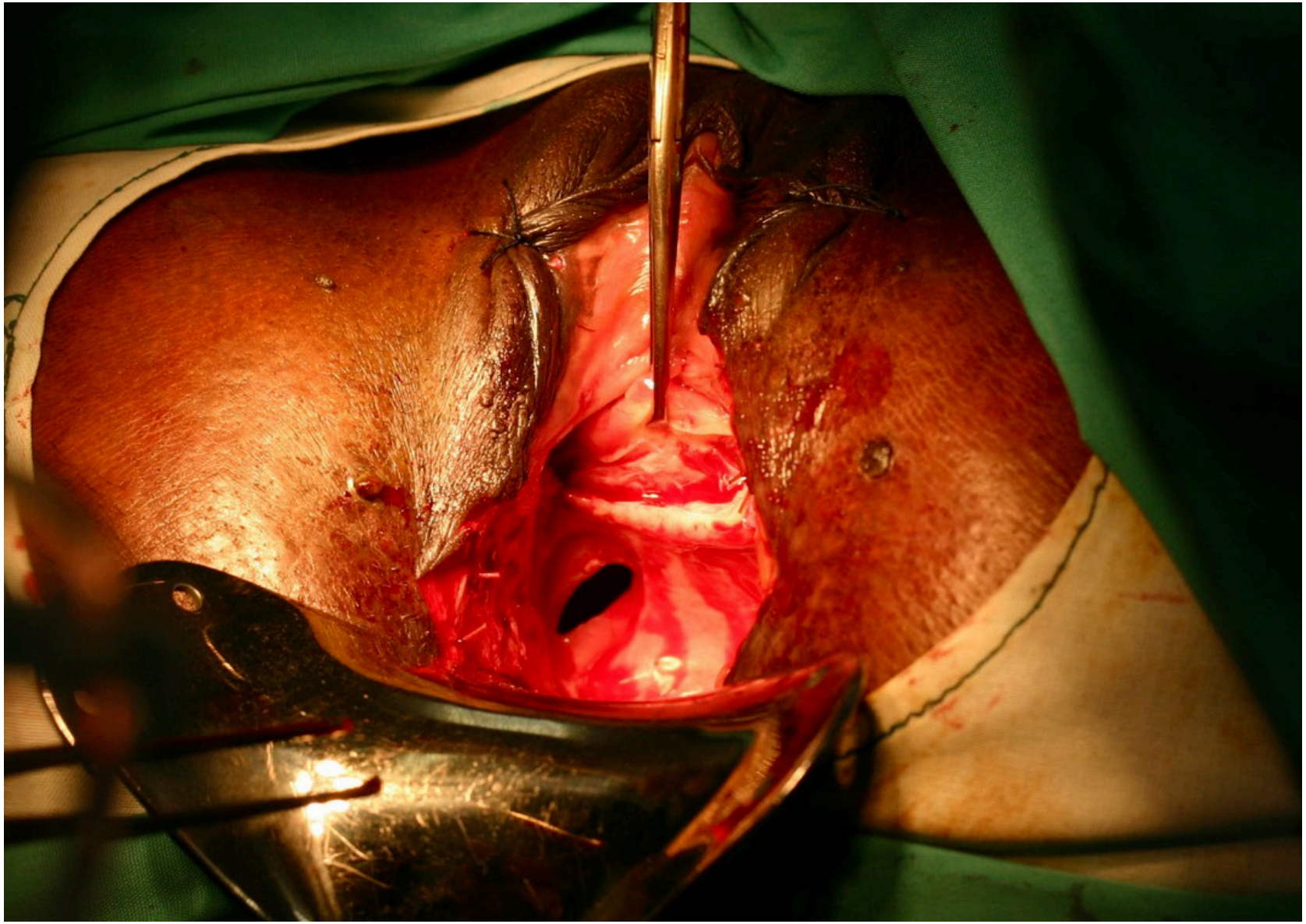
Surgical treatment and management of ongoing incontinence

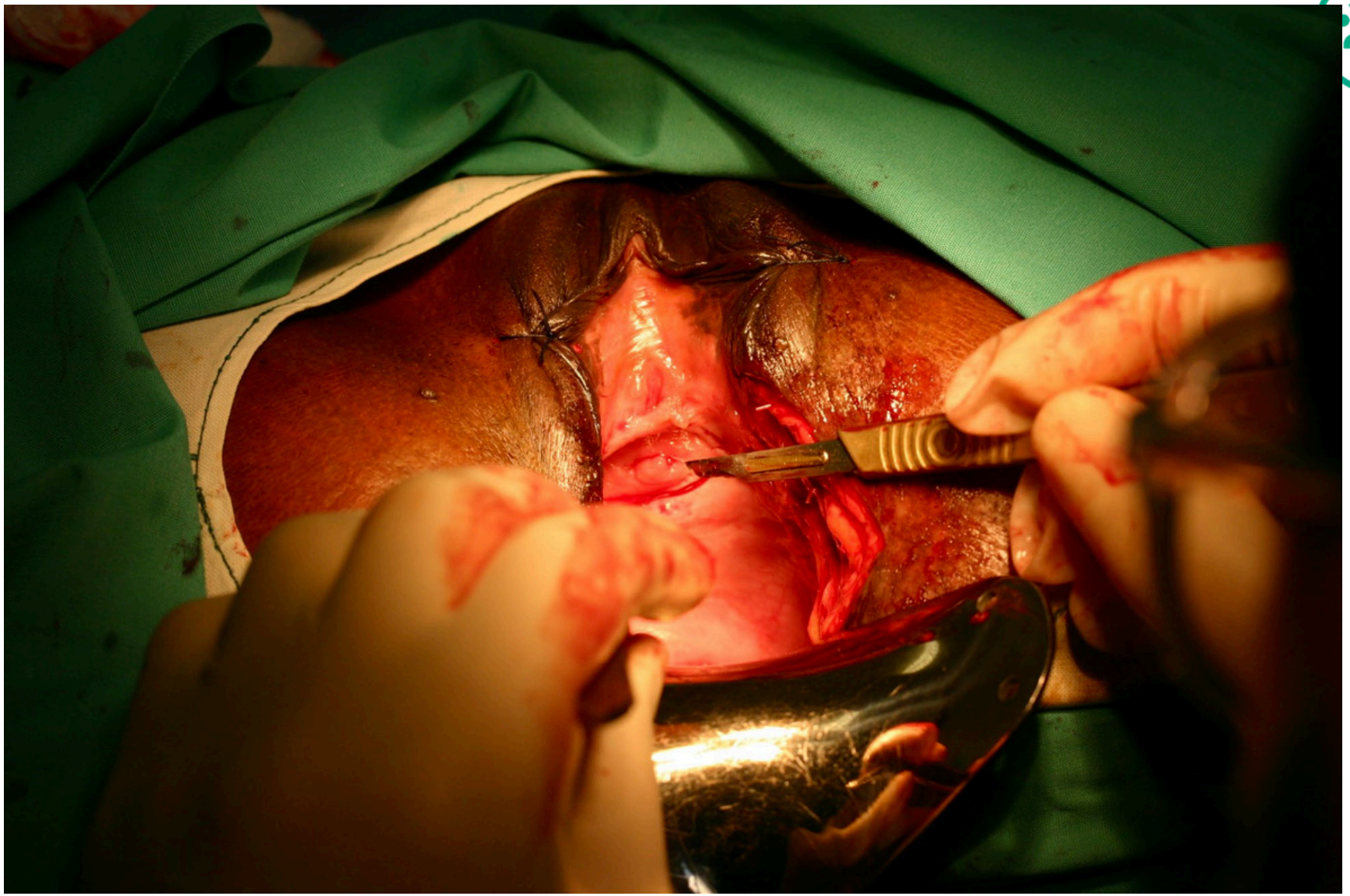
- **Surgical management**
  - **Aims**
    - Restore normal anatomy;
      - Restore normal urethral length and width
      - Support the urethra with a sling
        - Options – primary (during the fistula repair), delayed
      - Restore normal vagina/ vaginal reconstruction

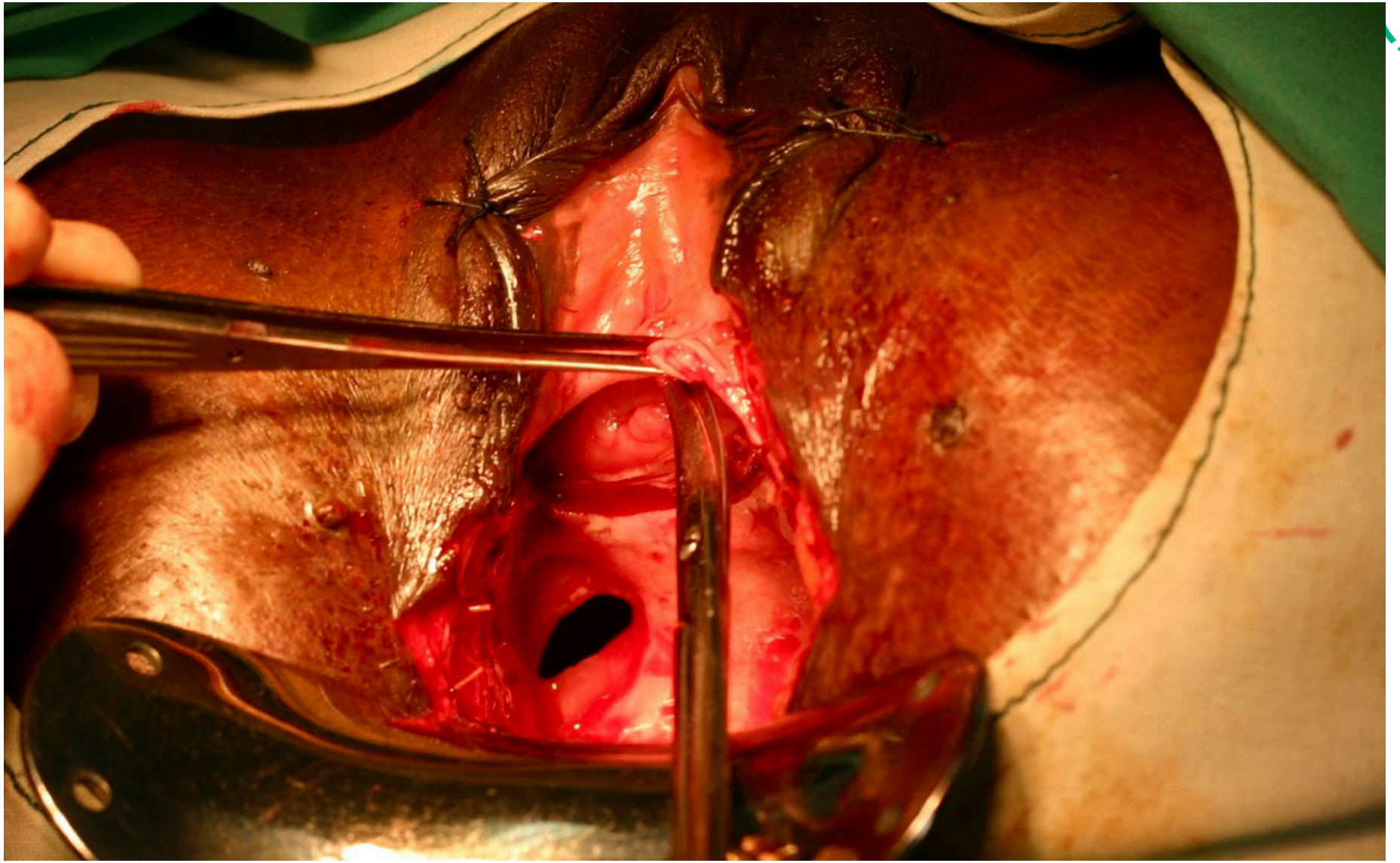
WHAT TO DO TO PREVENT IT

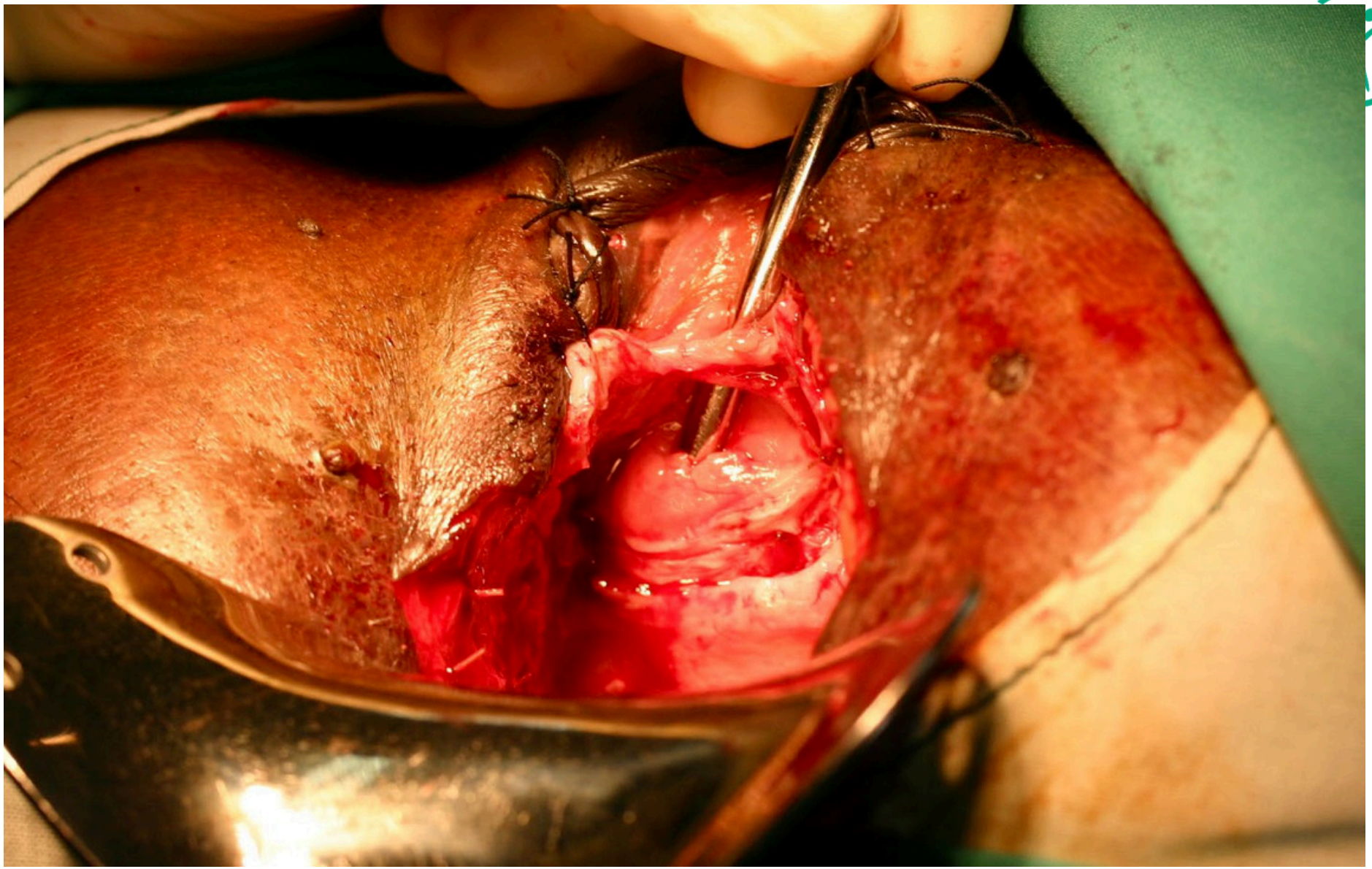
WHAT TO DO TO PREVENT IT

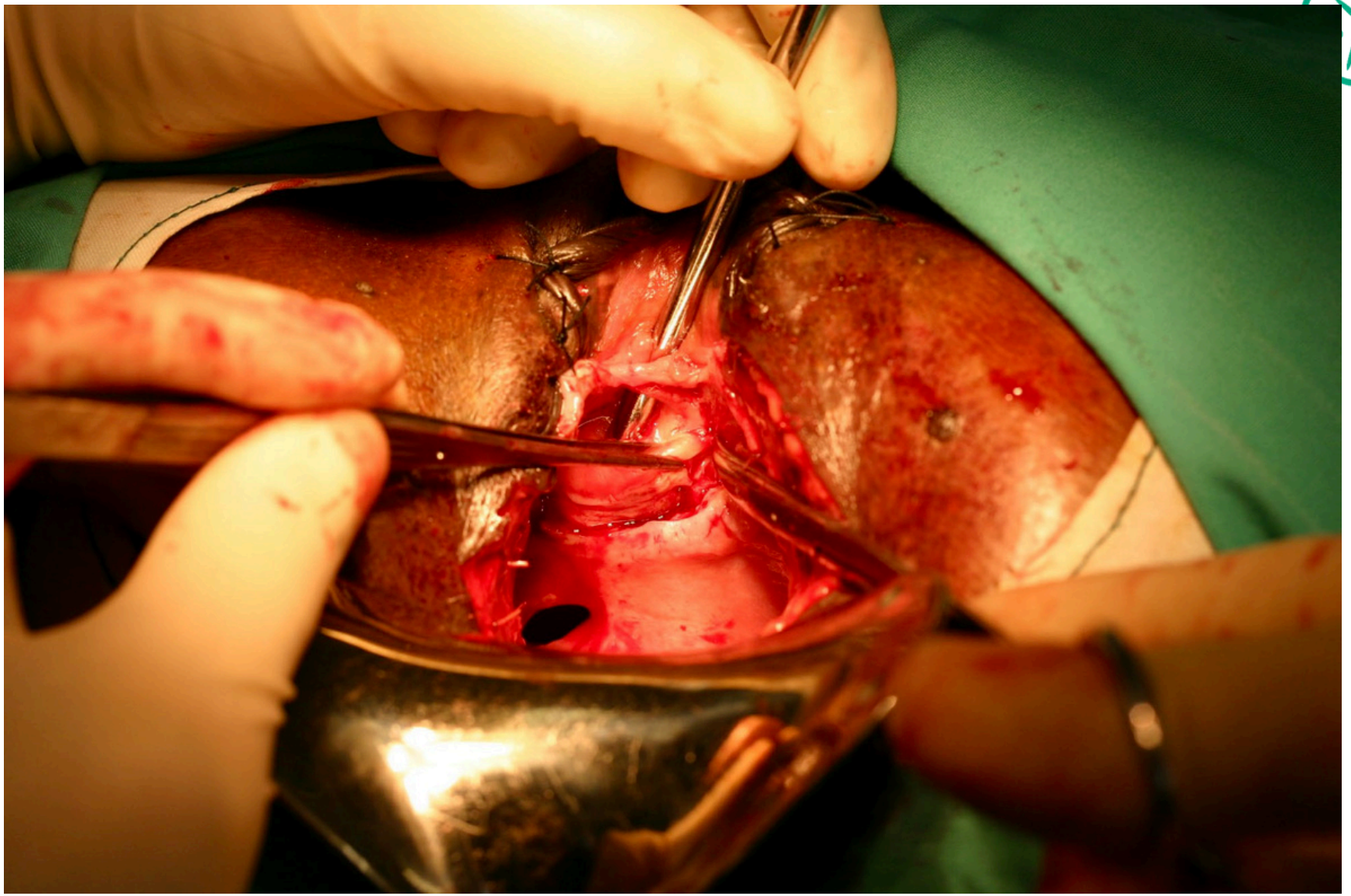


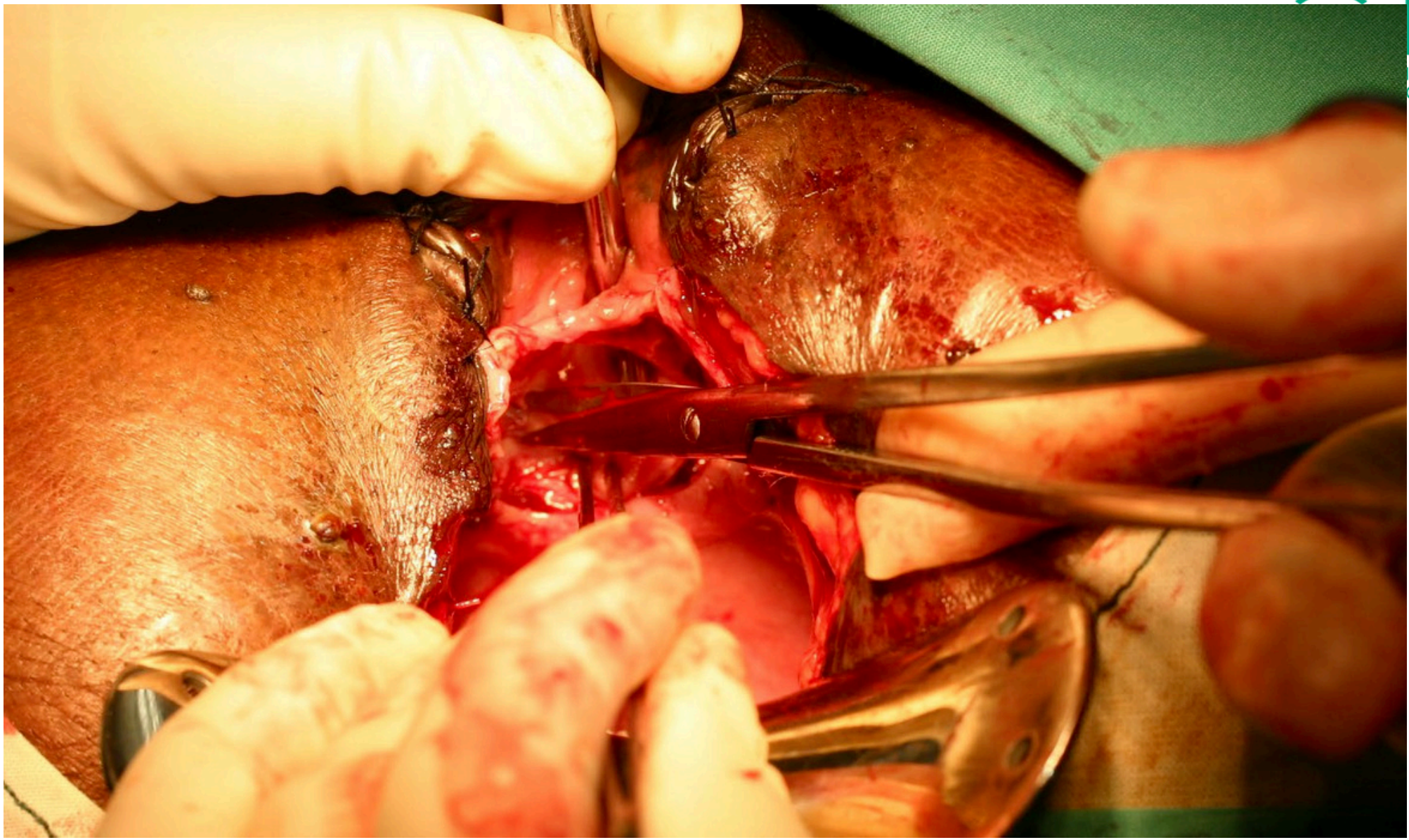












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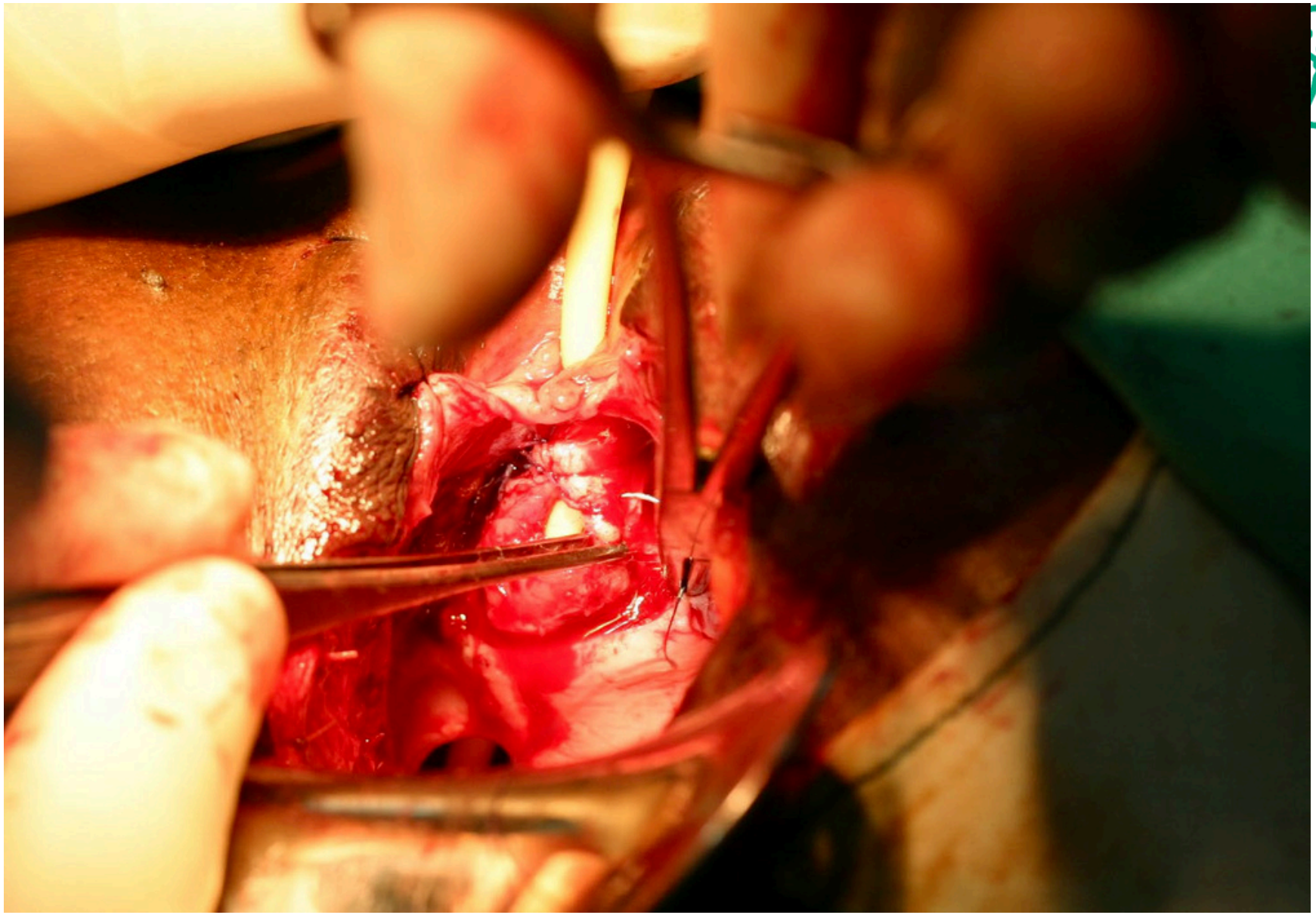

