Innovative management of a complex Urethrovaginal fistula using artificial dermal matrix ‘Matriderm’

Presented by-

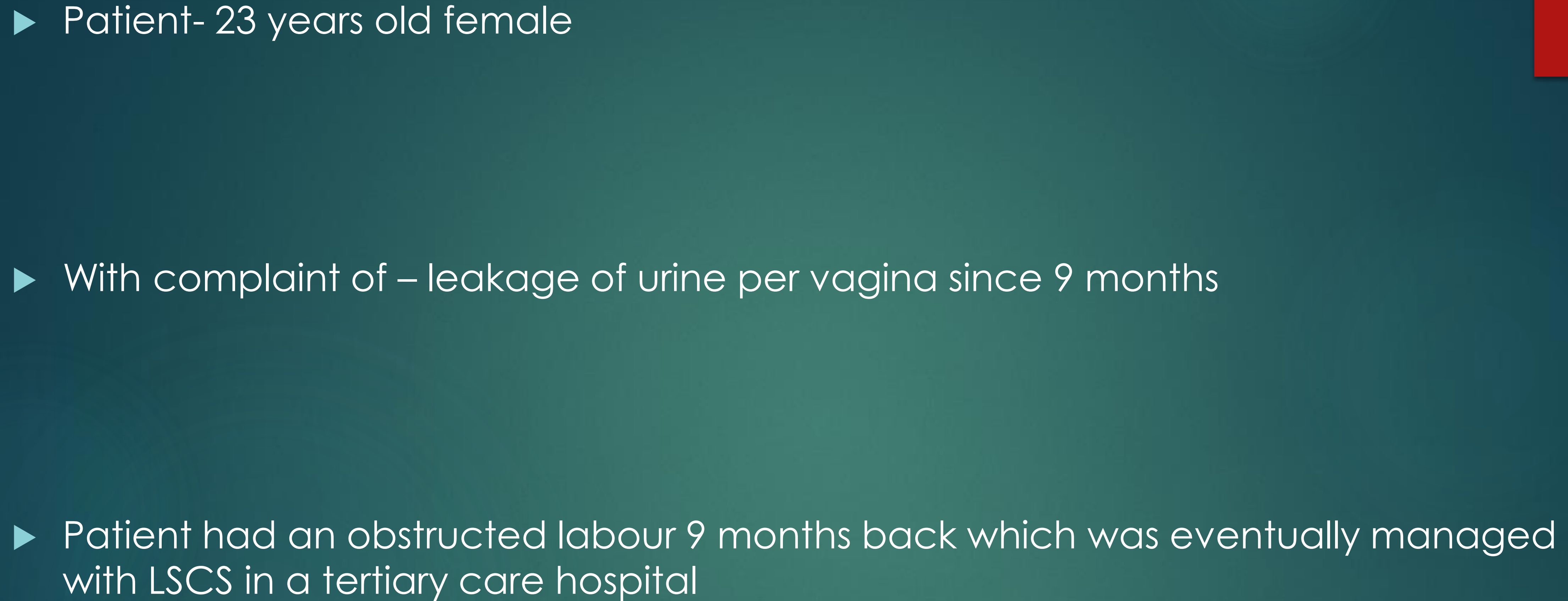
DR AMALA GHALSASI

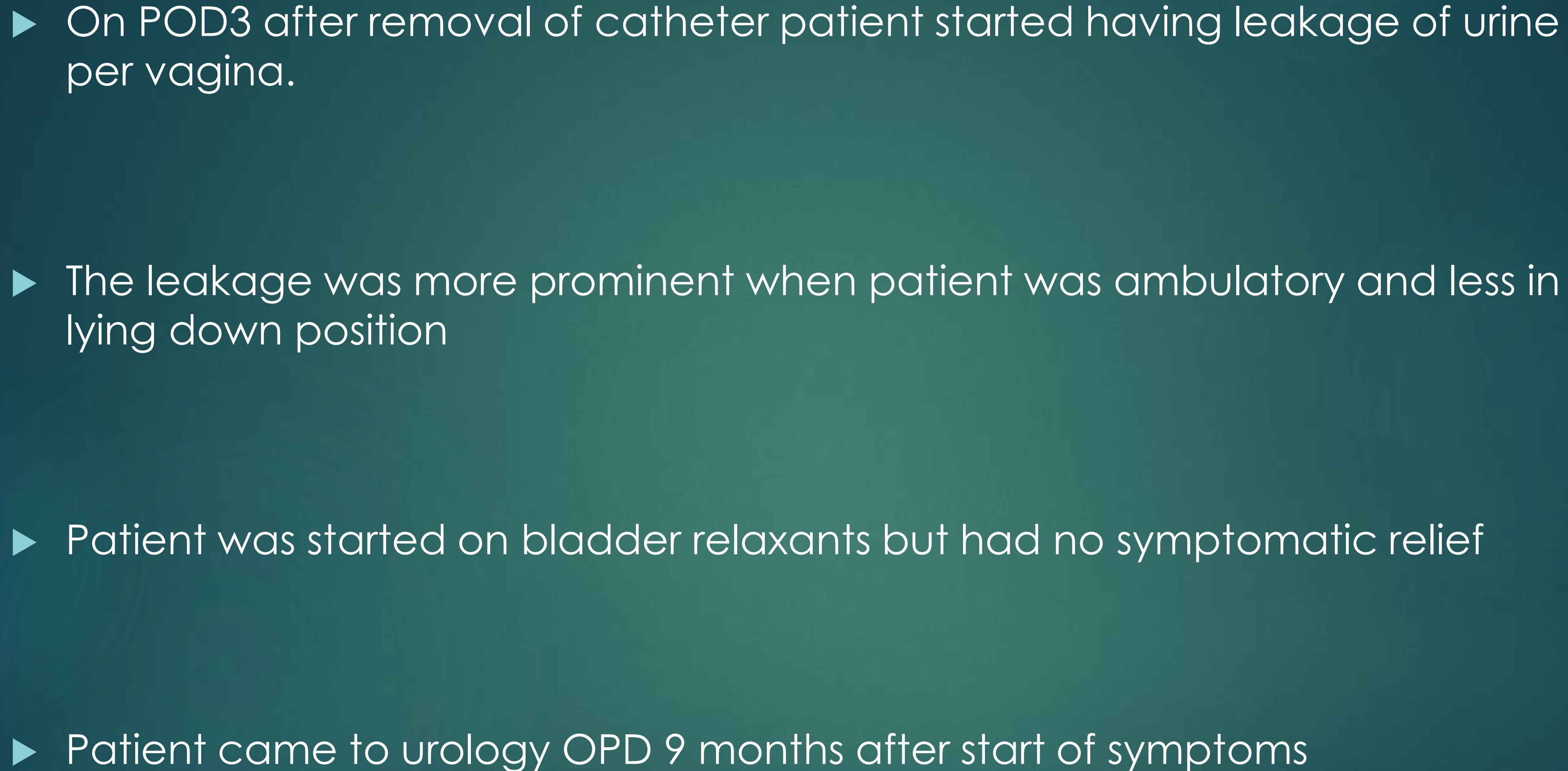
Mch Urology Resident

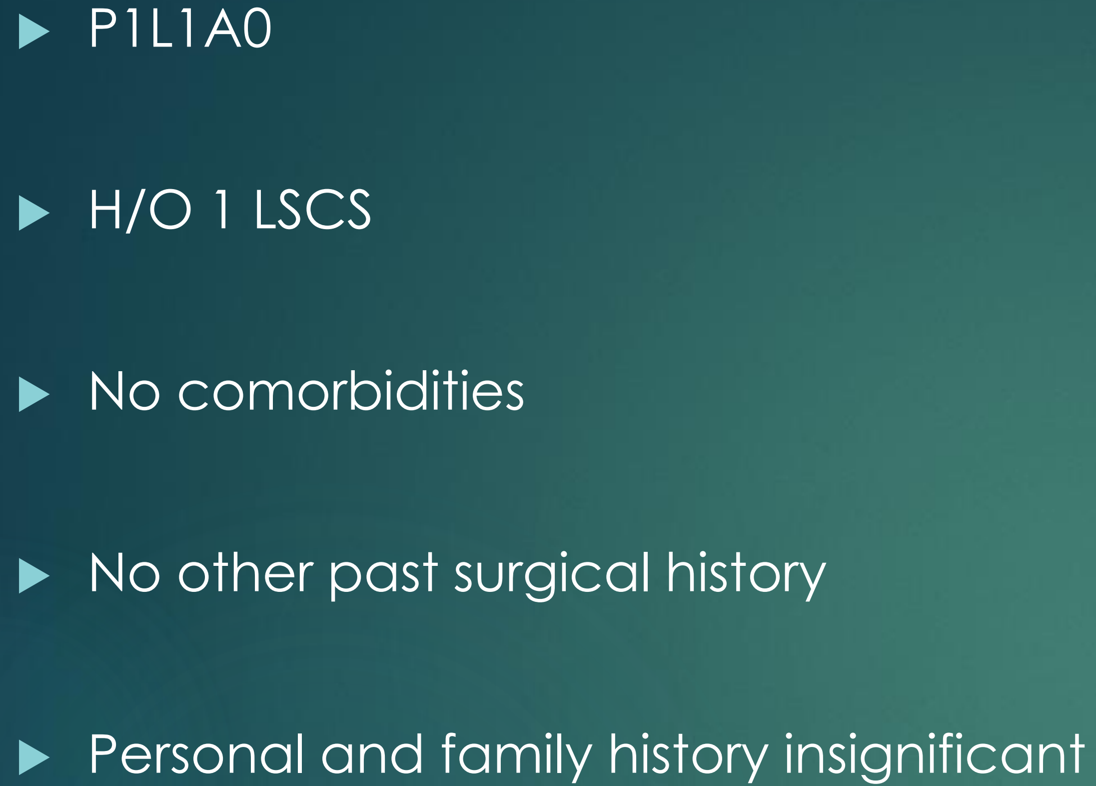
DR V P SABALE

HOD & Professor Urology

DYP MEDICAL COLLEGE AND HOSPITAL


Patient- 23 years old female
With complaint of – leakage of urine per vagina since 9 months
Patient had an obstructed labour 9 months back which was eventually managed with LSCS in a tertiary care hospital


On POD3 after removal of catheter patient started having leakage of urine per vagina.
The leakage was more prominent when patient was ambulatory and less in lying down position
Patient was started on bladder relaxants but had no symptomatic relief
Patient came to urology OPD 9 months after start of symptoms



- P1L1A0
- H/O 1 LSCS
- No comorbidities
- No other past surgical history
- Personal and family history insignificant

On General Examination :-

- Patient conscious ,well oriented to time place and person
- Moderately Built
- BP= 120/80 mm Hg
- Pulse = 68 / min
- Spo2 = 99% on room air

Systemic Examination :-

- CVS - S1S2 Present
- CNS - GCS 15/15
- P/A –Soft Non-Tender , No palpable organomegaly.
- LSCS scar +

- Local Examination

- EUM – Not visible

- Completely deficient posterior urethra

- On attempting per vaginal examination , the examining finger was directly entering into the bladder

- Pre speculum examination – Bladder was visible due to large wide open bladder neck