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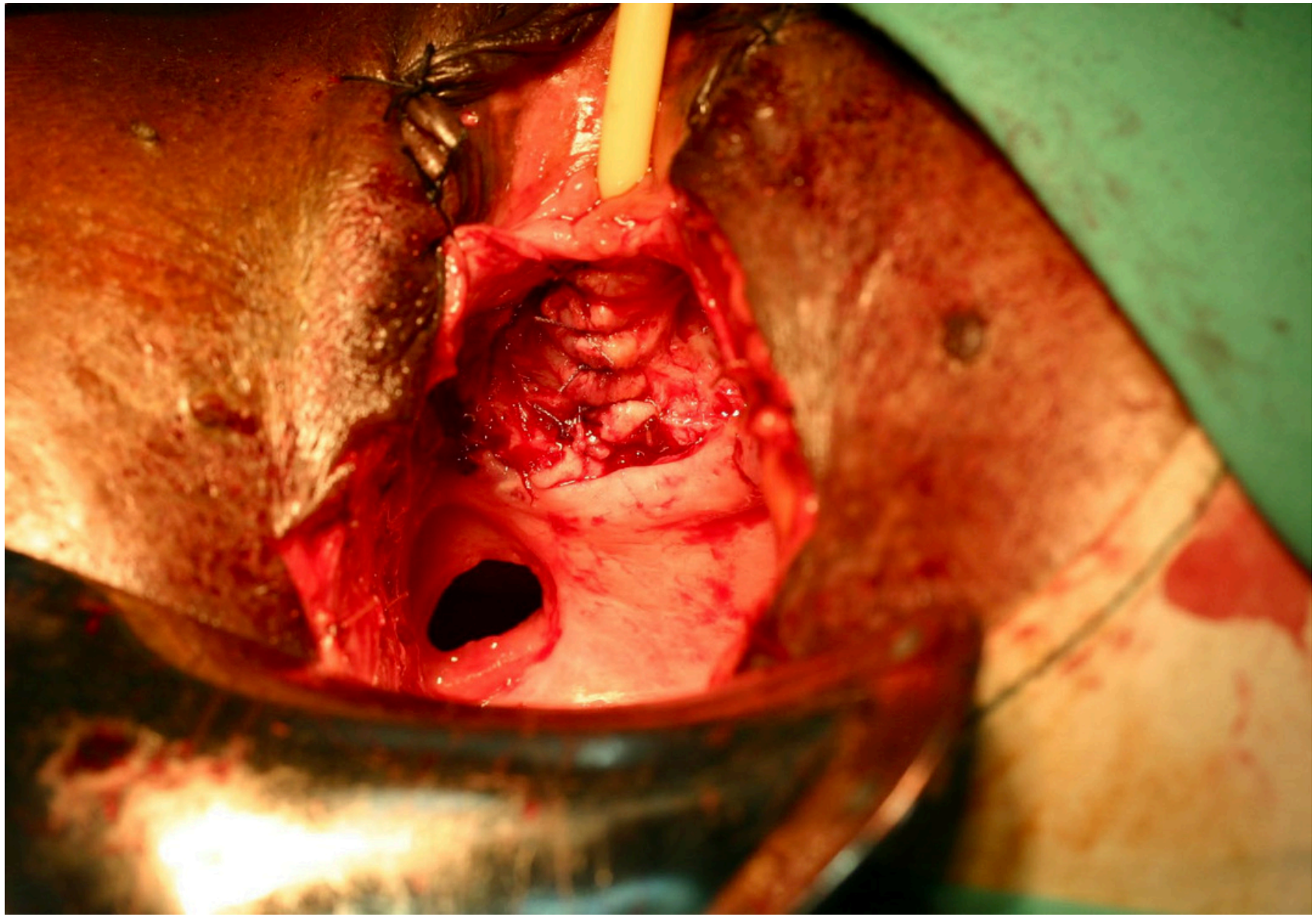

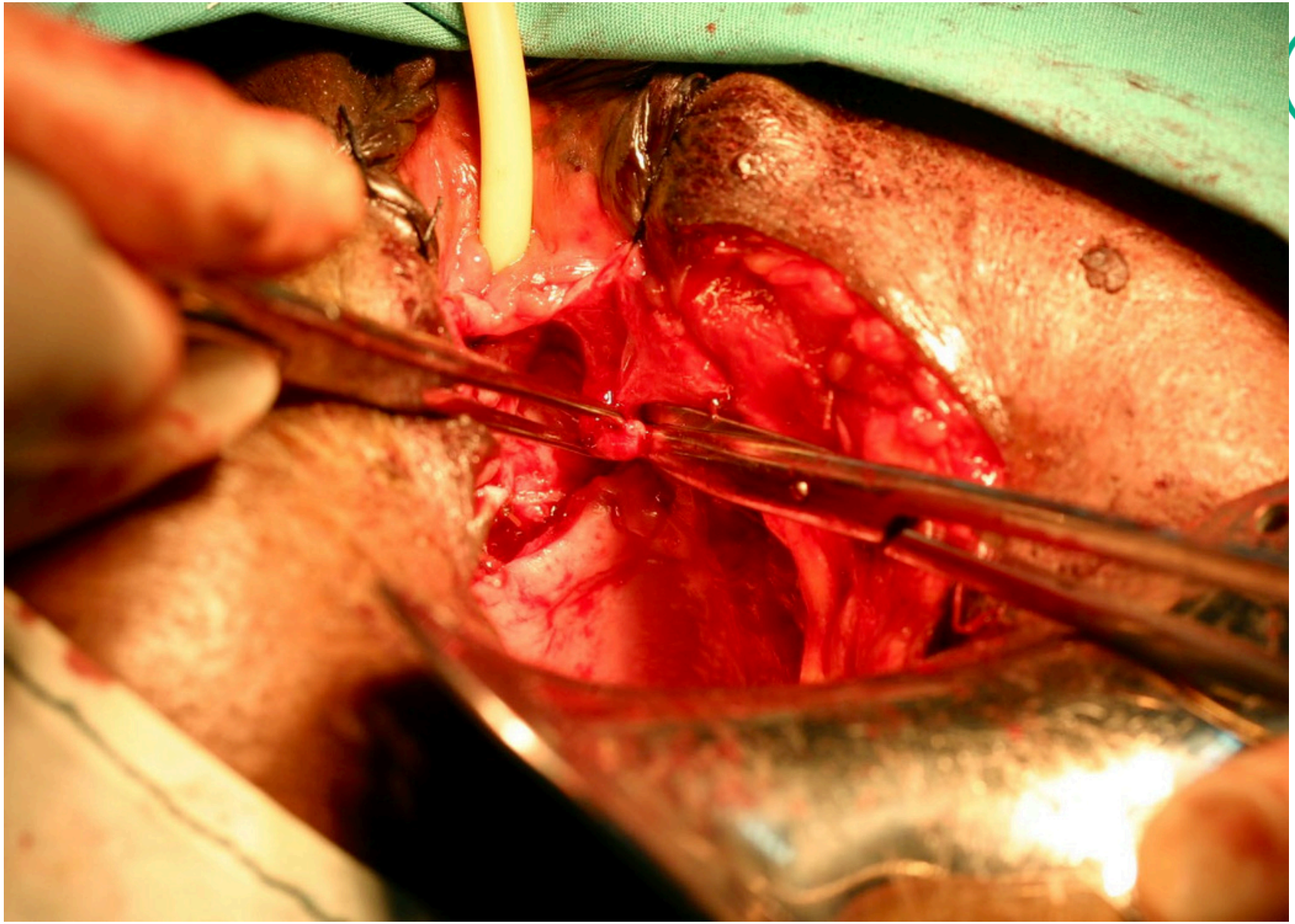

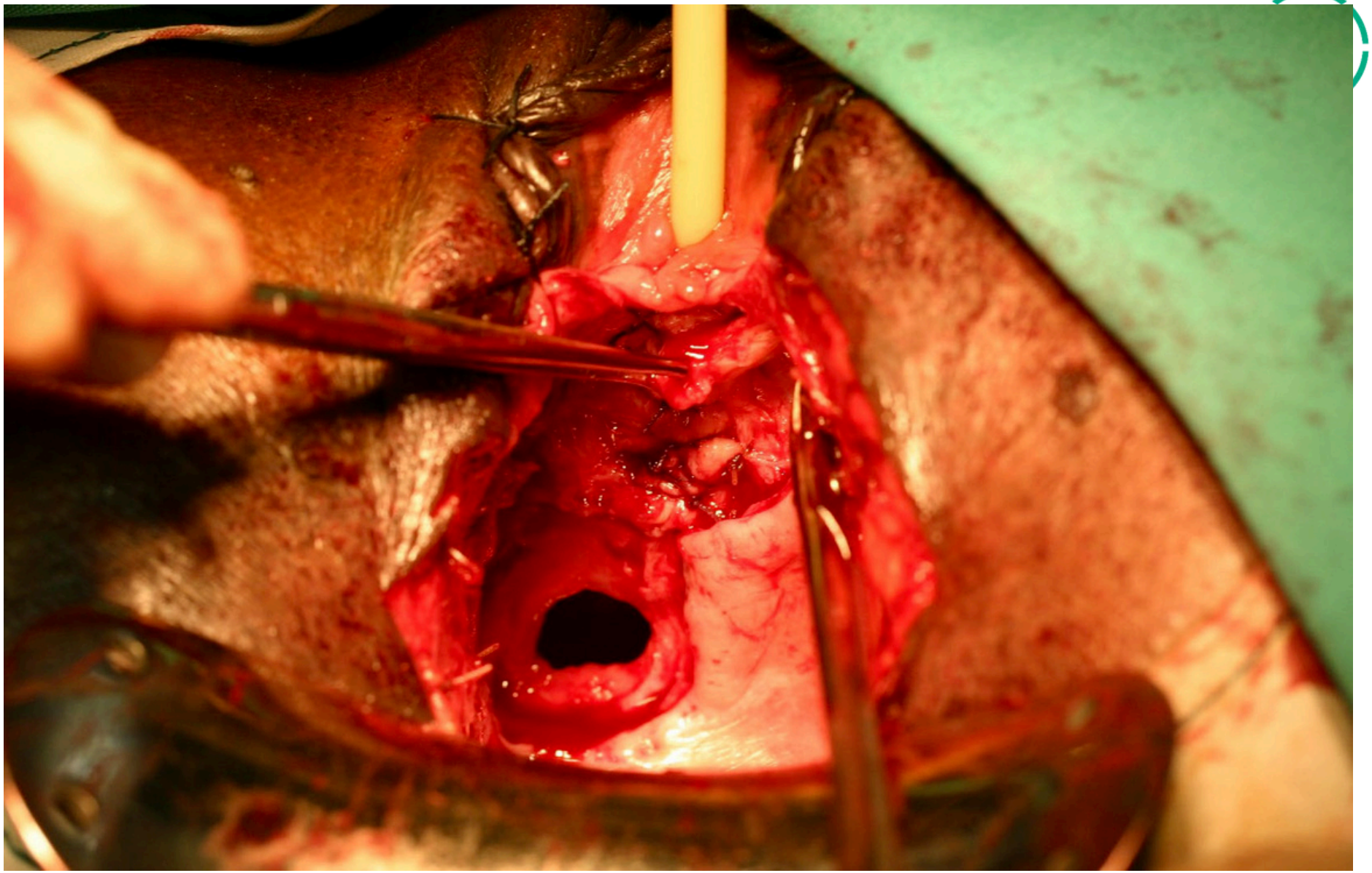

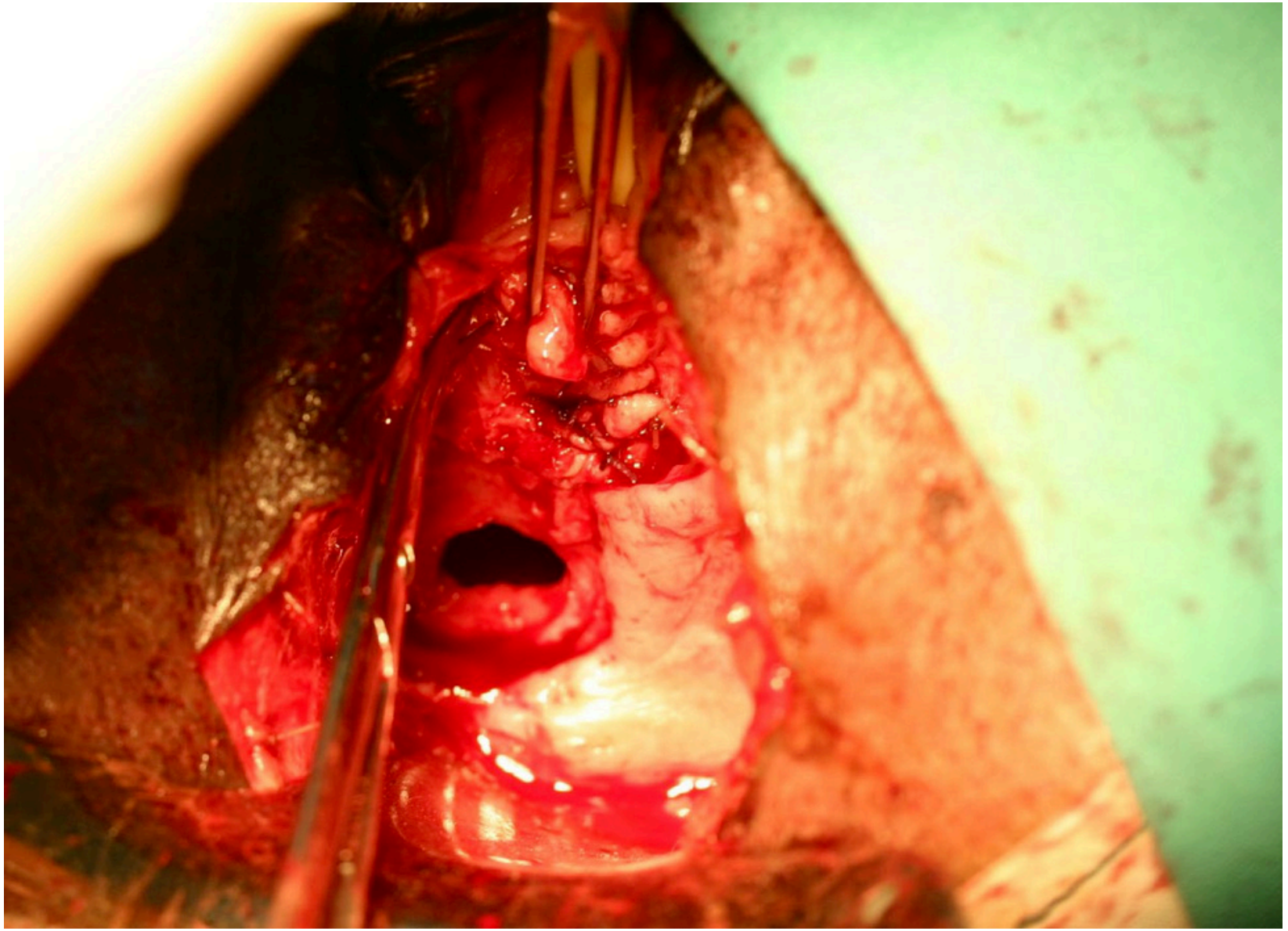

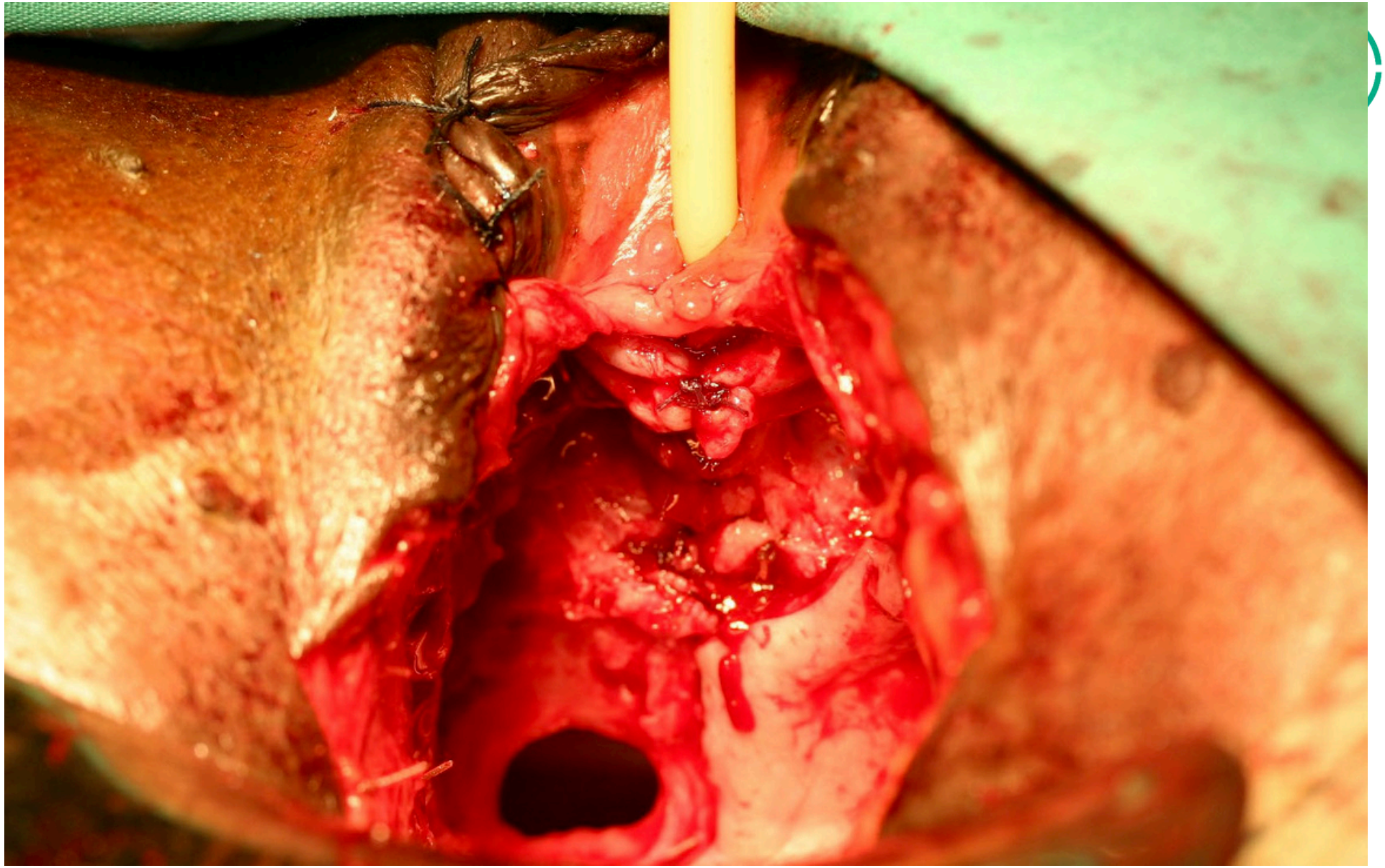

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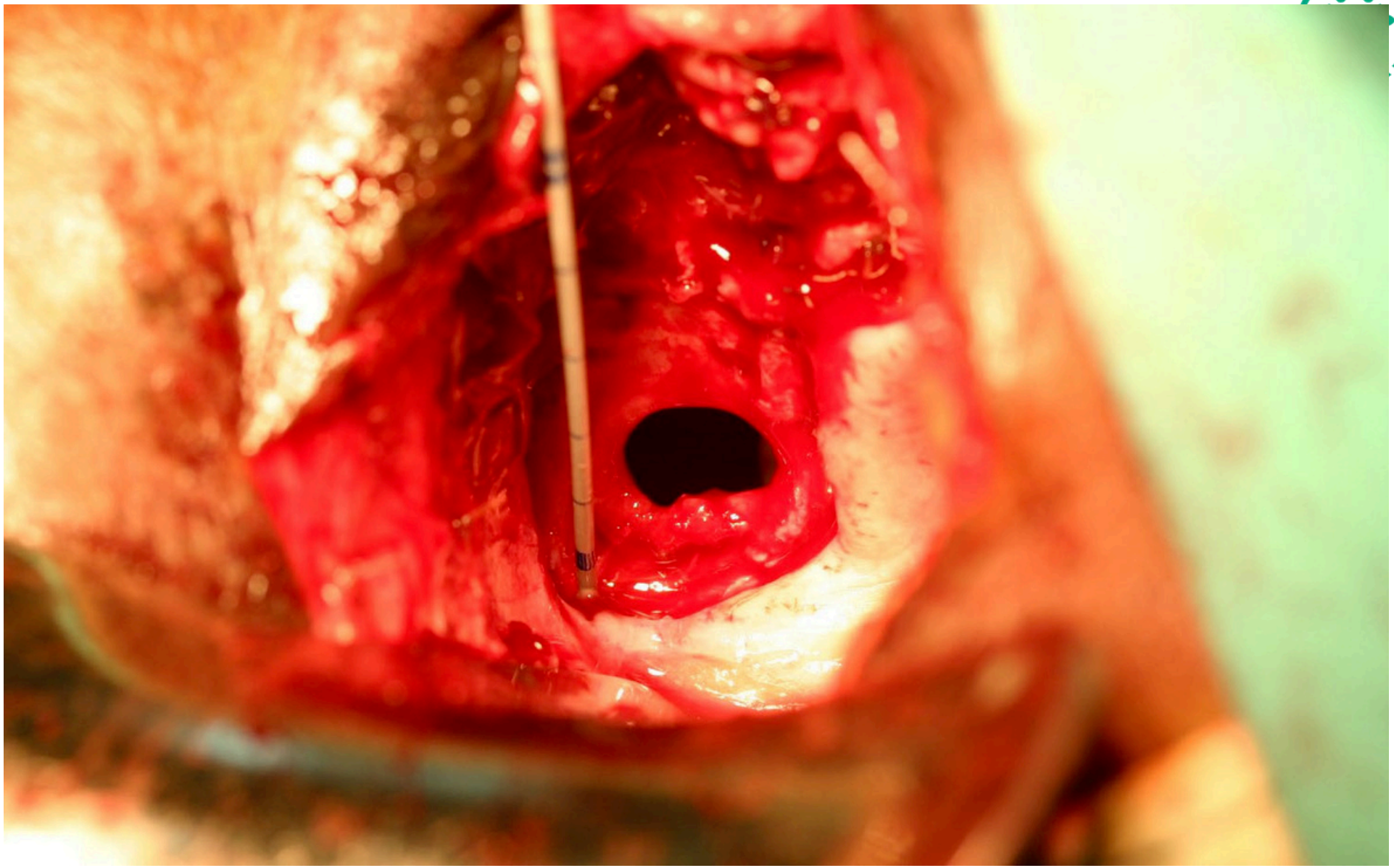
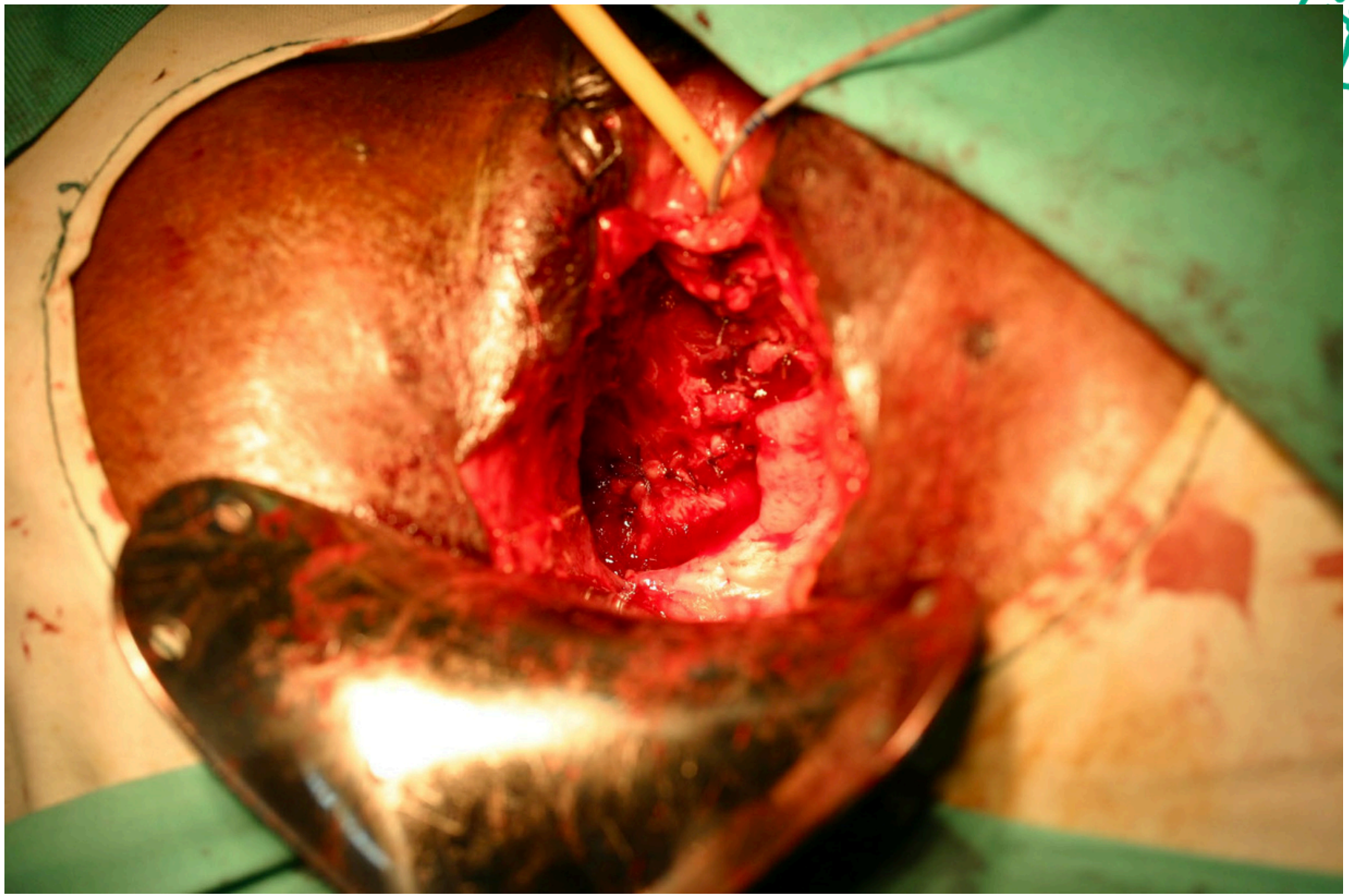
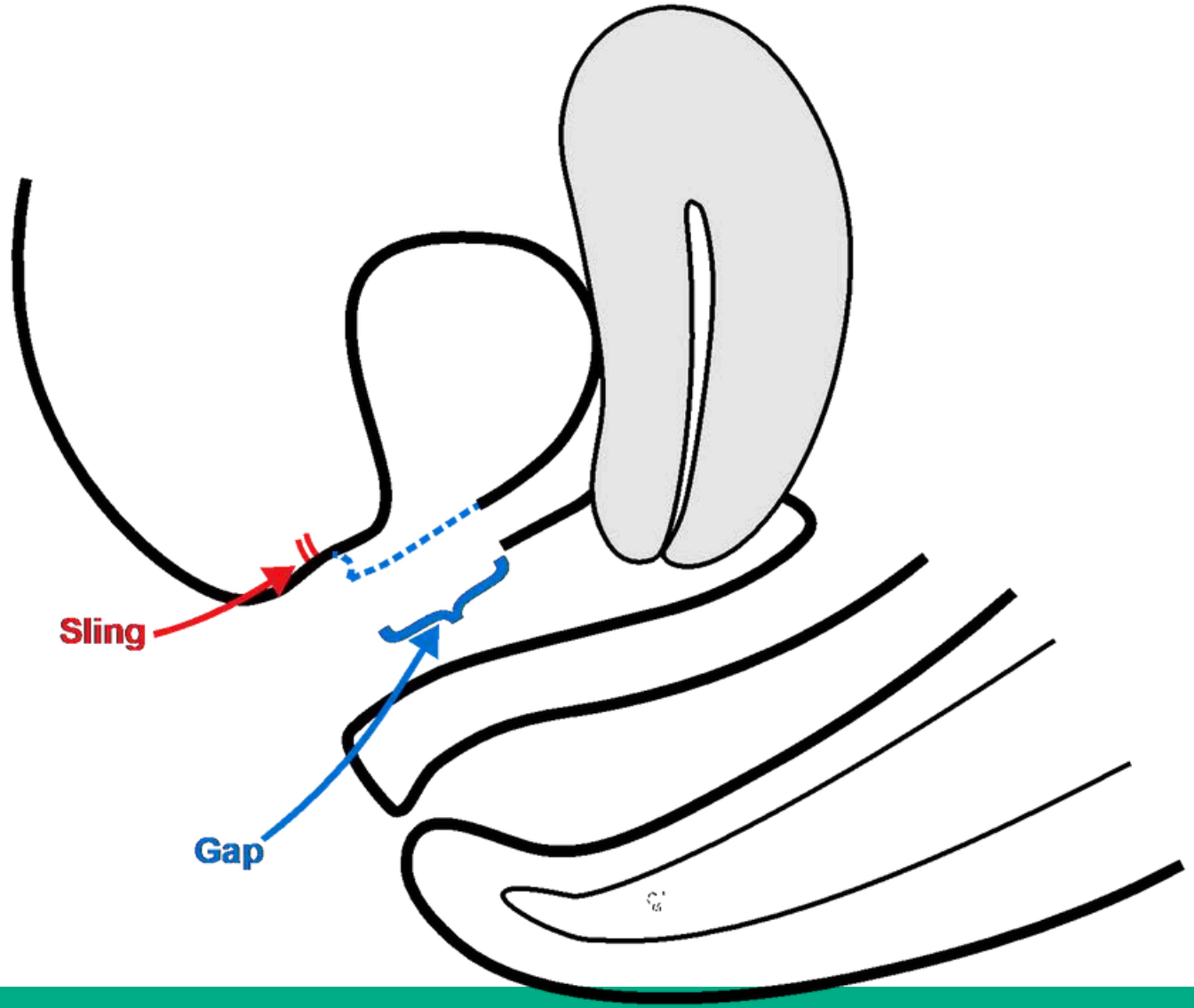
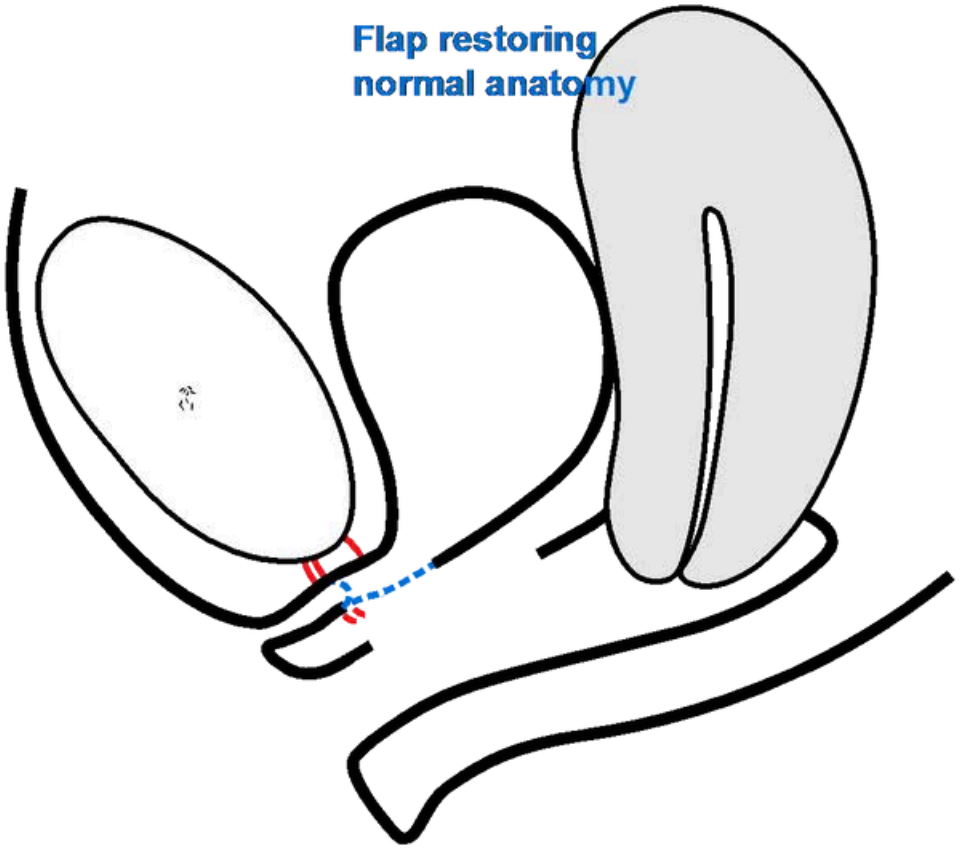
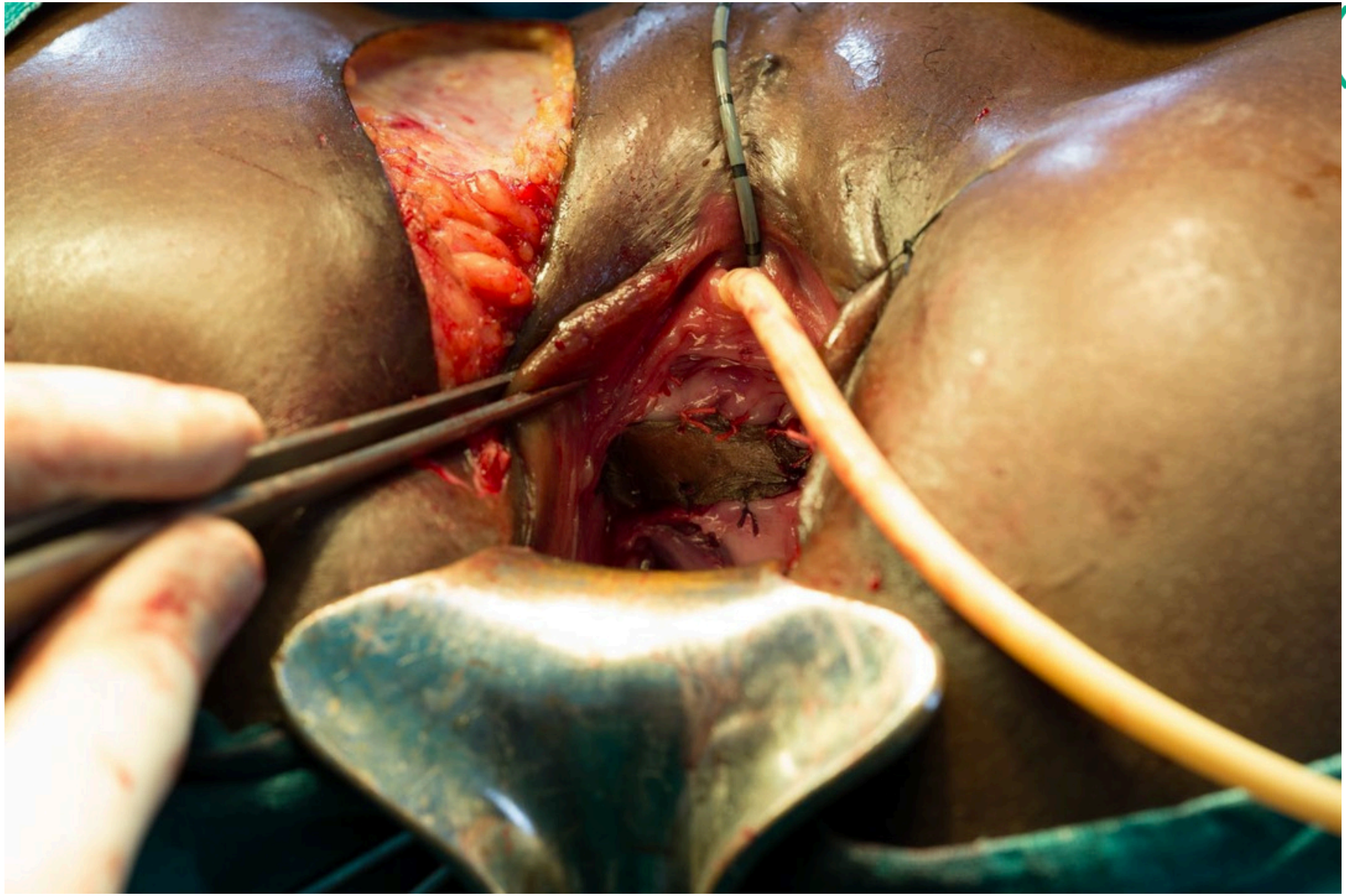





Sling
Gap


Tension on anterior vagina
Cervix pulled toward Introitus


Flap restoring
normal anatomy



WHAT TO DO TO TREAT IT

Surgery for ongoing incontinence
Restoring normal anatomy
1. Restore normal urethral length and width

- Average urethral length for patients with ongoing incontinence; 1.4cm
- Urethral/ bladder neck plication
- ‘Re-make’ the urethra

Surgery for ongoing incontinence
Restoring normal anatomy
2. Support the urethra with a sling

- Muscle sling- from levators

- Facial sling

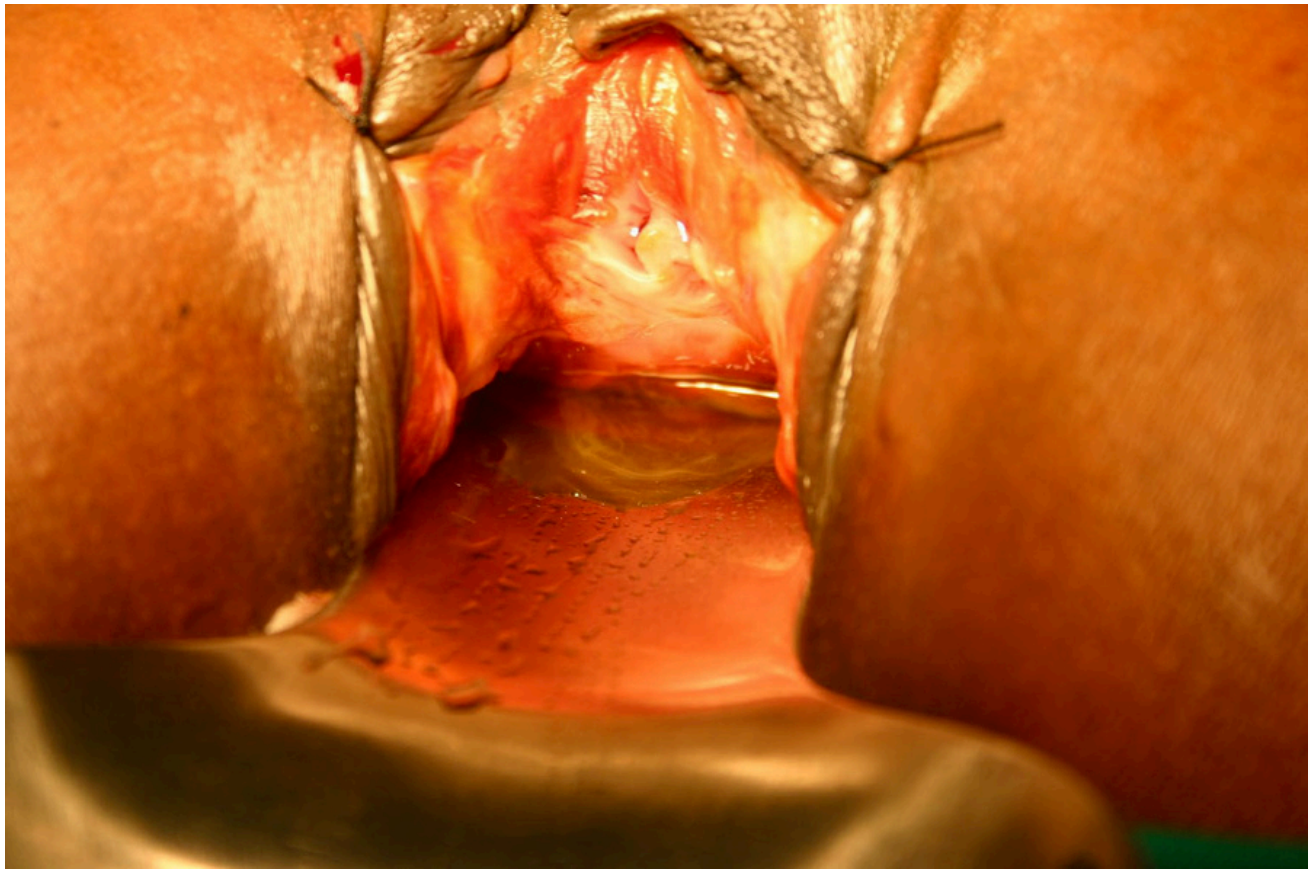
Surgery for ongoing incontinence
Restoring normal anatomy
3. Reconstruct the vagina

- Labial rotational flap
- Labia minora flap
- Singapore flap

Example 1

Restore normal urethral length and width

Example 1
Step 1
Restore normal urethral length and width



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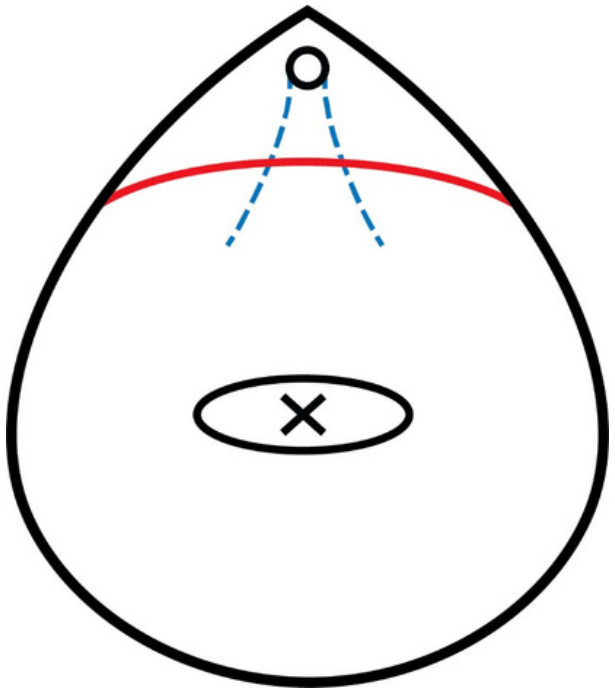

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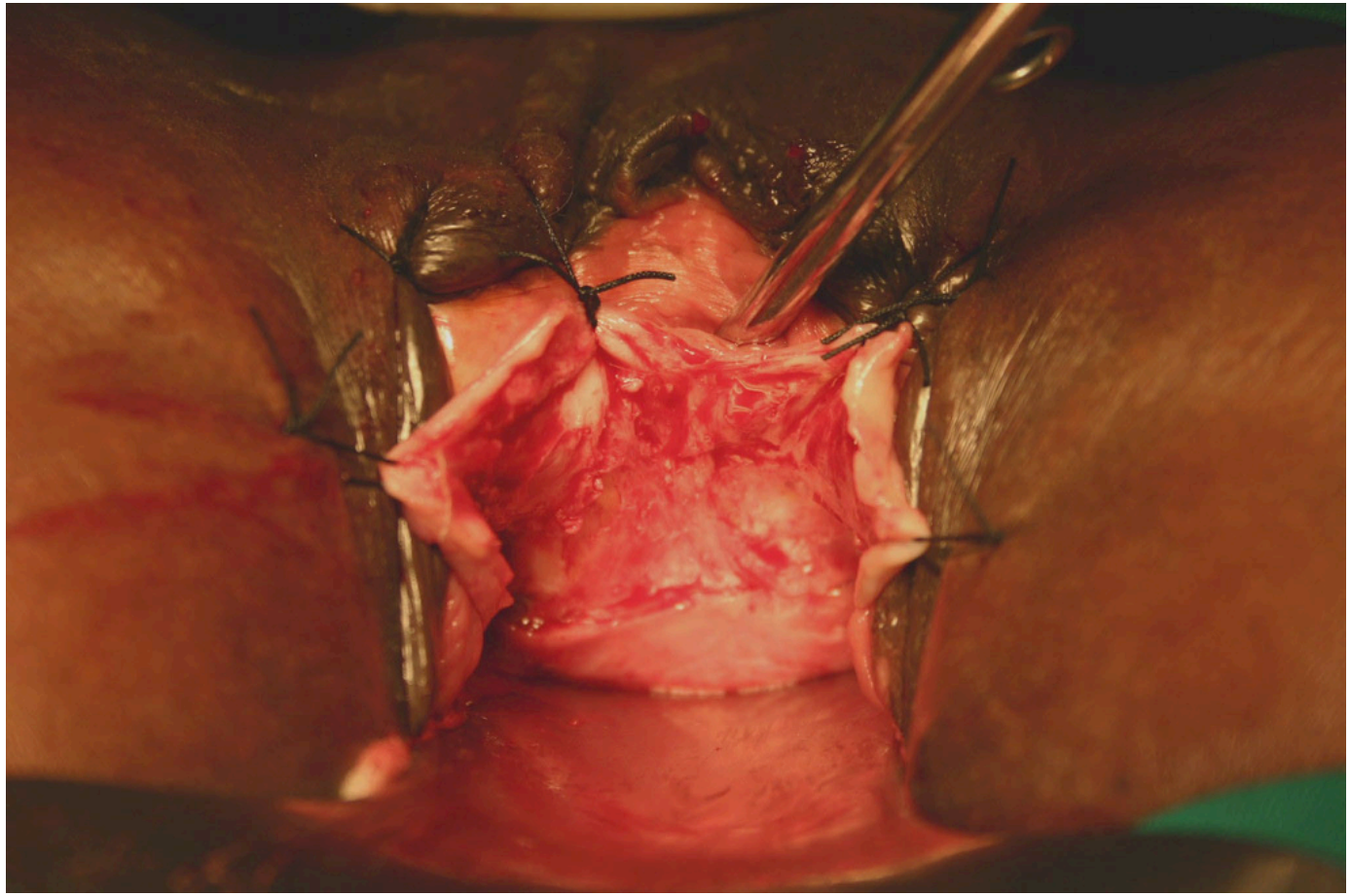

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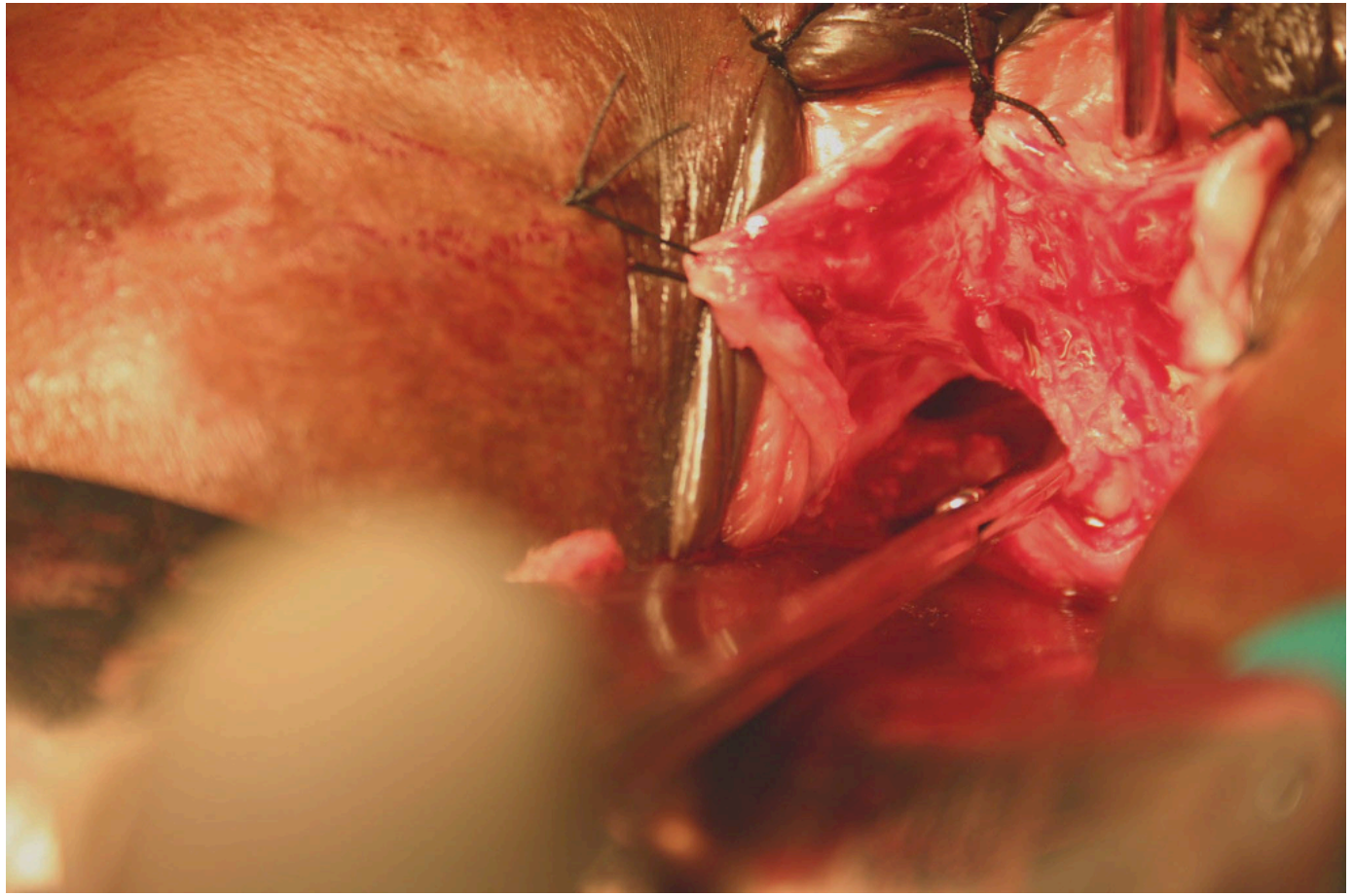