Hb – 10.10

TLC – 5800

PLT- 2.01 L

Urea – 24

S Creat – 0.62

Na – 138

K – 4.35

Urine routine

Appearance – clear

pH – 5.5

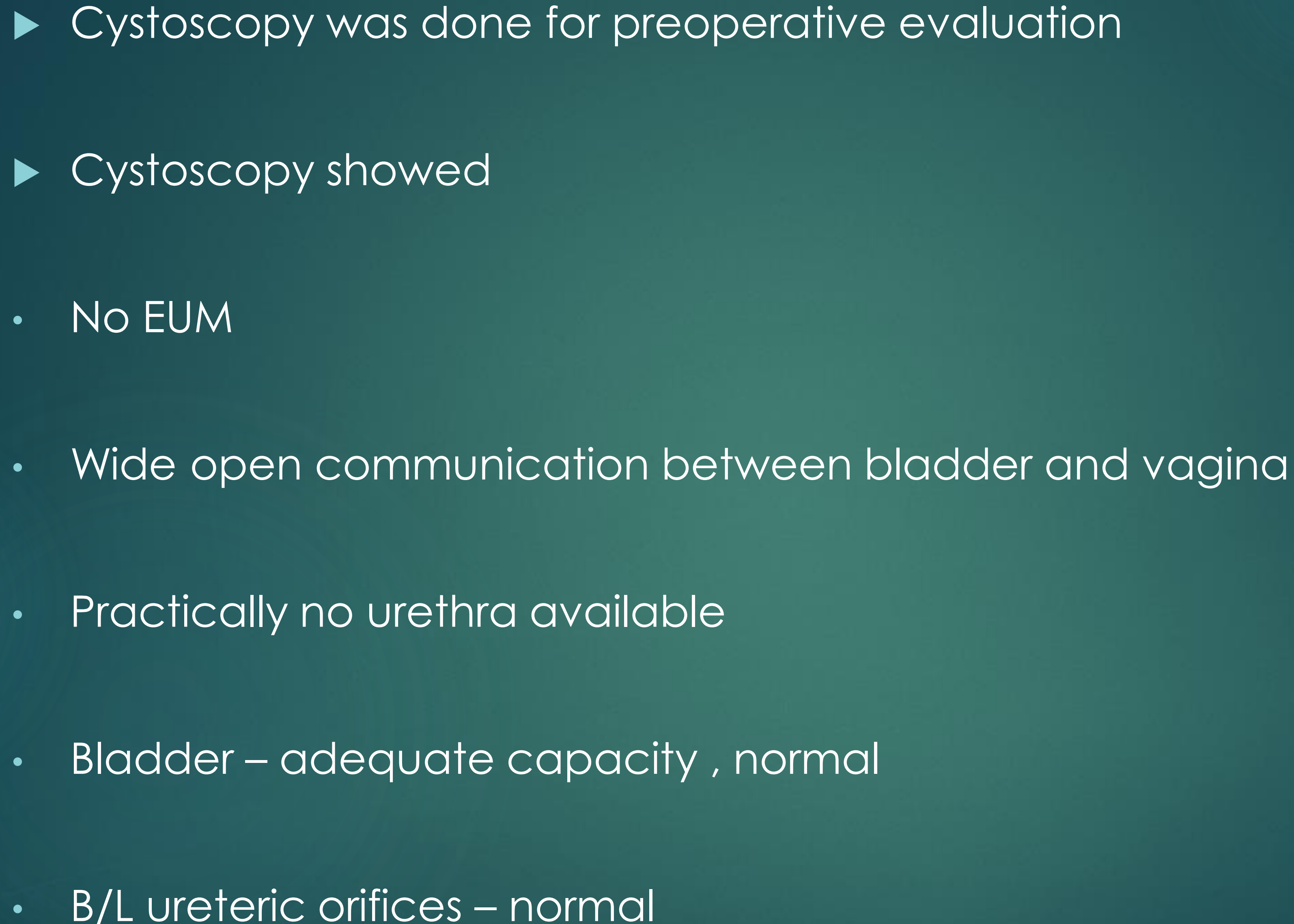
Protein – absent

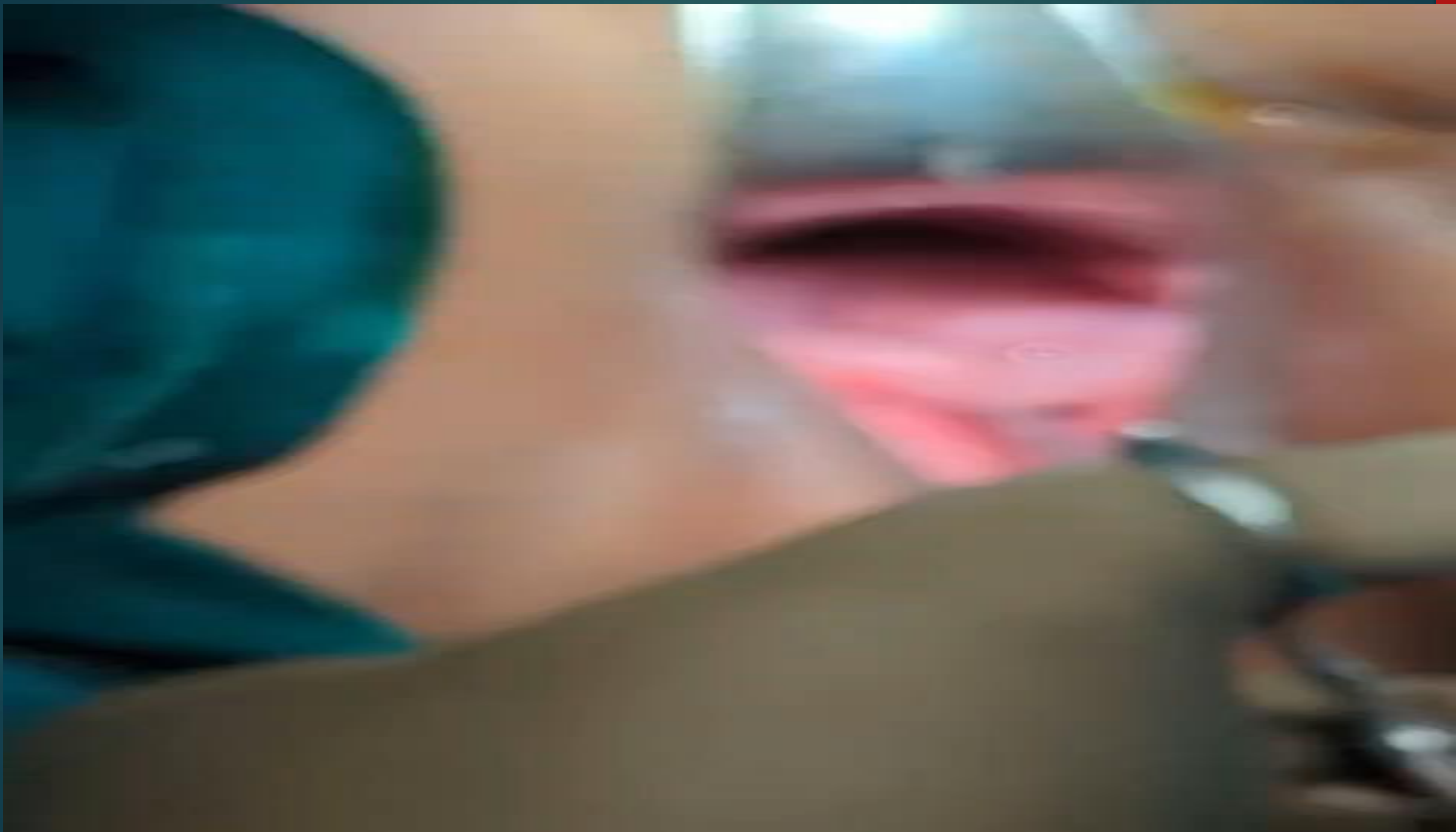