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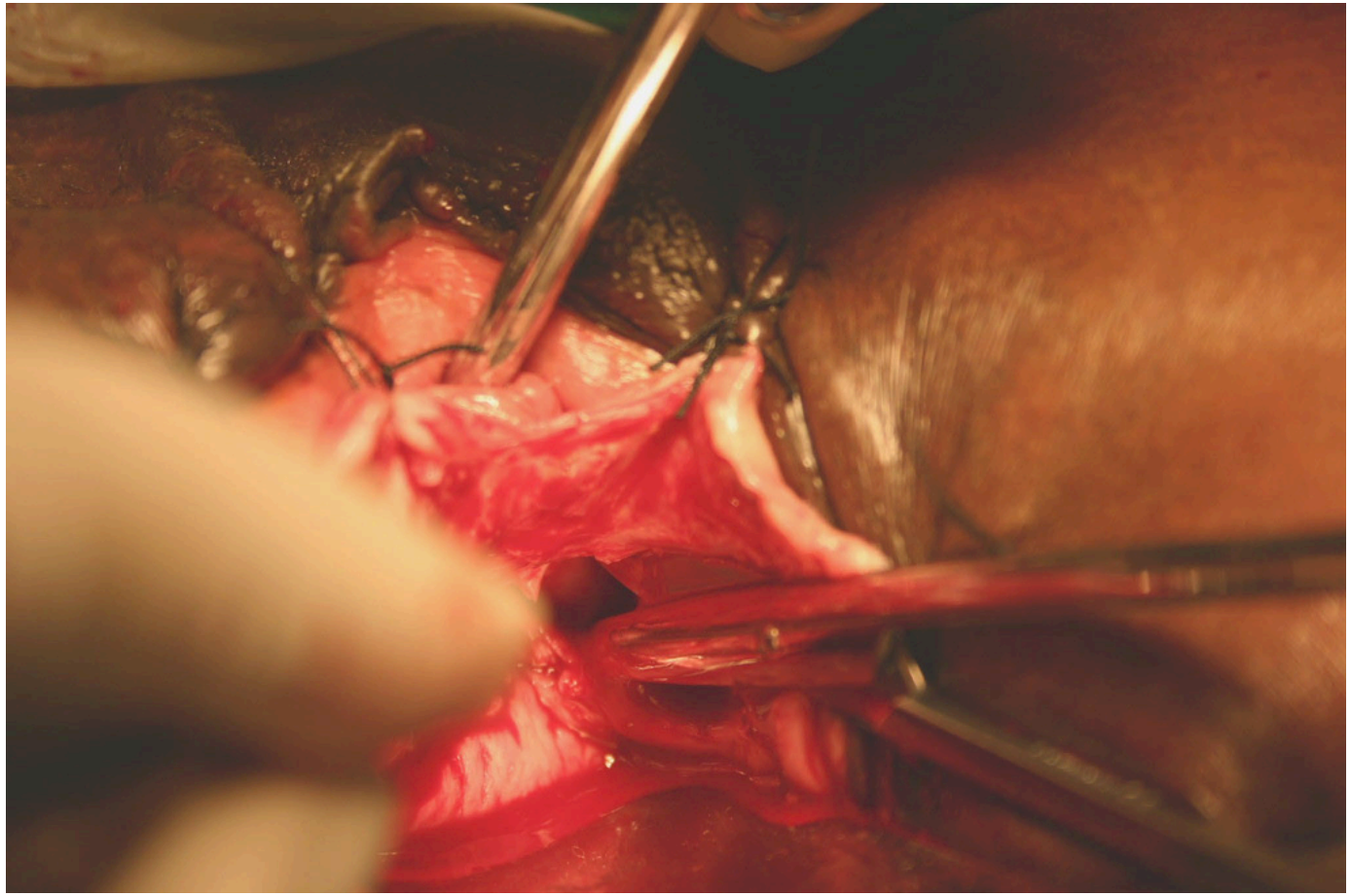

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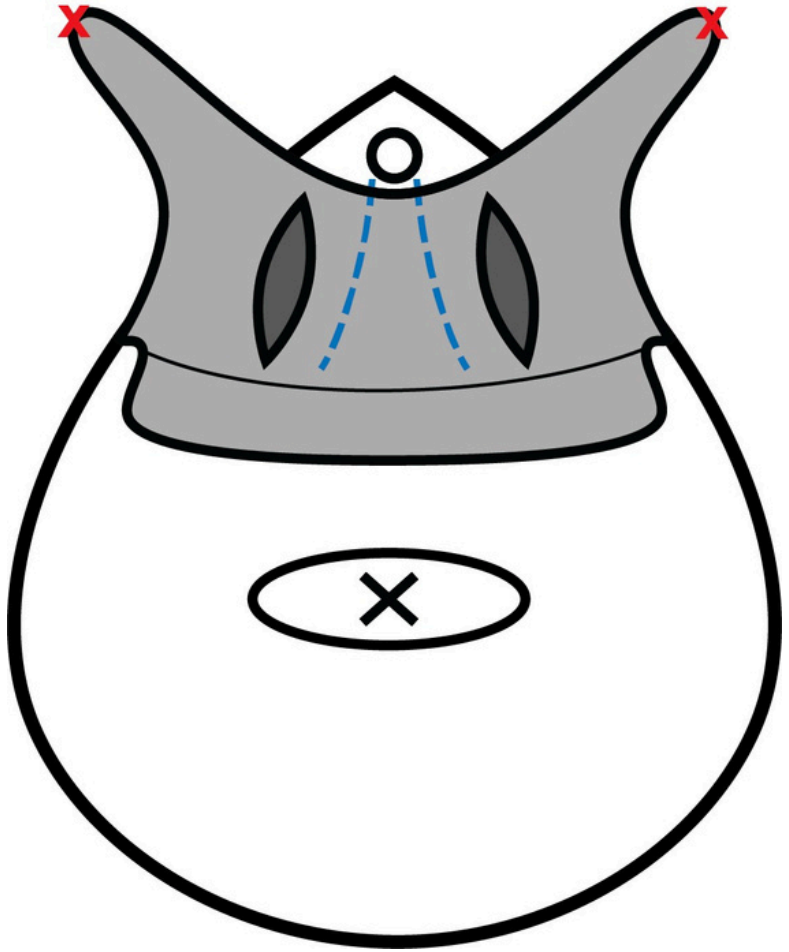

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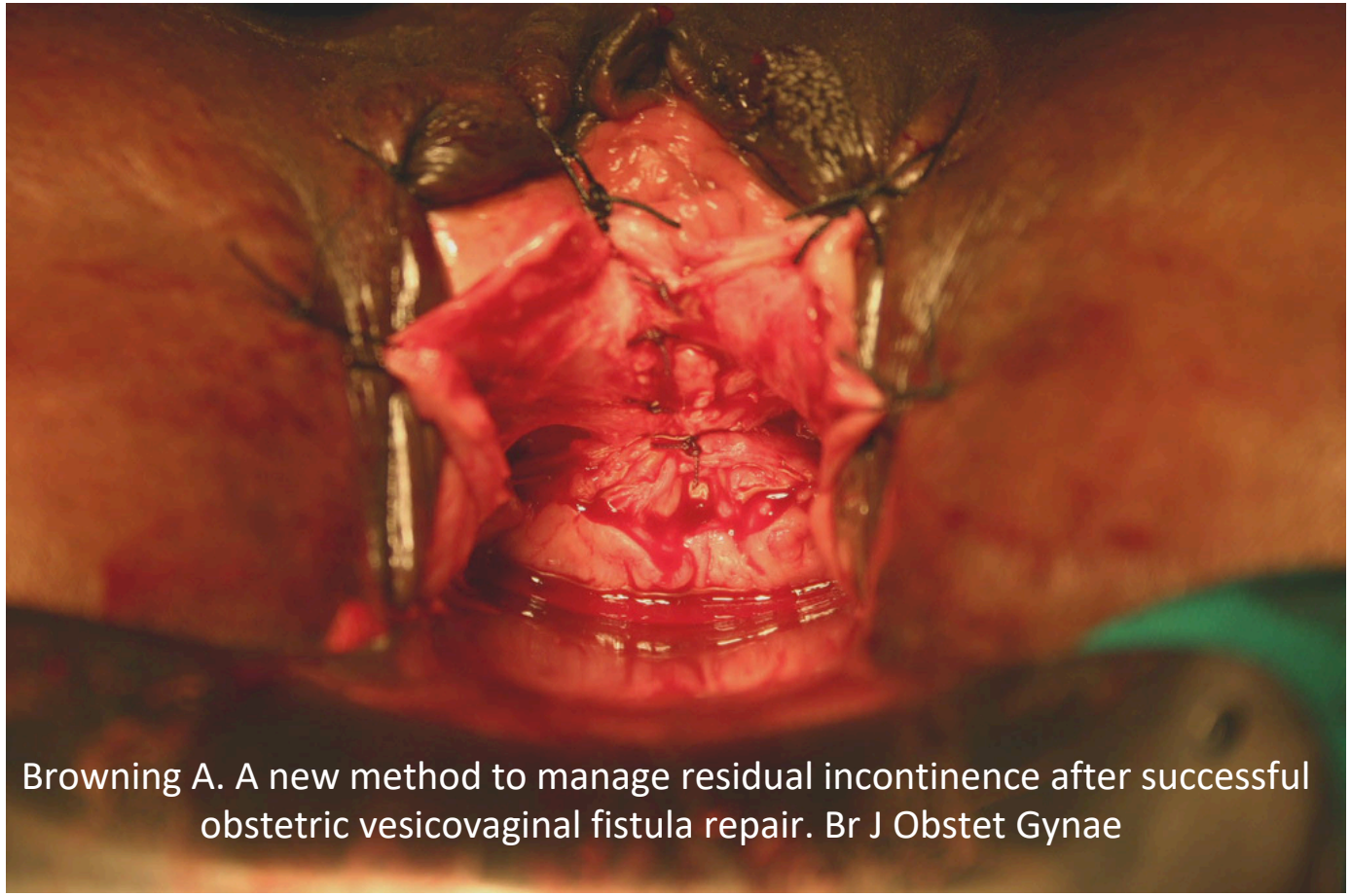

Browning A. A new method to manage residual incontinence after successful obstetric vesicovaginal fistula repair. Br J Obstet Gynae

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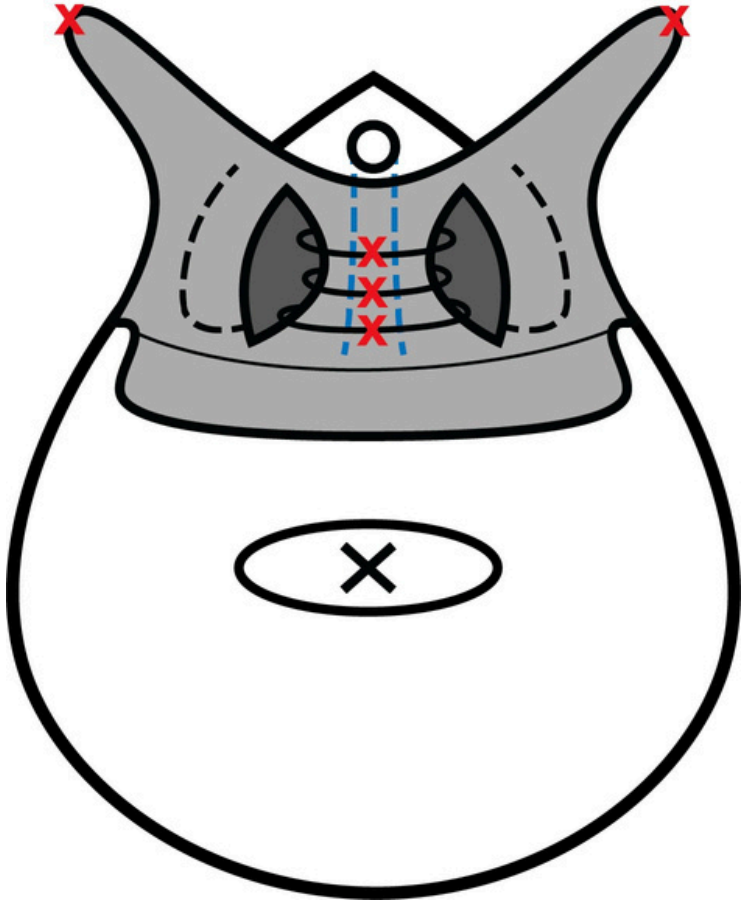
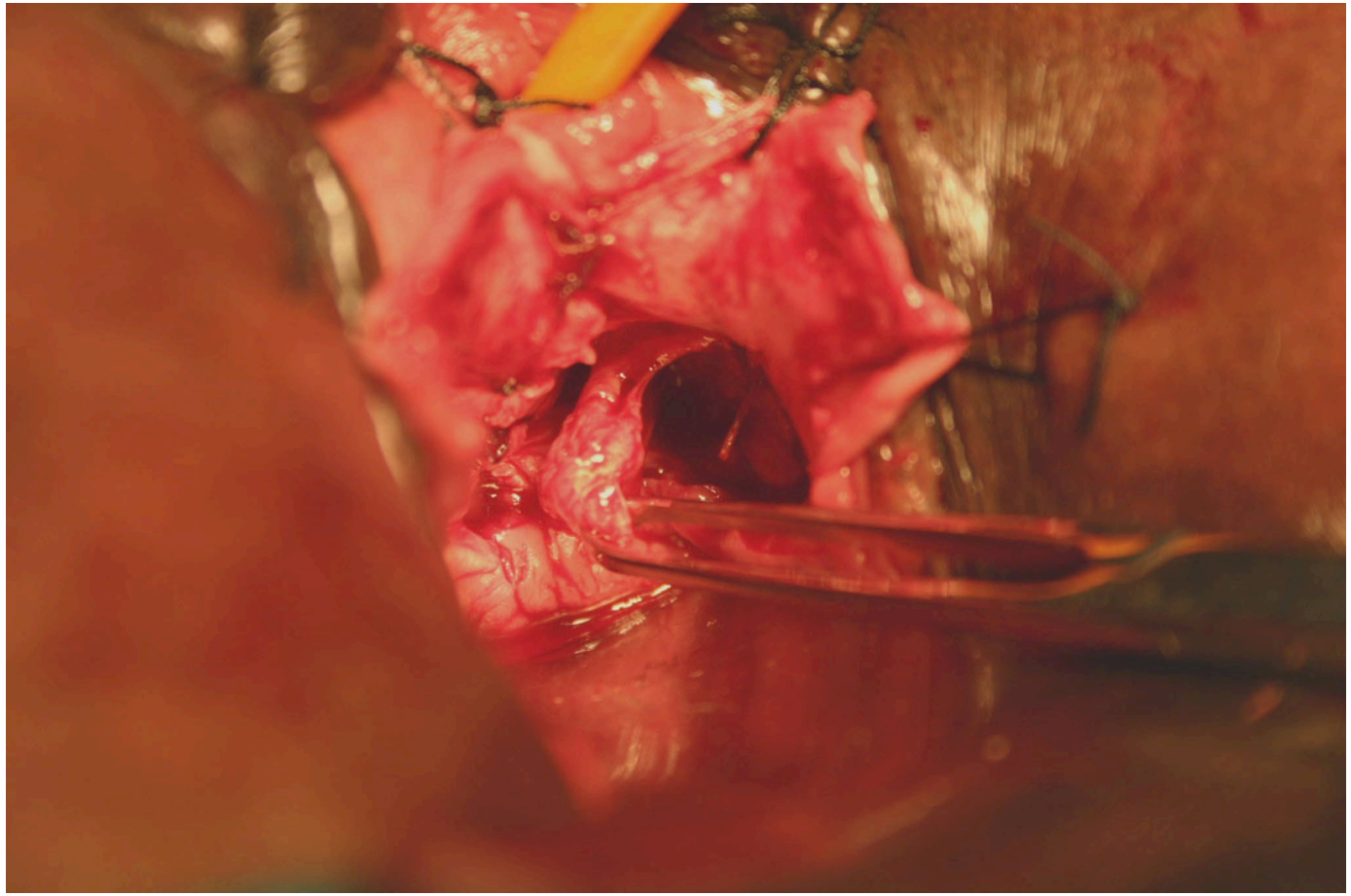


Example 1
Step 1
Restore normal urethral length and width

Example 1
Step 2
Support the urethra



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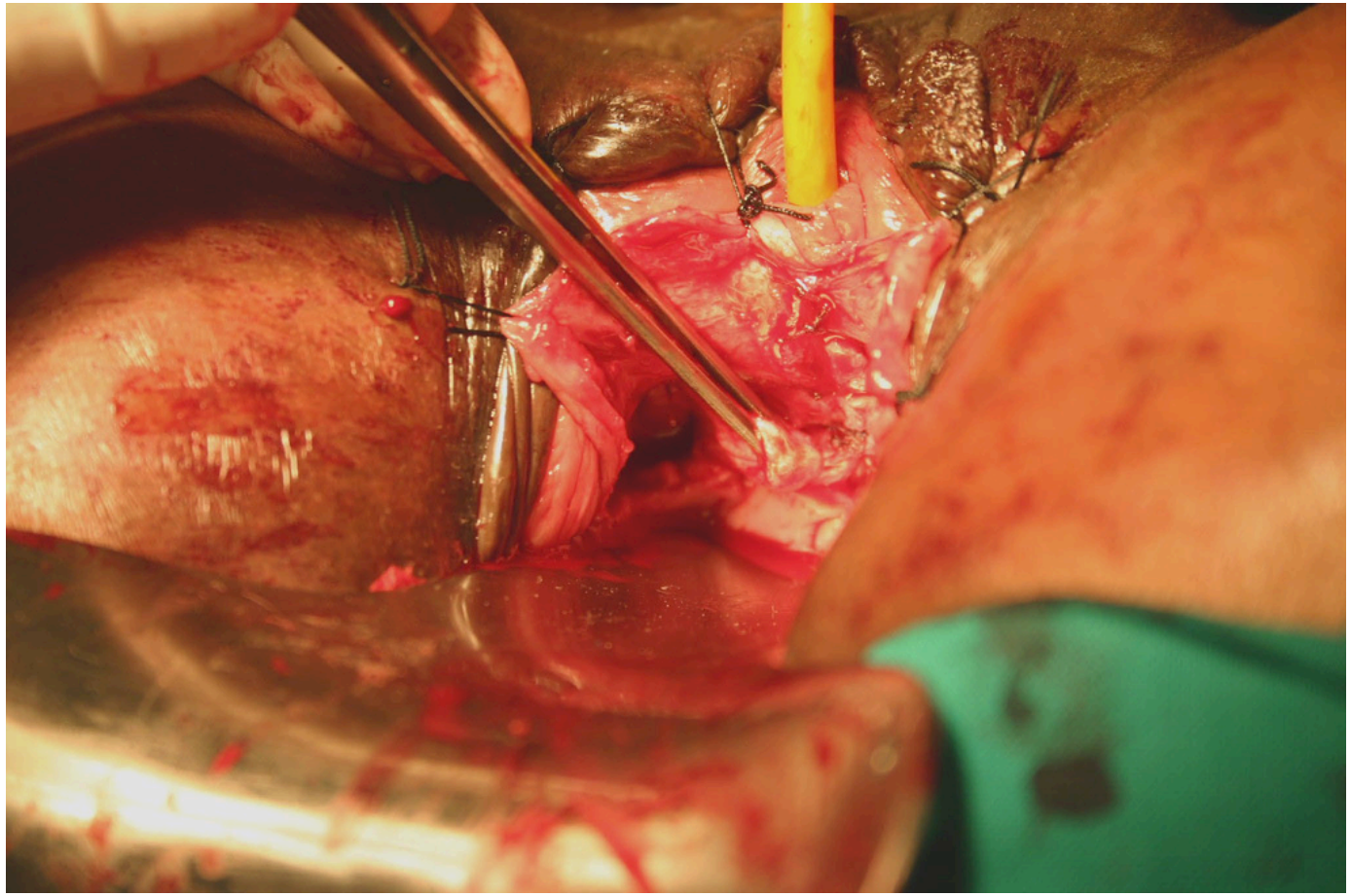

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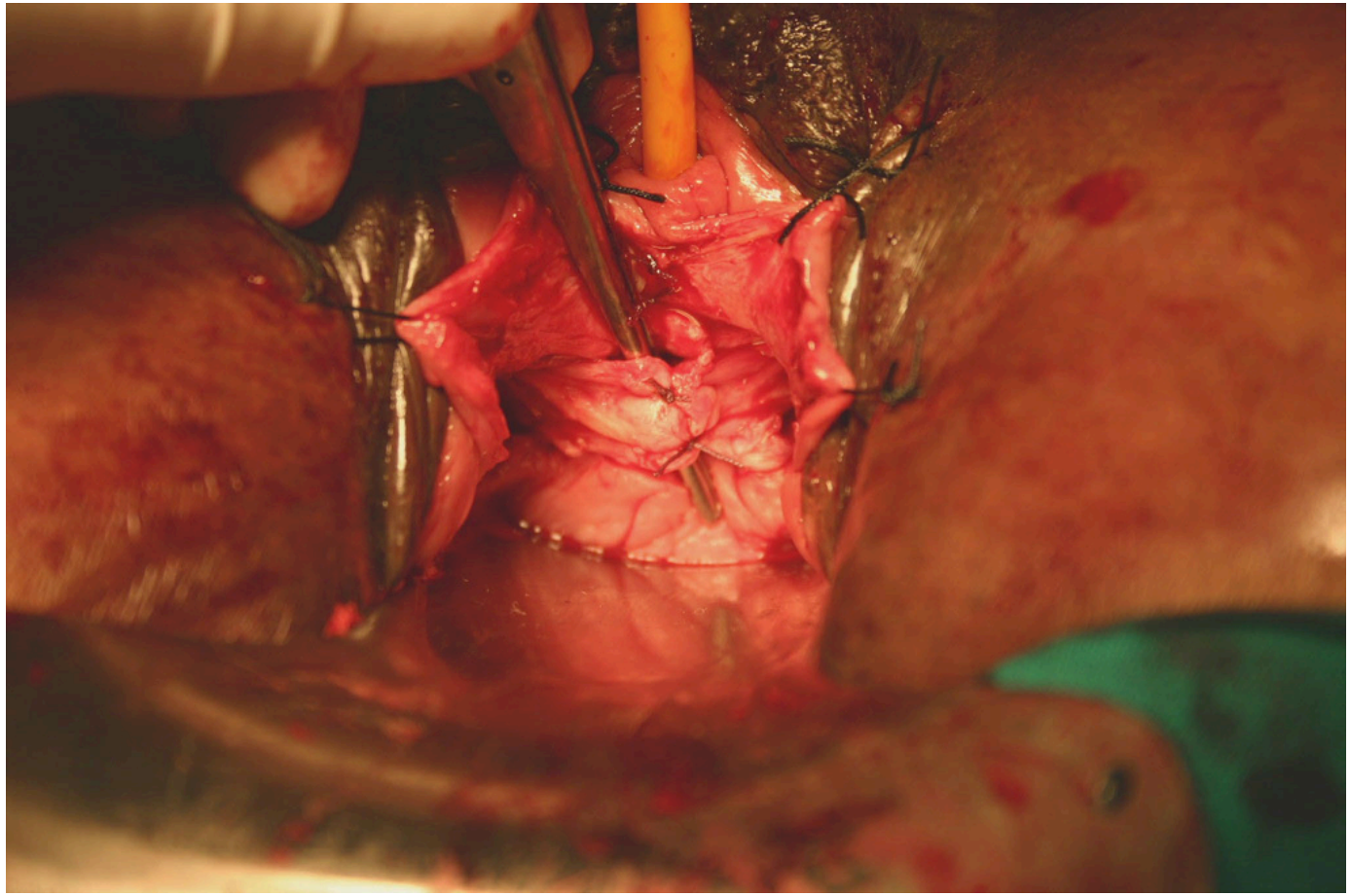

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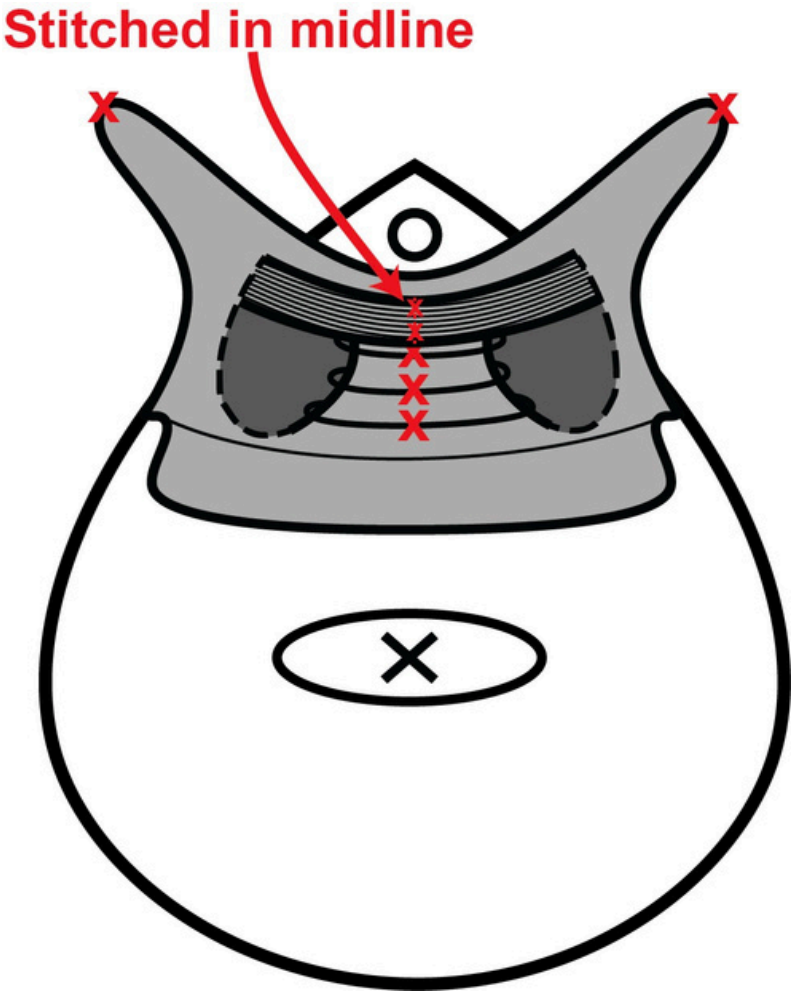

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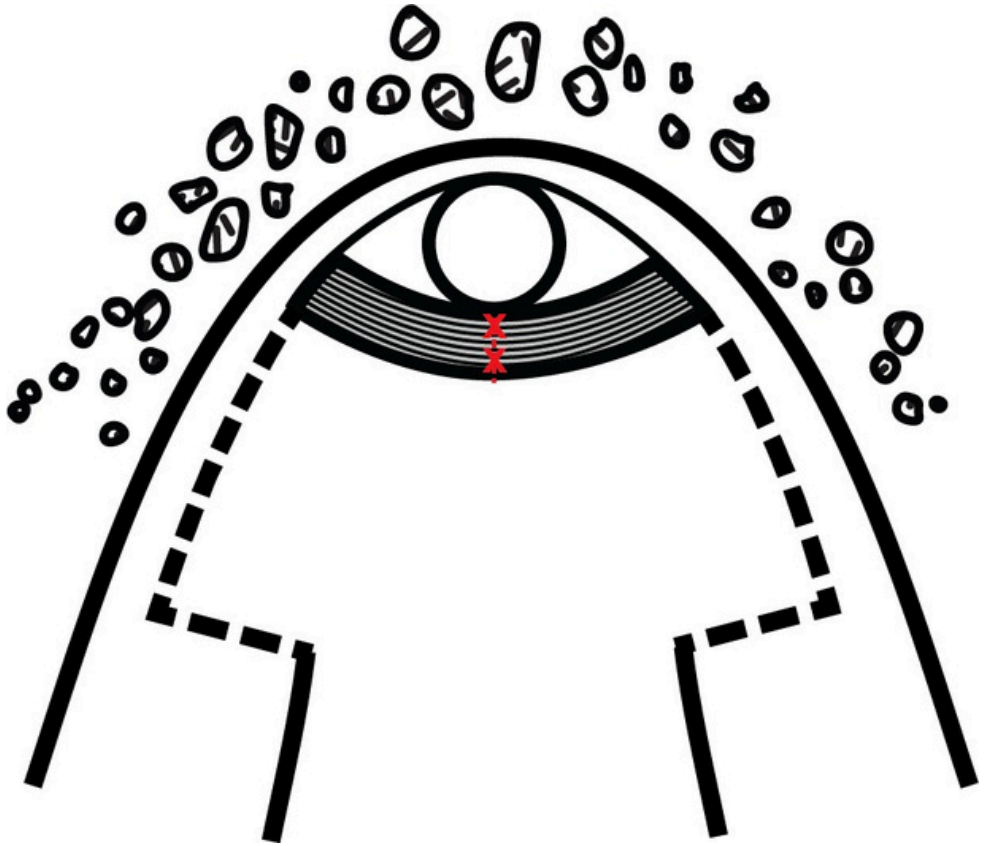

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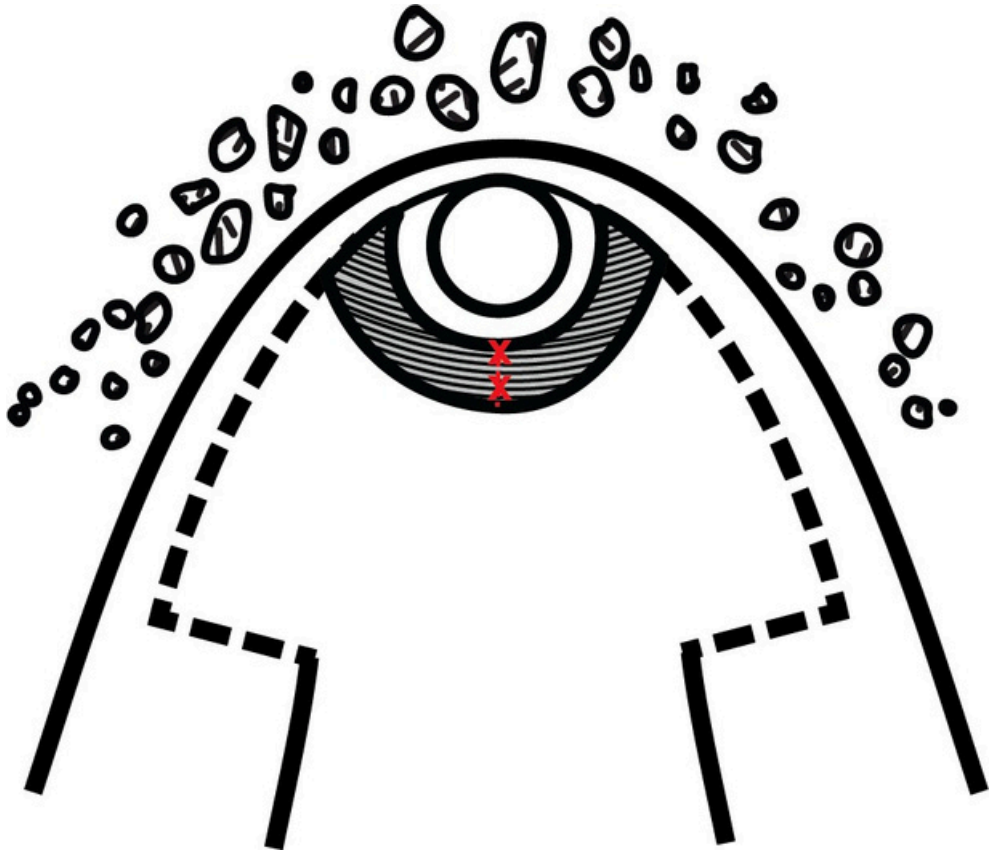
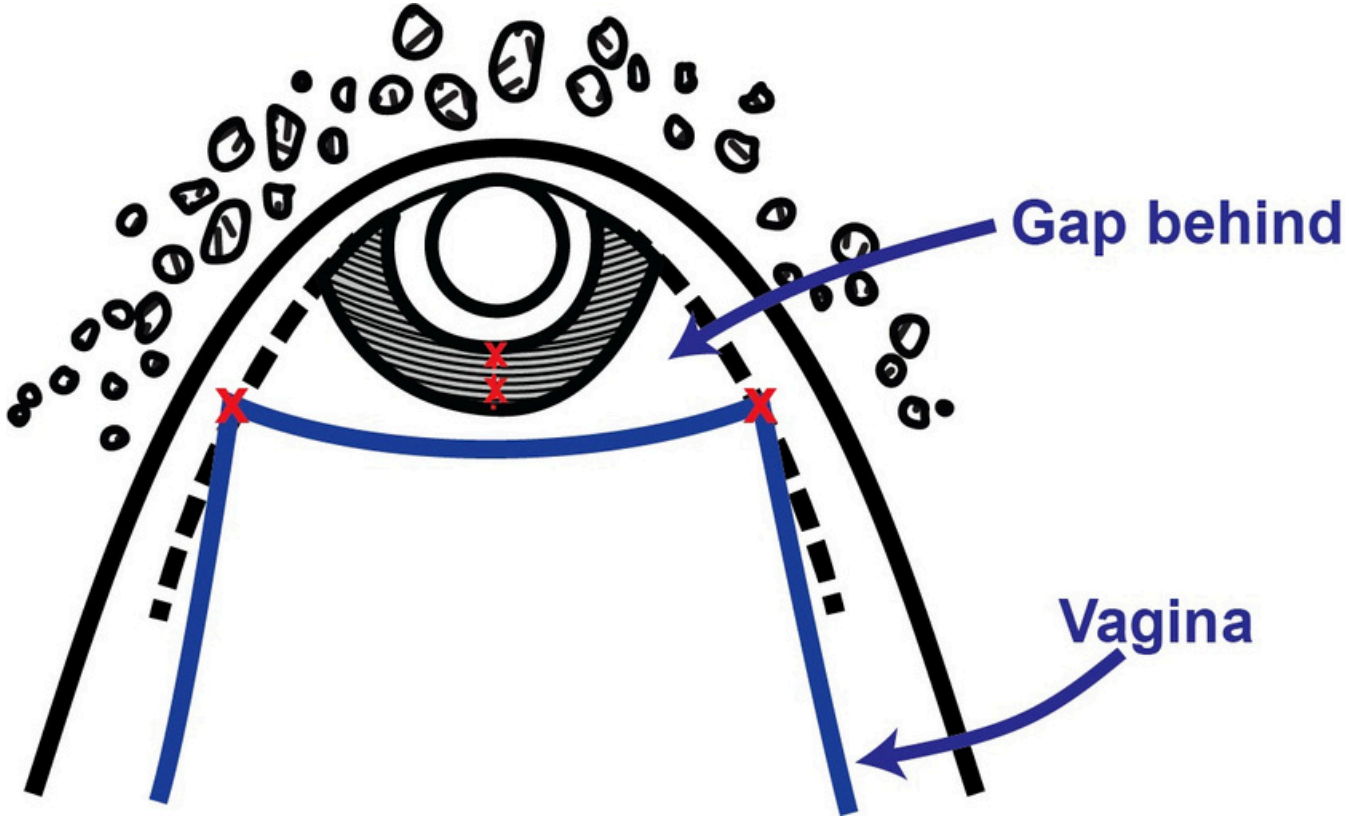


Secondary operations for ongoing incontinence

3. Repair the vagina with no tension



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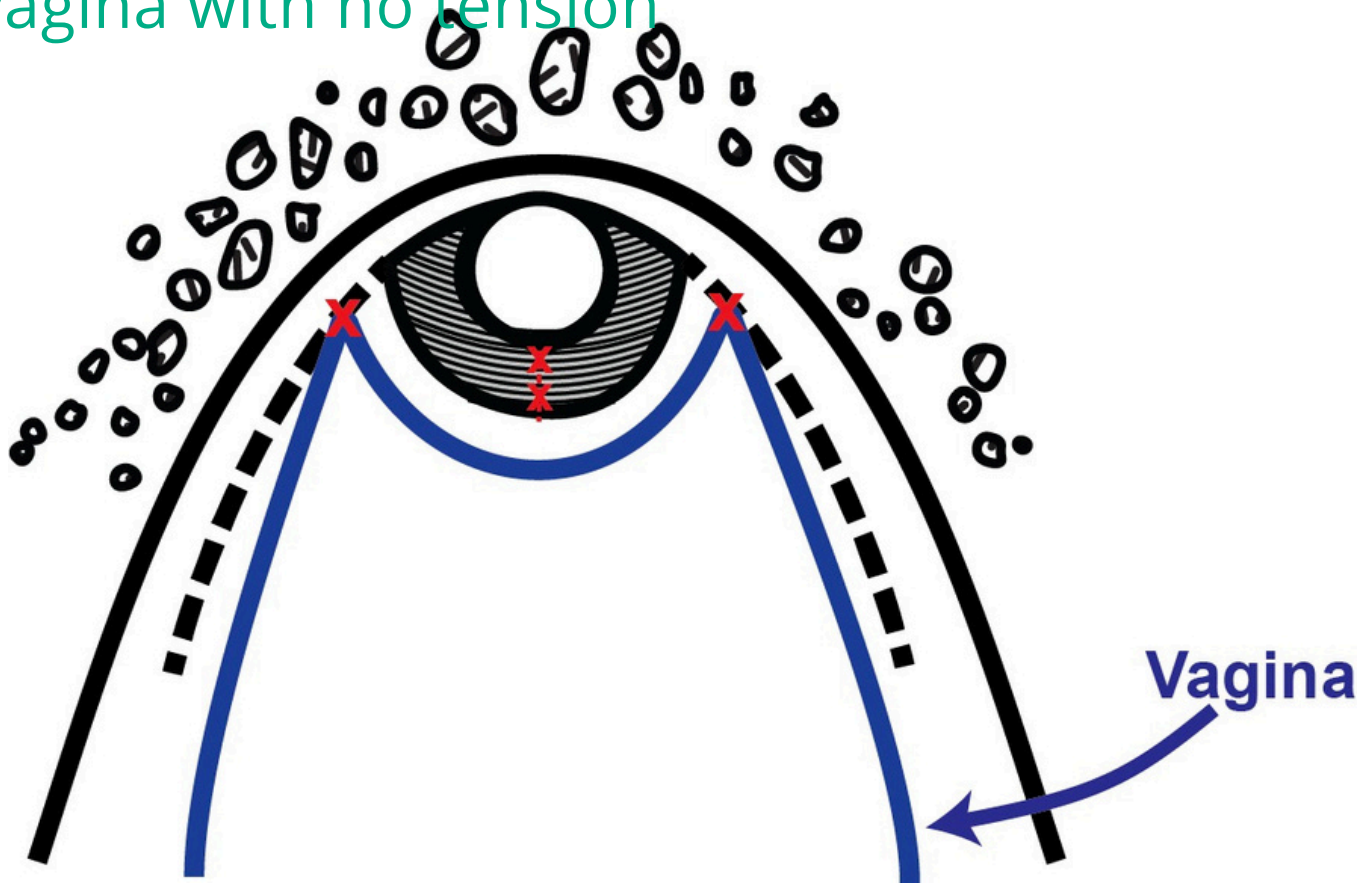

Series of SI operation -no selection with cystometry

- n=72
- Iatrogenic fistula 3 (4.2%)
- Average urethral length pre-op 1.43cm, average post-op 3.07cm.
- Cured 45 (62.5%)

  retention 11 (15.3%)
- Not cured, but improved and managing well 12 (16.7%)

  Improved by the operation but still needed the plug 4 (5.8%)

  Not improved by the operation but good with plug 10 (13.8%)
- Failed 1 (1.4%)- but held some urine with plug- small bladder.

Browning A. A new method to manage residual incontinence after successful obstetric vesicovaginal fistula repair. Br

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Step 2
Support the urethra

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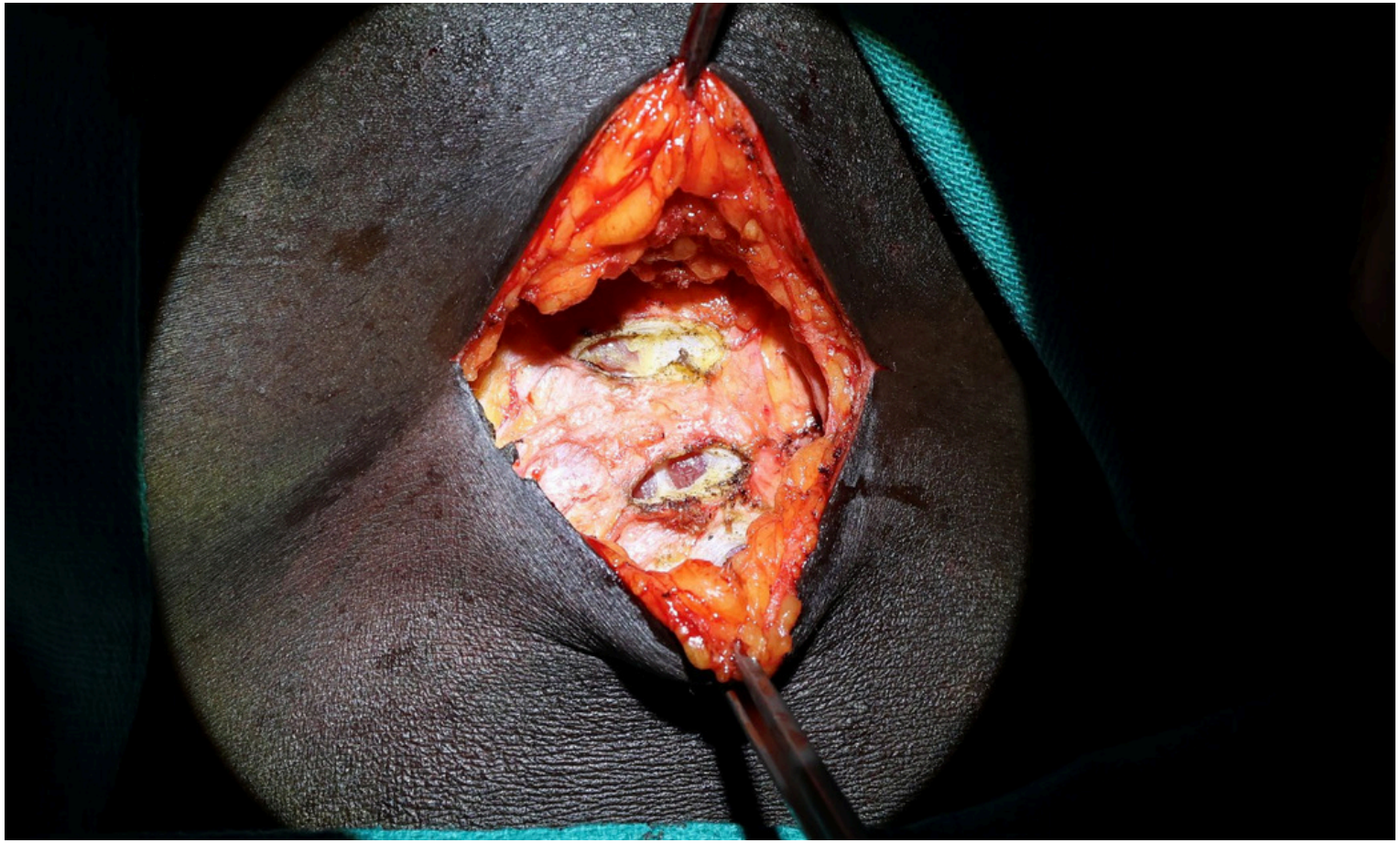

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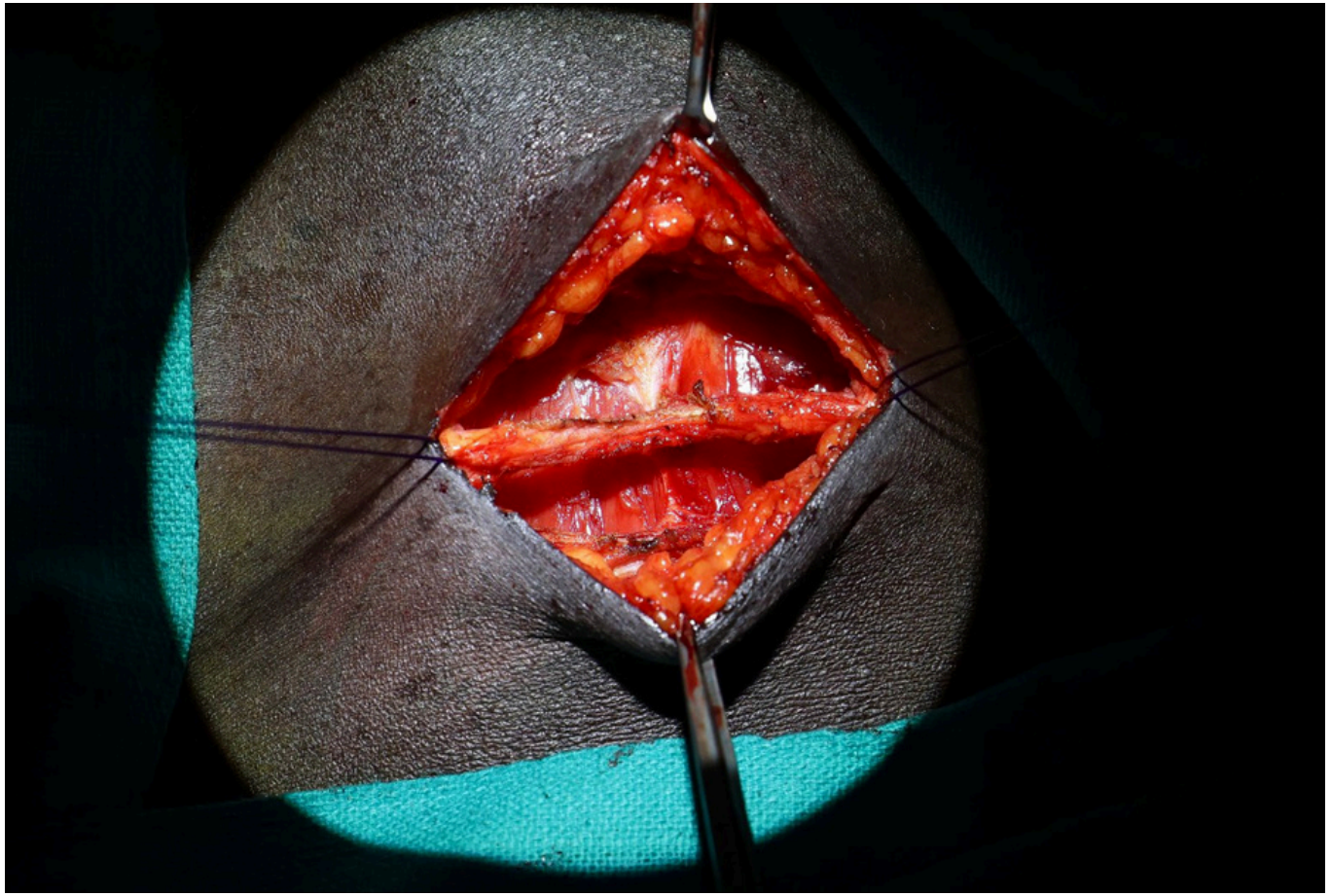

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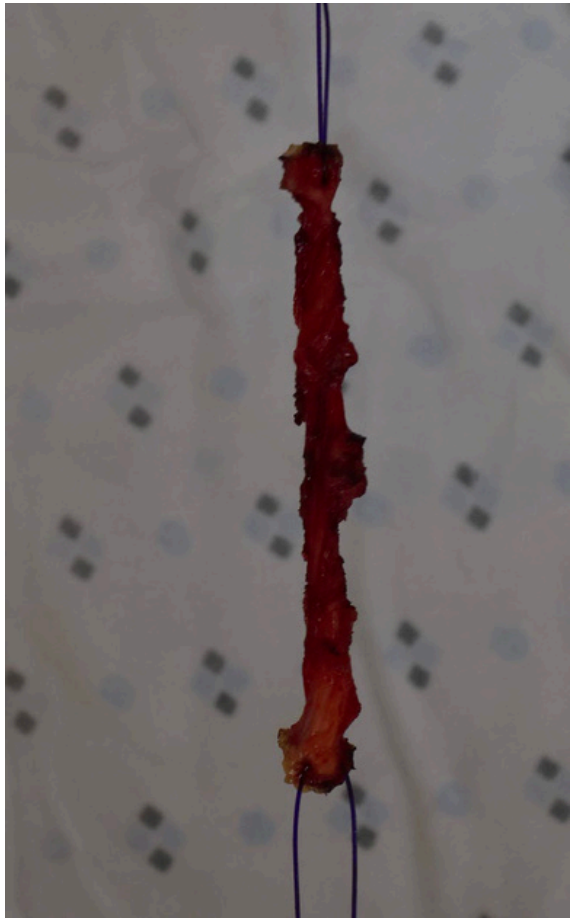

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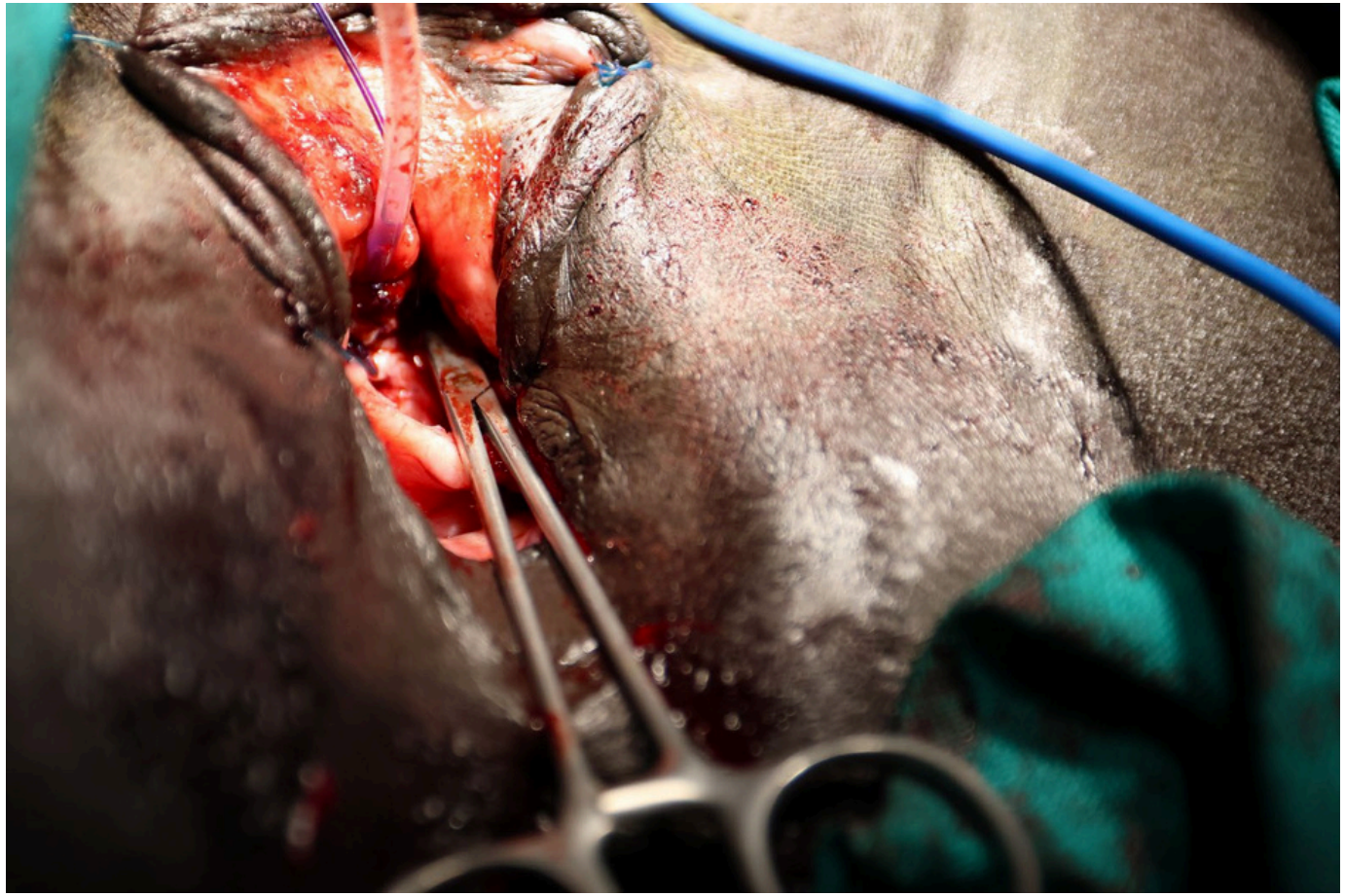

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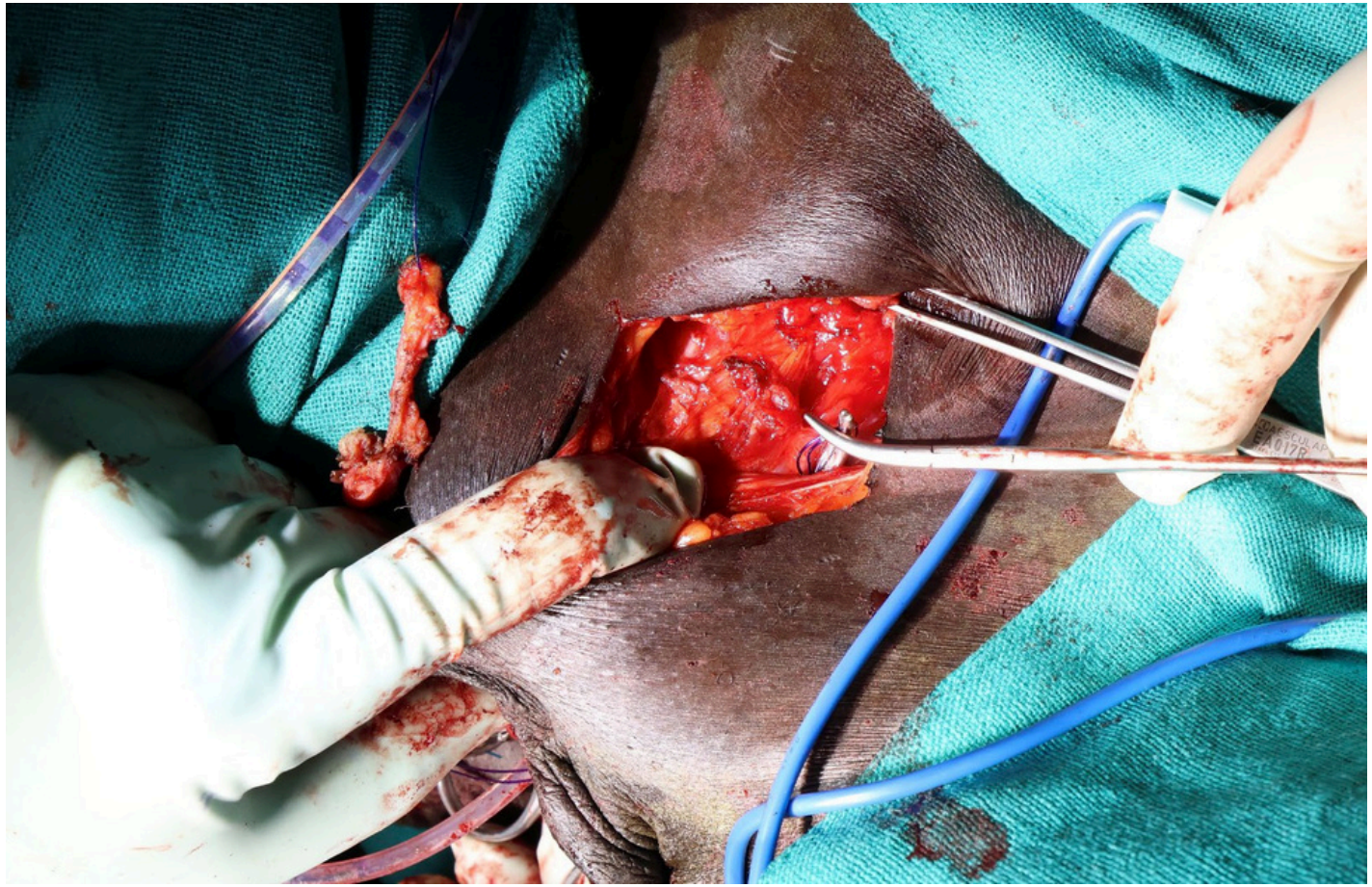

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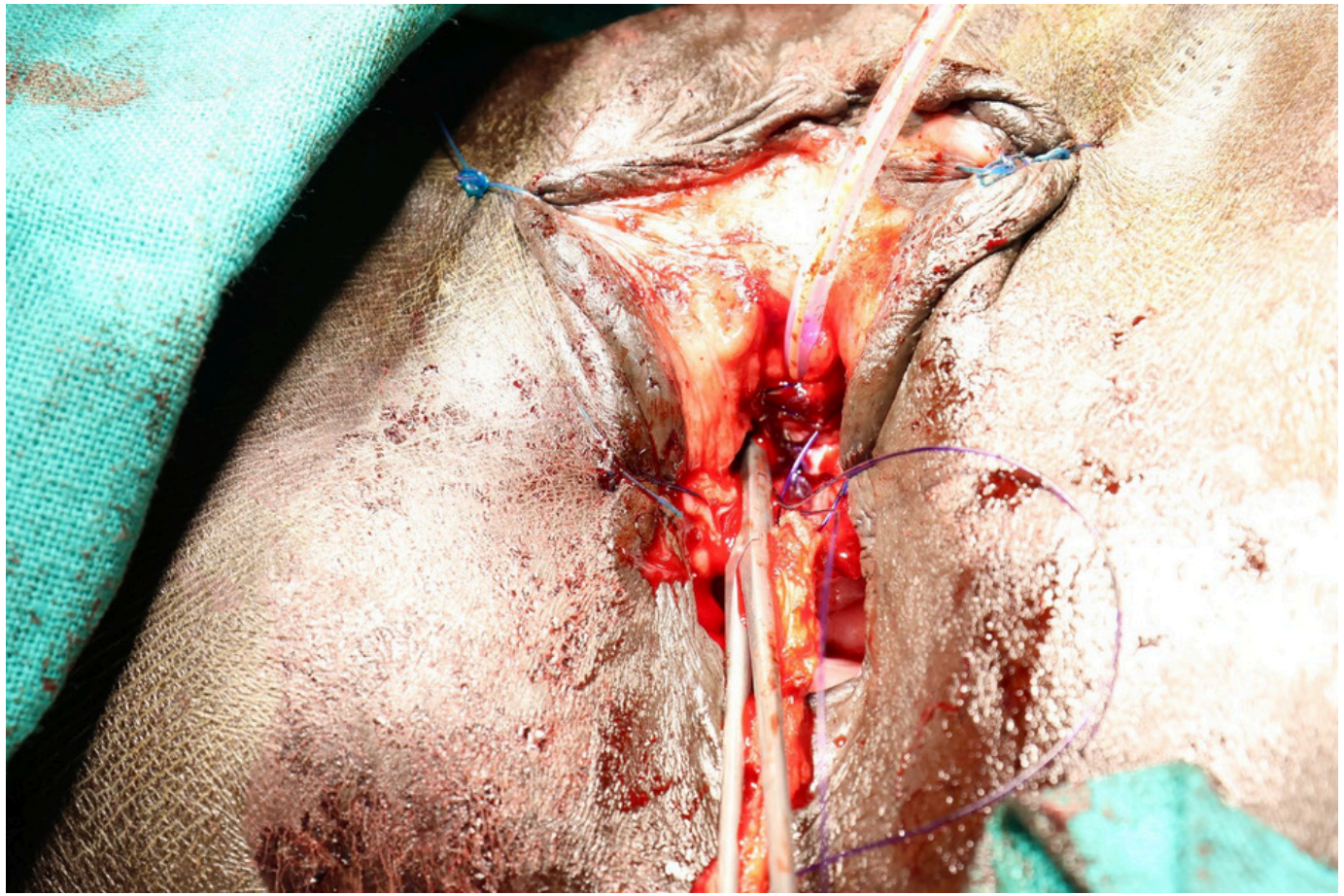

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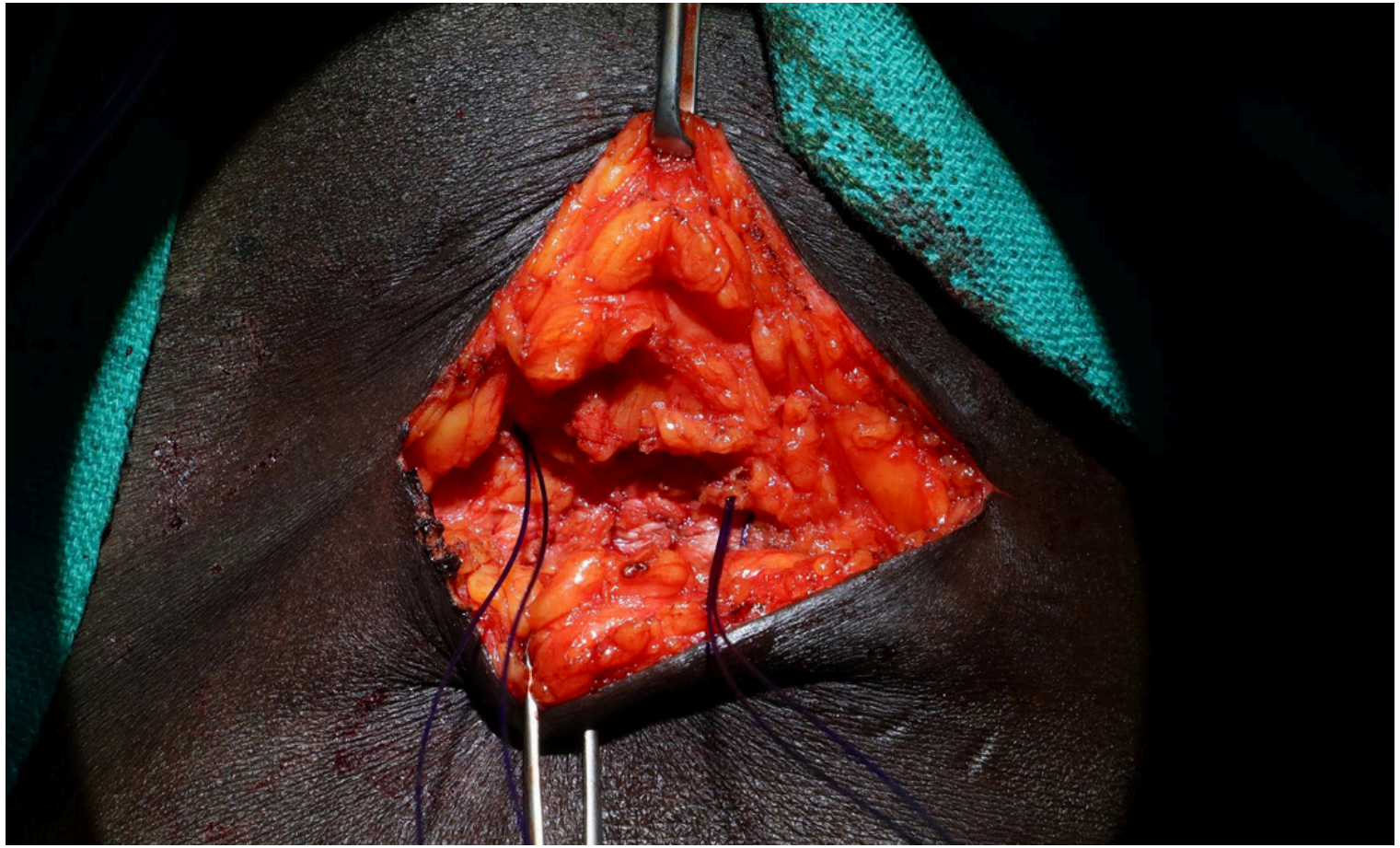

Results –from last 1200 cases

- Fascial sling
  - N=75
  - All wet 4/5 or 5/5
  - Average number of previous operations 3.2
  - Average pre-op urethral length 1.8cm
  - Average post-op urethral length 2.9cm
  - Reliable follow up on 57 patients
    - 65% dry 26% improved 9% no change

Example 2

Restore normal urethral length and width

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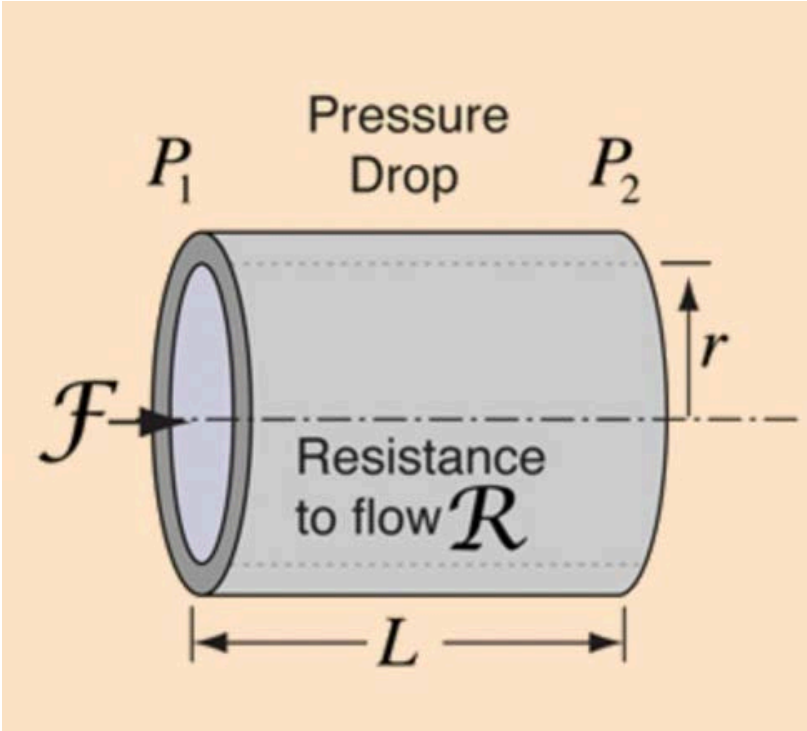
Richard Turner Warwick

Resistance in a tube Poiseuille's Law



Resistance to Flow $\mathcal{R} = \dfrac{8\eta L}{\pi r^4}$

Example 2

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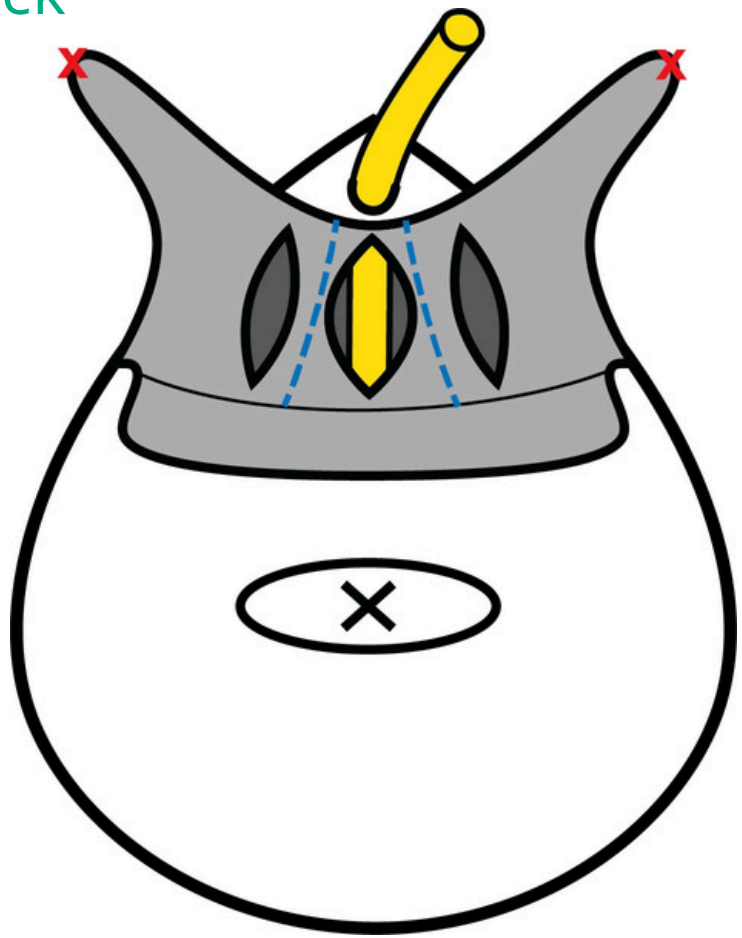
Richard Turner Warwick



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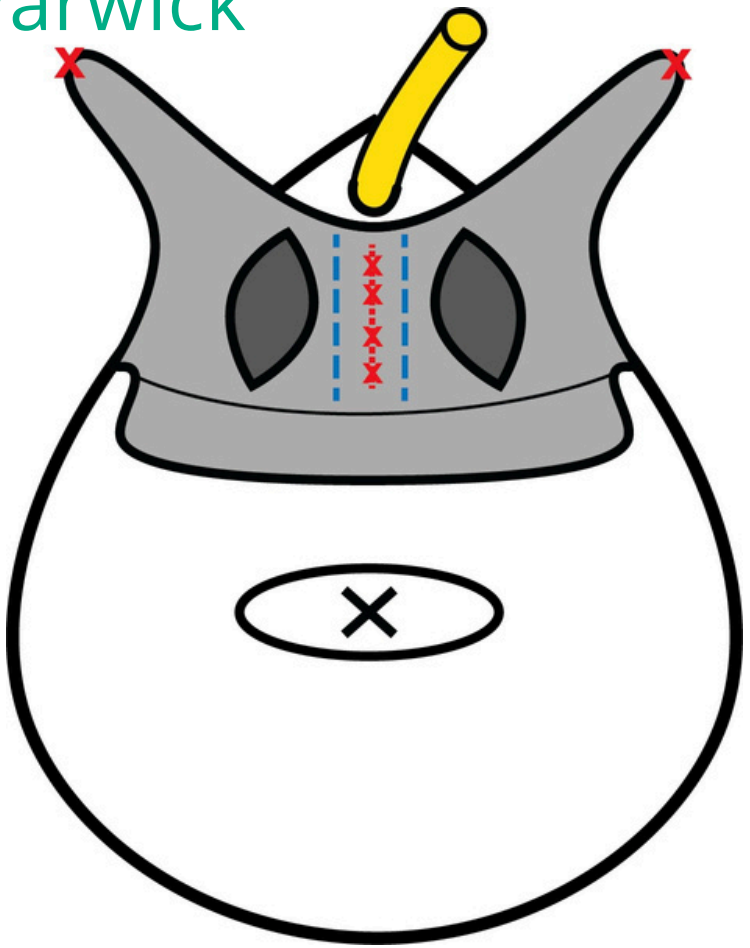


Results –from last 1200 cases

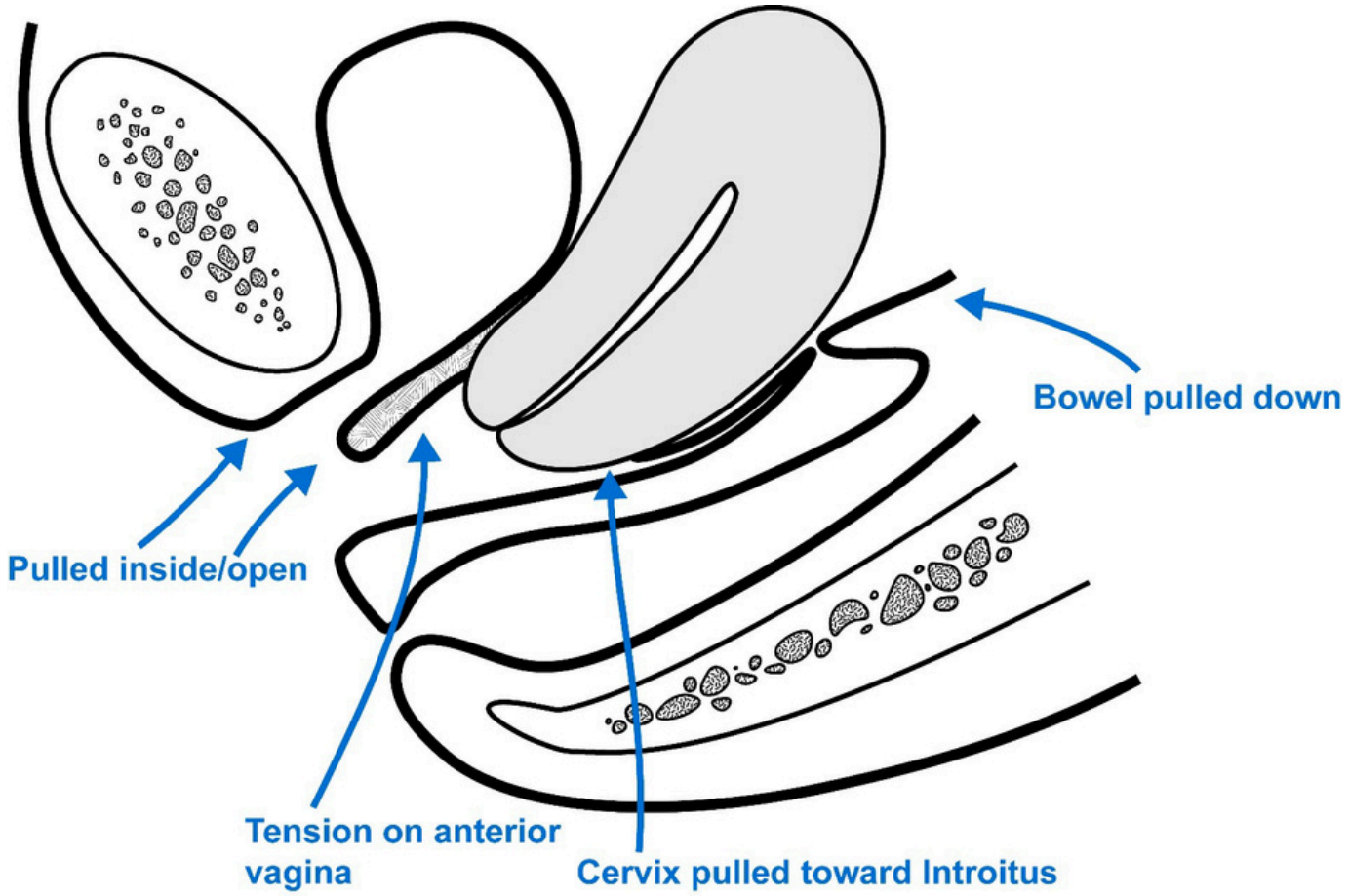
- Richard Turner Warwick
  - N=92
  - All wet 4/5 or 5/5
  - Average number of previous operations 3.5
  - Average pre-op urethral length 1.9cm
  - Average post-op urethral length 2.9cm
  - Reliable follow up on 79 patients
    - 73.4% dry
    - 18% improved
    - 9% no change

FIGO
International Federation of Gynecology and Obstetrics

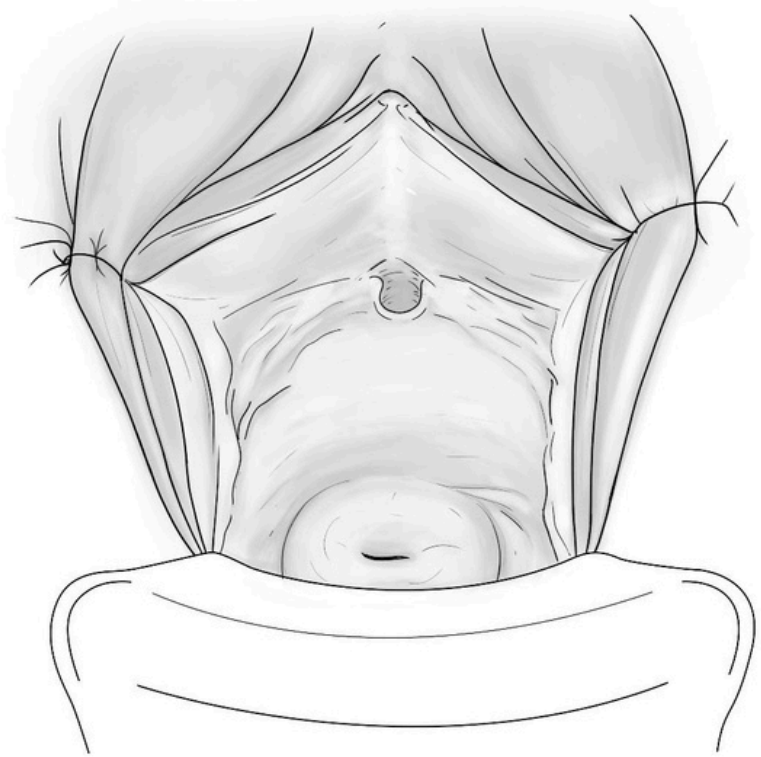
Step 3

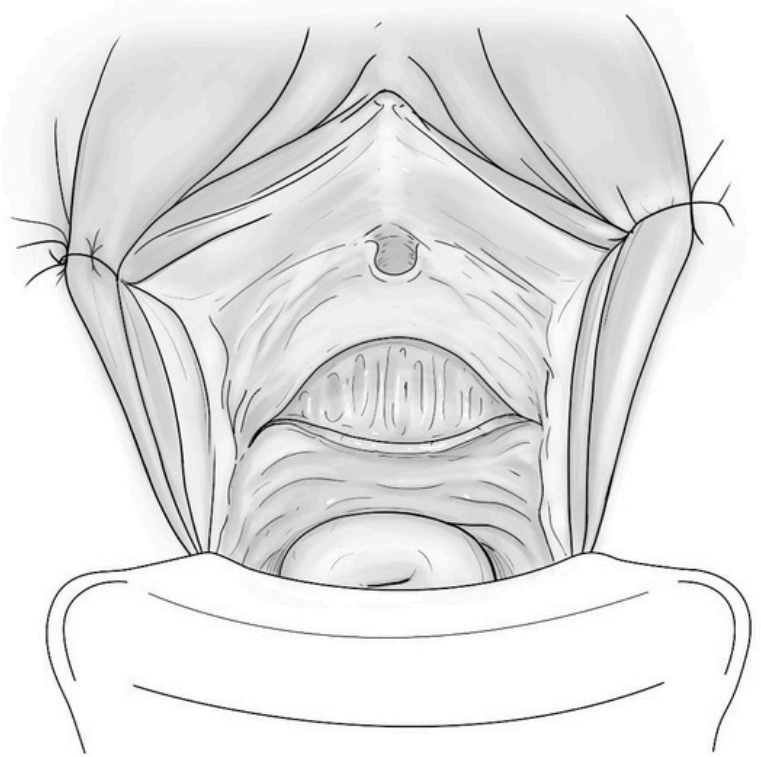
Restore normal anatomy of the vagina

Step 3
Restore vaginal anatomy

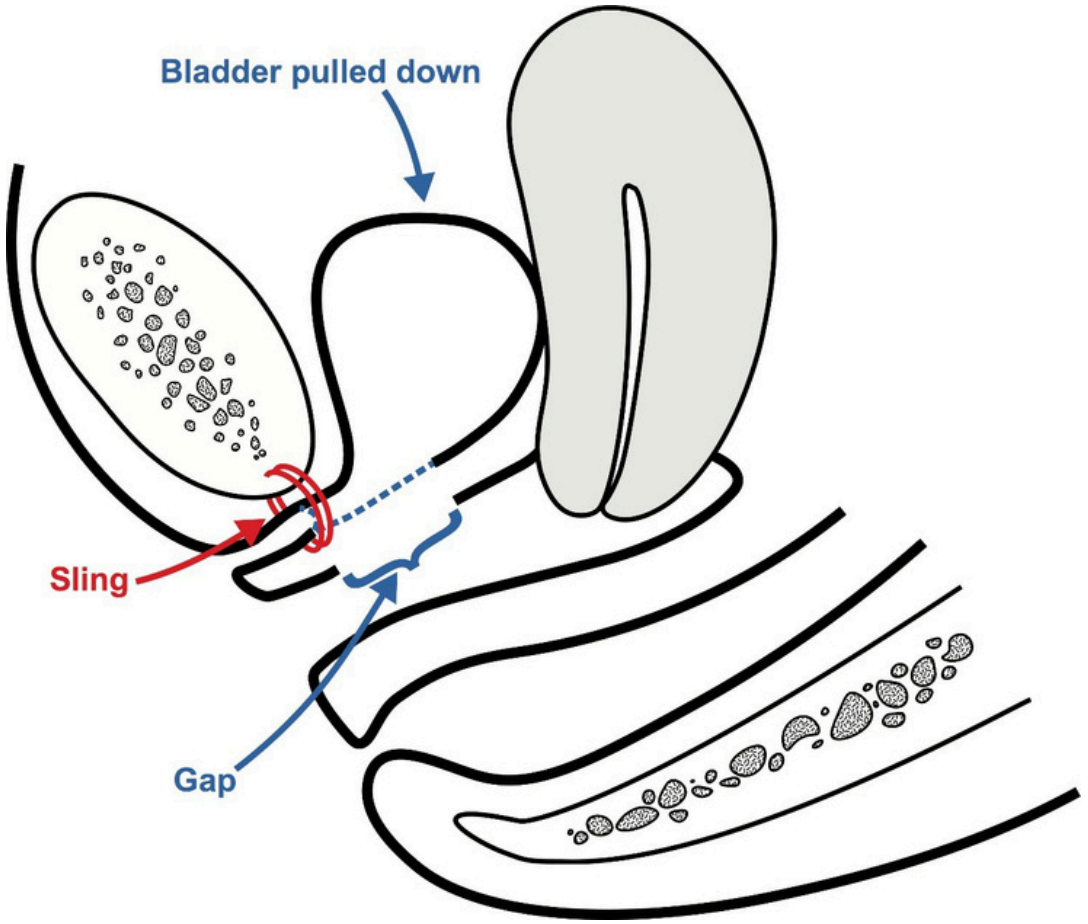


Step 3
Restore vaginal anatomy

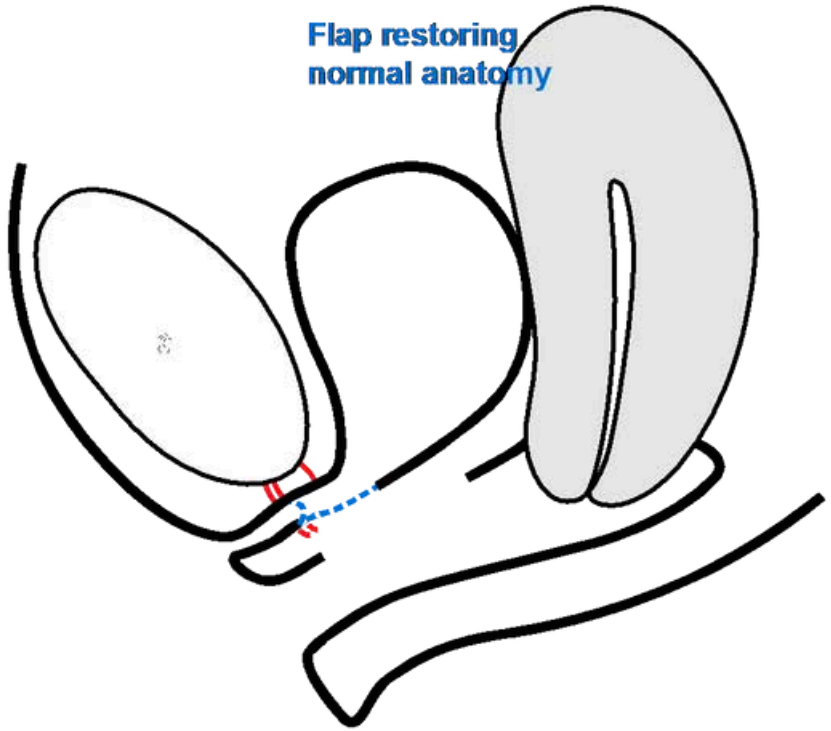




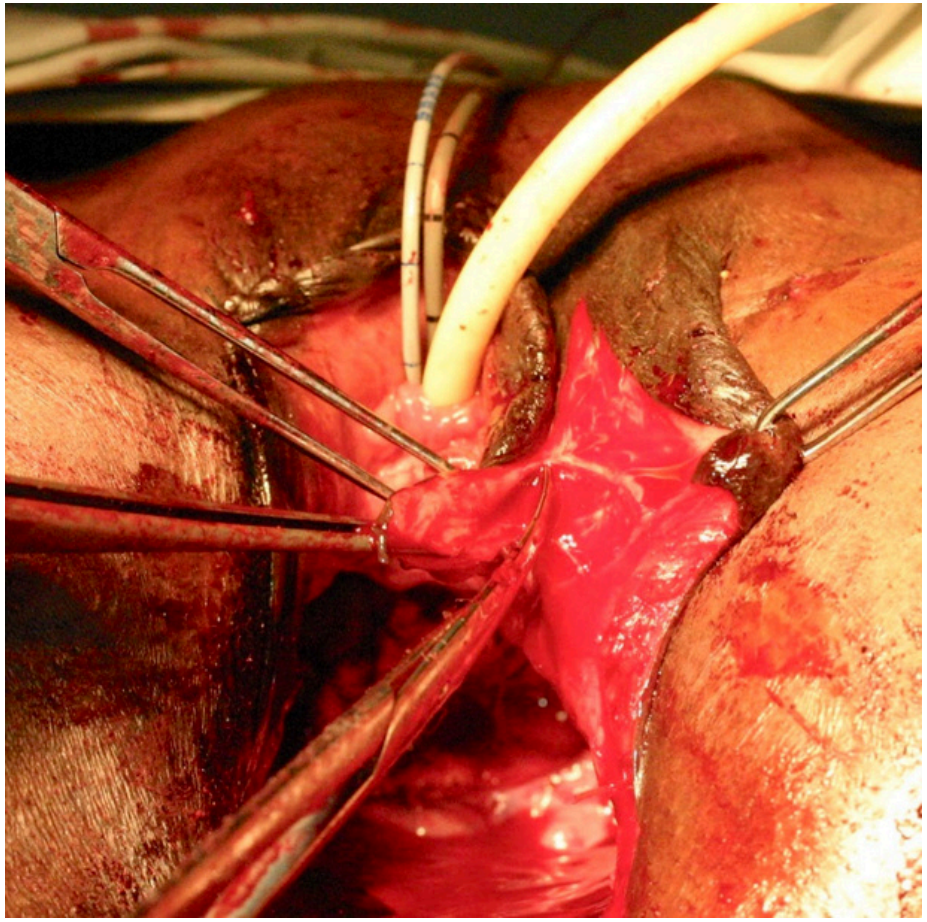
Step 3
Restore vaginal anatomy

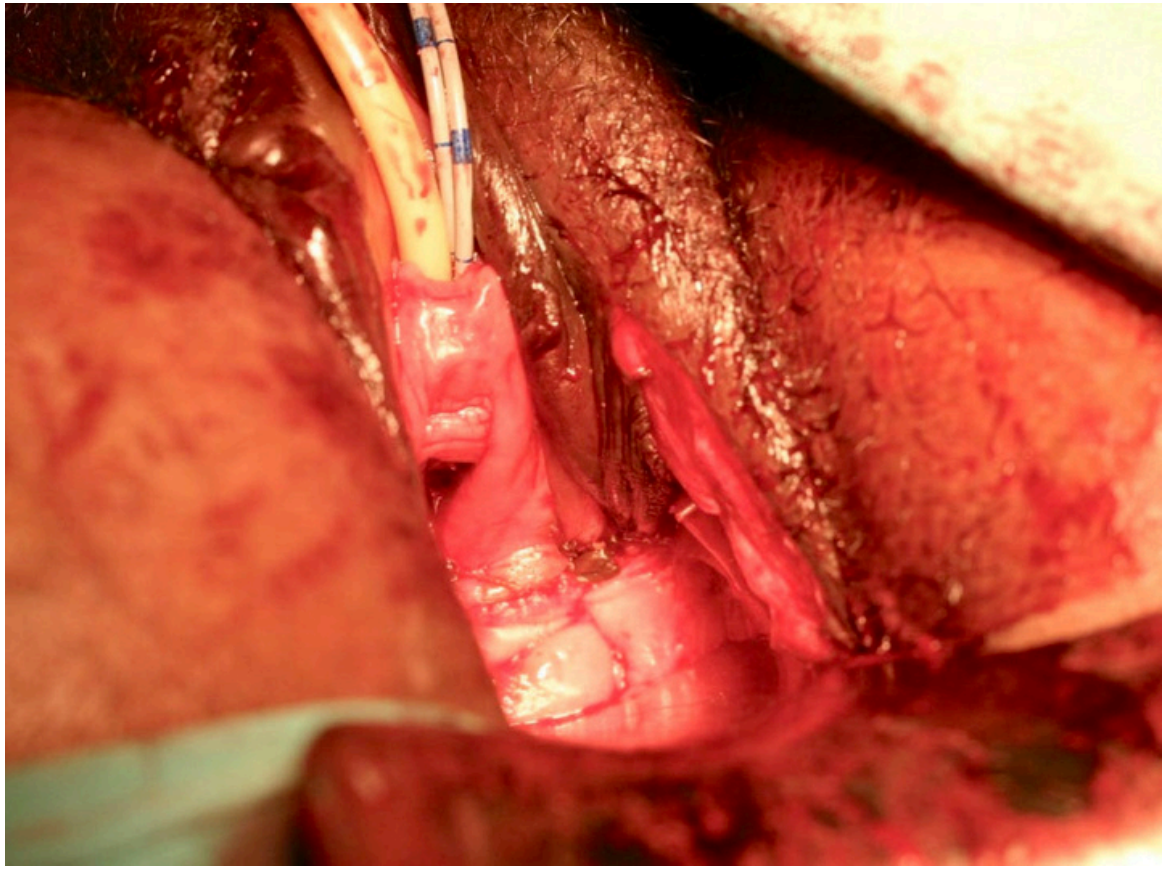


Step 3
Restore vaginal anatomy



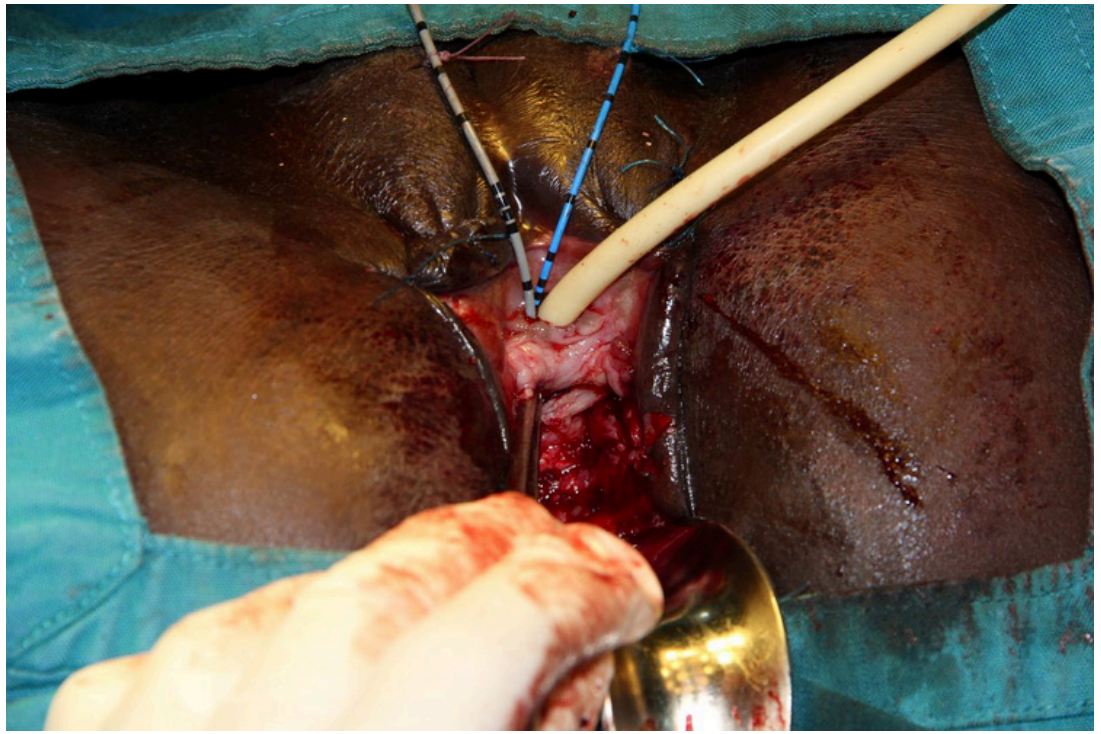
Step 3
Restore vaginal anatomy
Example 1: labial rotation flap



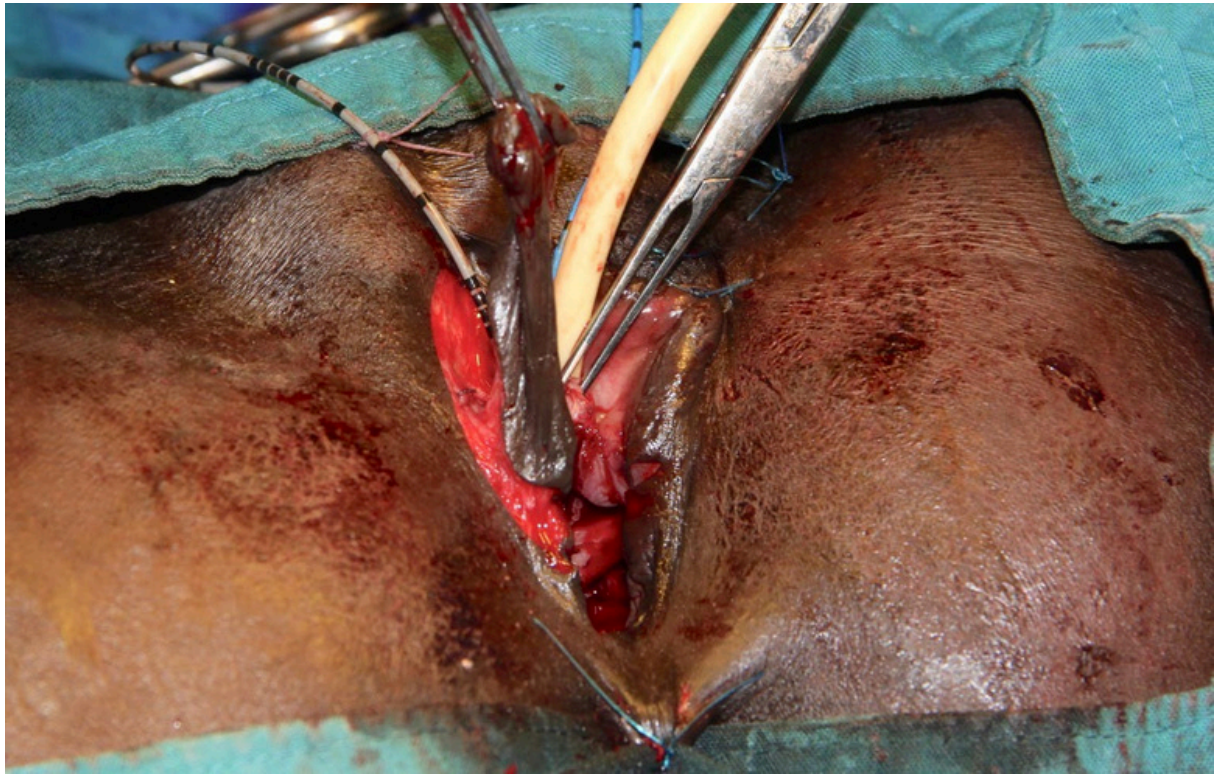


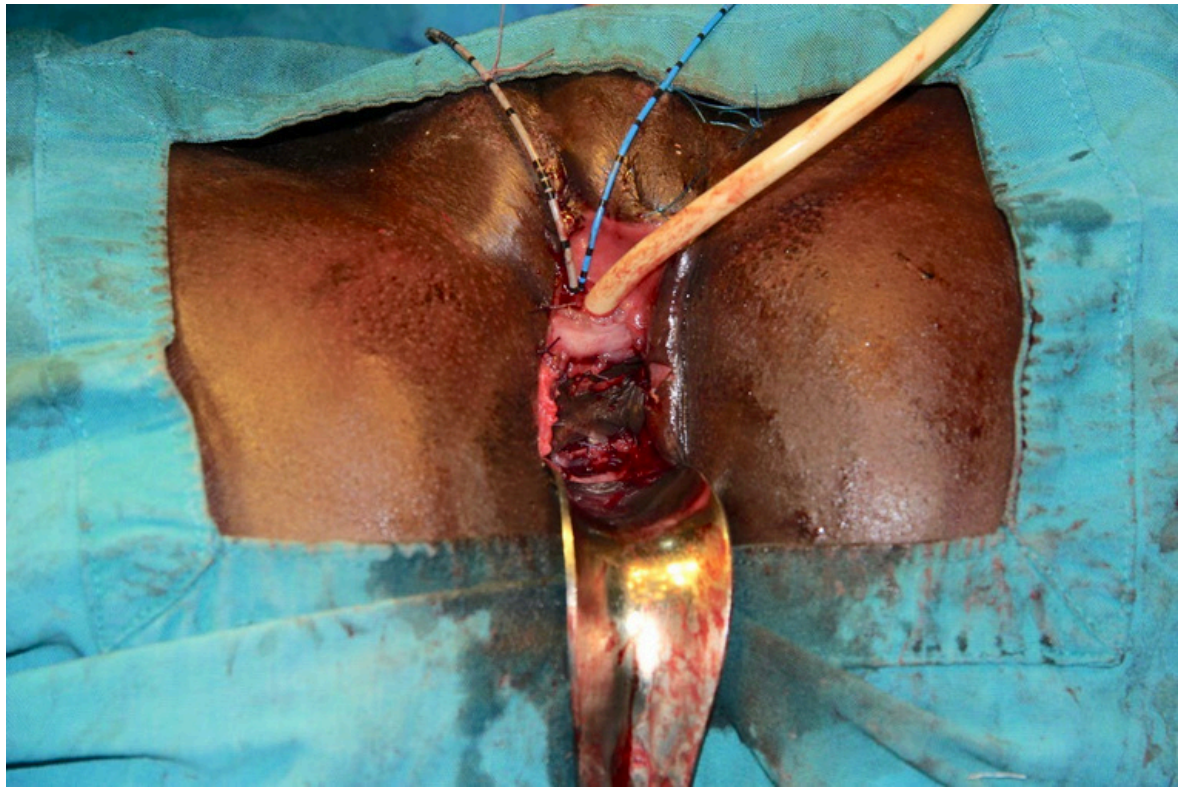
Step 3
Restore vaginal anatomy
Example 1: labial rotation flap

Step 3
Restore vaginal anatomy
Example 2: labia minora flap



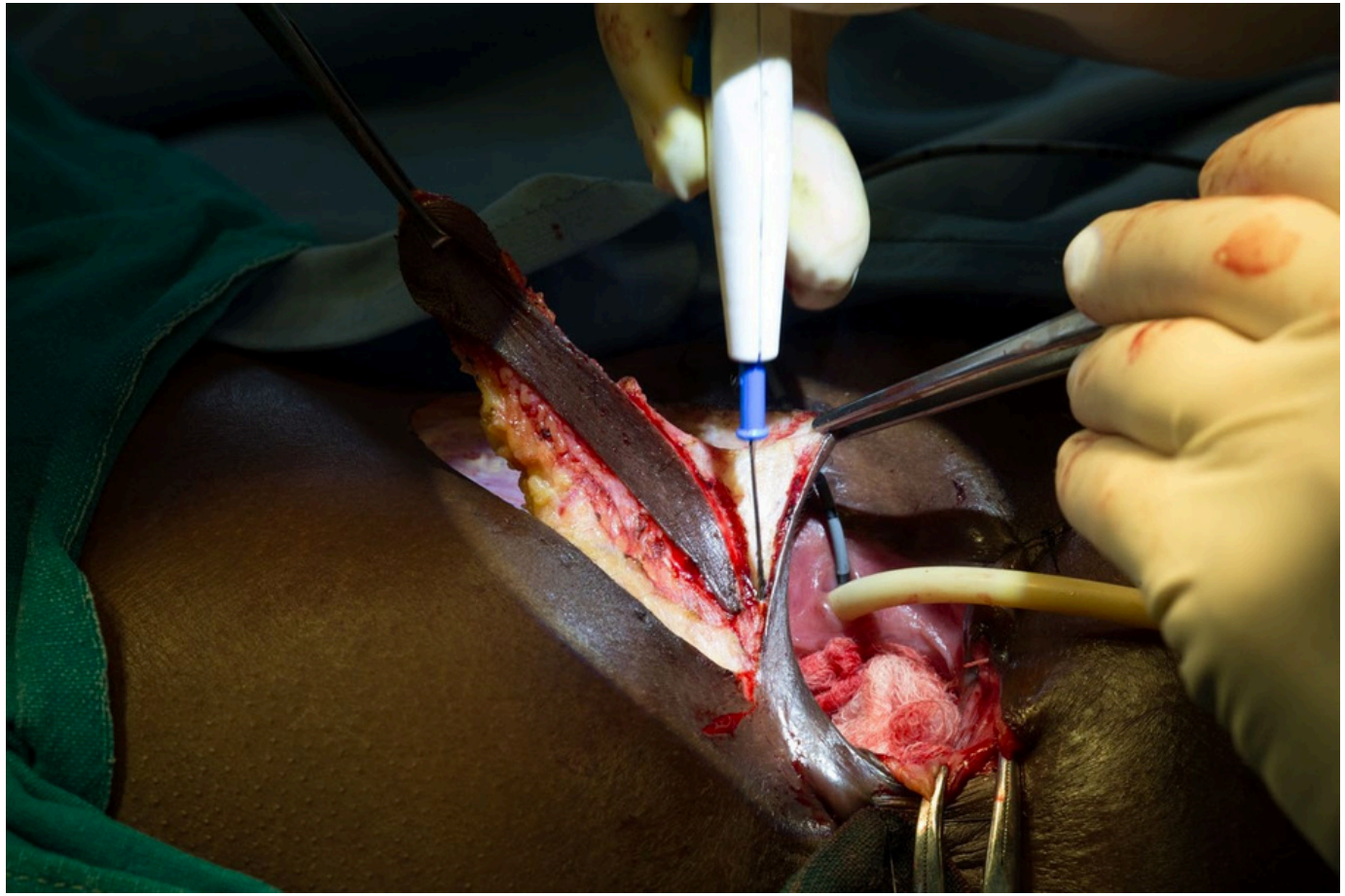
Step 3
Restore vaginal anatomy
Example 2: labia minora flap



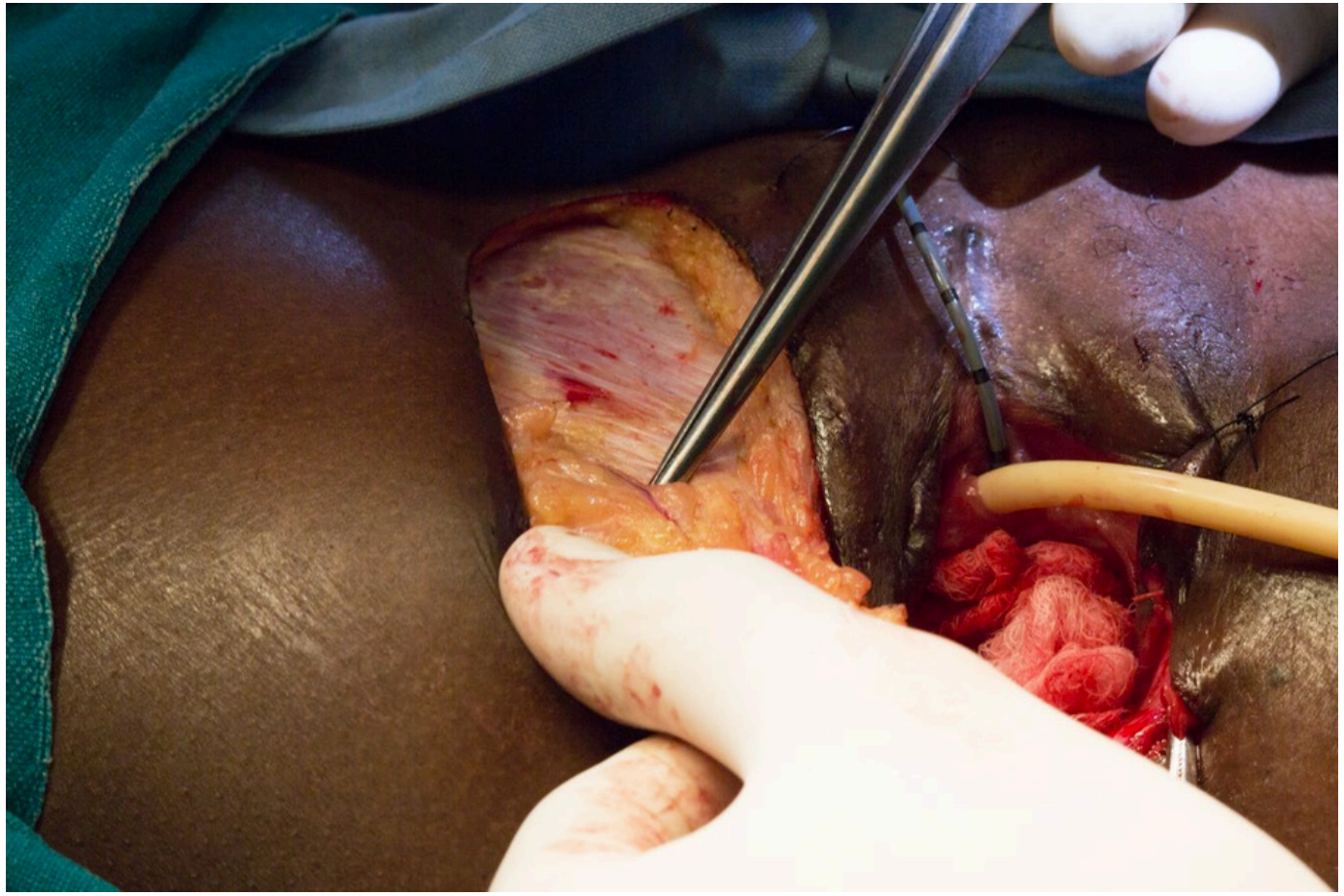


Step 3
Restore vaginal anatomy
Example 3: Singapore flap

Step 3
Restore vaginal anatomy
Example 3: Singapore flap

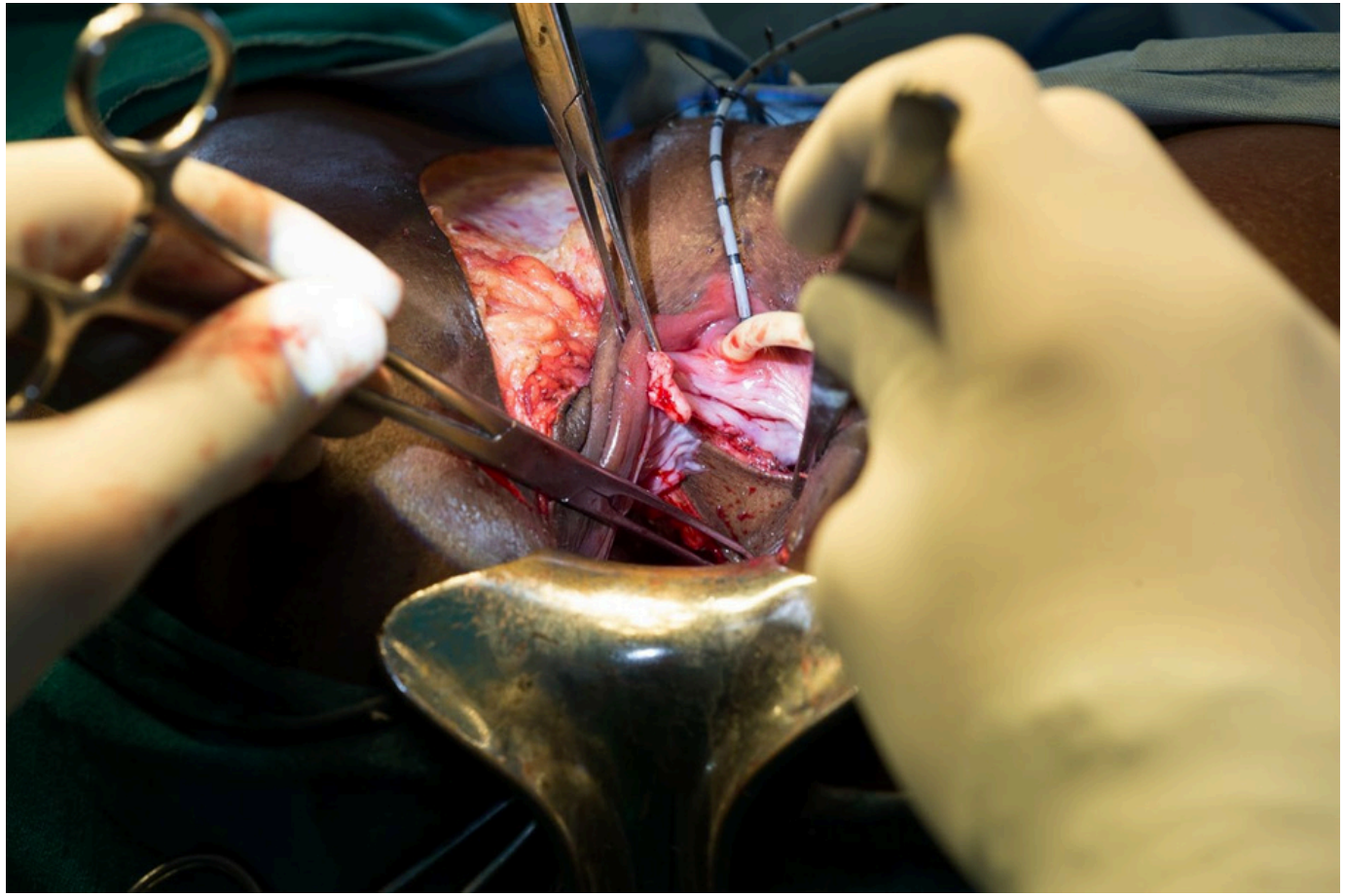


Step 3
Restore vaginal anatomy
Example 3: Singapore flap



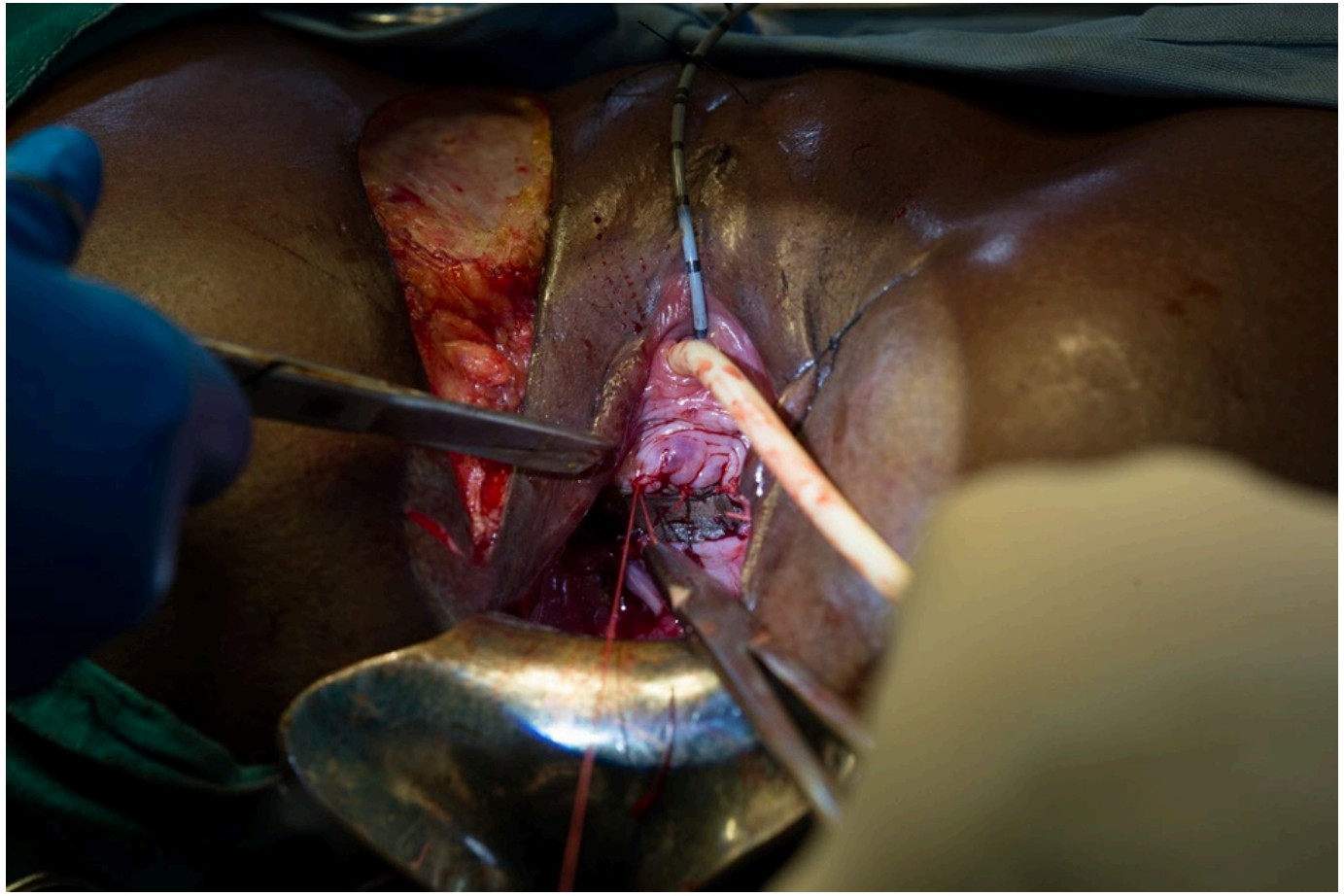
Step 3
Restore vaginal anatomy
Example 3: Singapore flap

Step 3
Restore vaginal anatomy
Example 3: Singapore flap

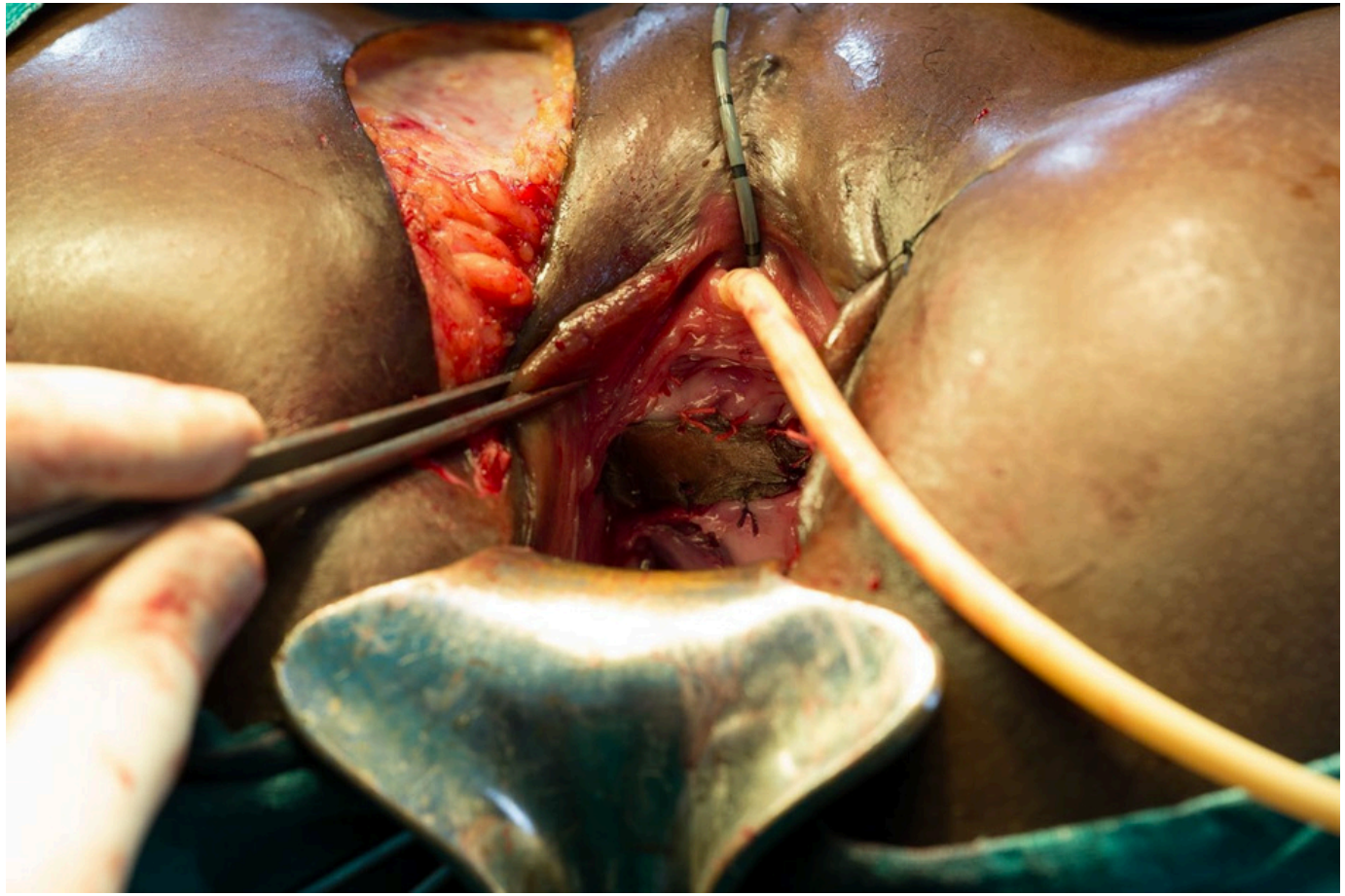


Step 3
Restore vaginal anatomy
Example 3: Singapore flap

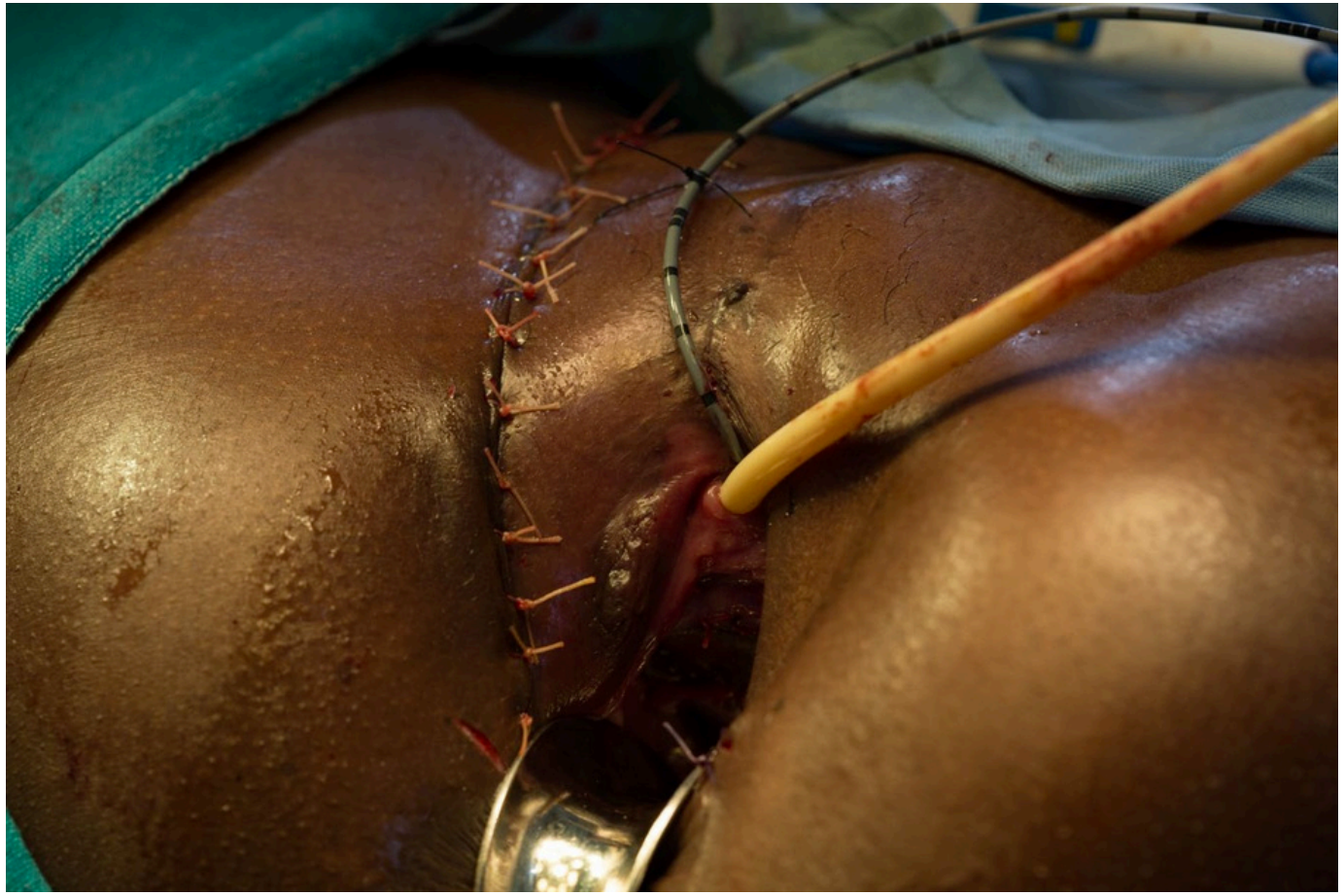
Step 3
Restore vaginal anatomy
Example 3: Singapore flap



Step 3
Restore vaginal anatomy
Example 3: Singapore flap



Step 3
Restore vaginal anatomy
Example 3: Singapore flap



Step 3
Restore vaginal anatomy
Example 3: Singapore flap

Results

- Primary repair in 45 cases on the most severe Goh 4ciii cases (large circ or multiple failures)
  - Traditional methods of vaginal repair, 19% dry (inc wet on cough)
  - Adding the flap, 47% completely dry (66% if inc wet on cough)
  - One with retention
  - 20% some degree of ongoing incontinence
  - 13% broke (cf 15%)
  - One graft sloughed

Browning A, Williams G, Petros P. Skin flap vaginal augmentation helps prevent and cure post obstetric fistula repair urine leakage: a critical anatomical analysis. BJOG. 2018 May;125(6):745-749

Results 2

- Secondary operation in 29 cases
- Done on the most severe cases, most deemed incurable and operated on up to 9 times before.
  - Old op- 26% dry or leak with cough
  - Pre-op 1hr pad test av 229ml/hr
  - 65% completely dry, 83% dry or leak with cough
  - 17% improved to wet on walking only
  - Post-op 1hr pad test 23ml

Browning A, Williams G, Petros P. Skin flap vaginal augmentation helps prevent and cure post obstetric fistula repair urine leakage: a critical anatomical analysis. BJOG. 2018 May;125(6):745-749

Results –from last 1200 cases

Singapore
N=117

Fresh VVF

- Reliable follow up on 60 patients, all 3 or 4 Goh, large vaginal loss.
  - 71.2% dry
  - 26.8% fistula closed but wet
  - 2% broke

SUI

- All wet 4/5 or 5/5
- Average number of previous operations 2.8
- Average pre-op urethral length 1.9cm
- Average post-op urethral length 2.9cm
- Reliable follow up on 32 patients
  - 50% dry 41% improved 9% no change

Complications

- Infection
- Bleeding
- Failure
- Recurrence of the fistula (especially if pull the sling too tight).
- Retention with overflow 15%
- Sloughing of flap <5%

Assessment of Surgical Outcomes

- If we're going to compare surgical outcomes we need standardisation
- FIGO flow chart.
  - Dye test
  - Residual
  - Pad test

Key points and takeaways

- It is common- the more we look for it the more we find, but we need to find it to encourage and manage the patient correctly
- Assess properly.
- The principles of the corrective surgery are:
  - Restore a normal urethral length and width
  - Reconstruct a pubo-urethral ligament
  - Reconstruct the vagina

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Thank you

Questions & Answers