Glucose – absent

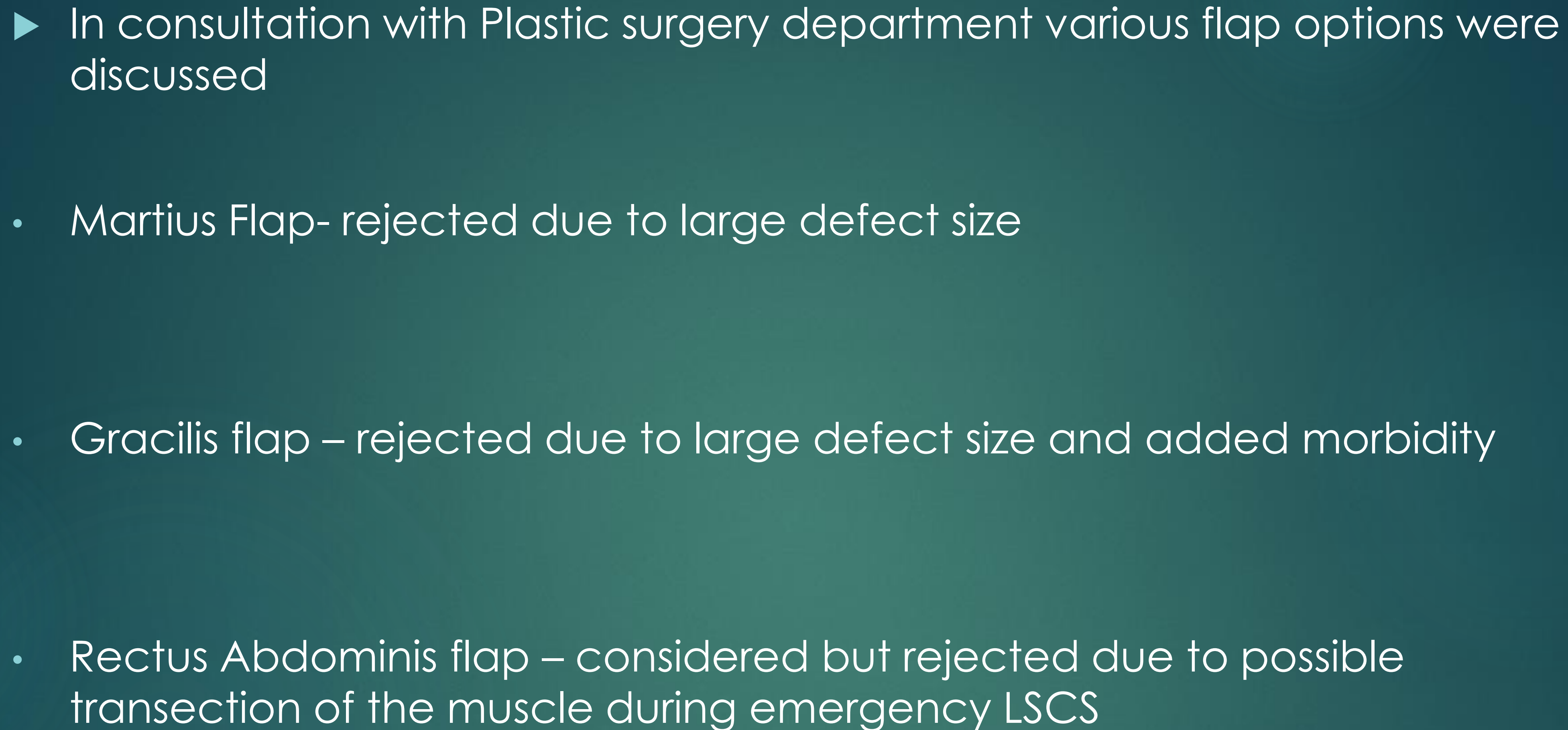
RBCs – absent

Pus cells – 5-6

Urine Culture – no growth

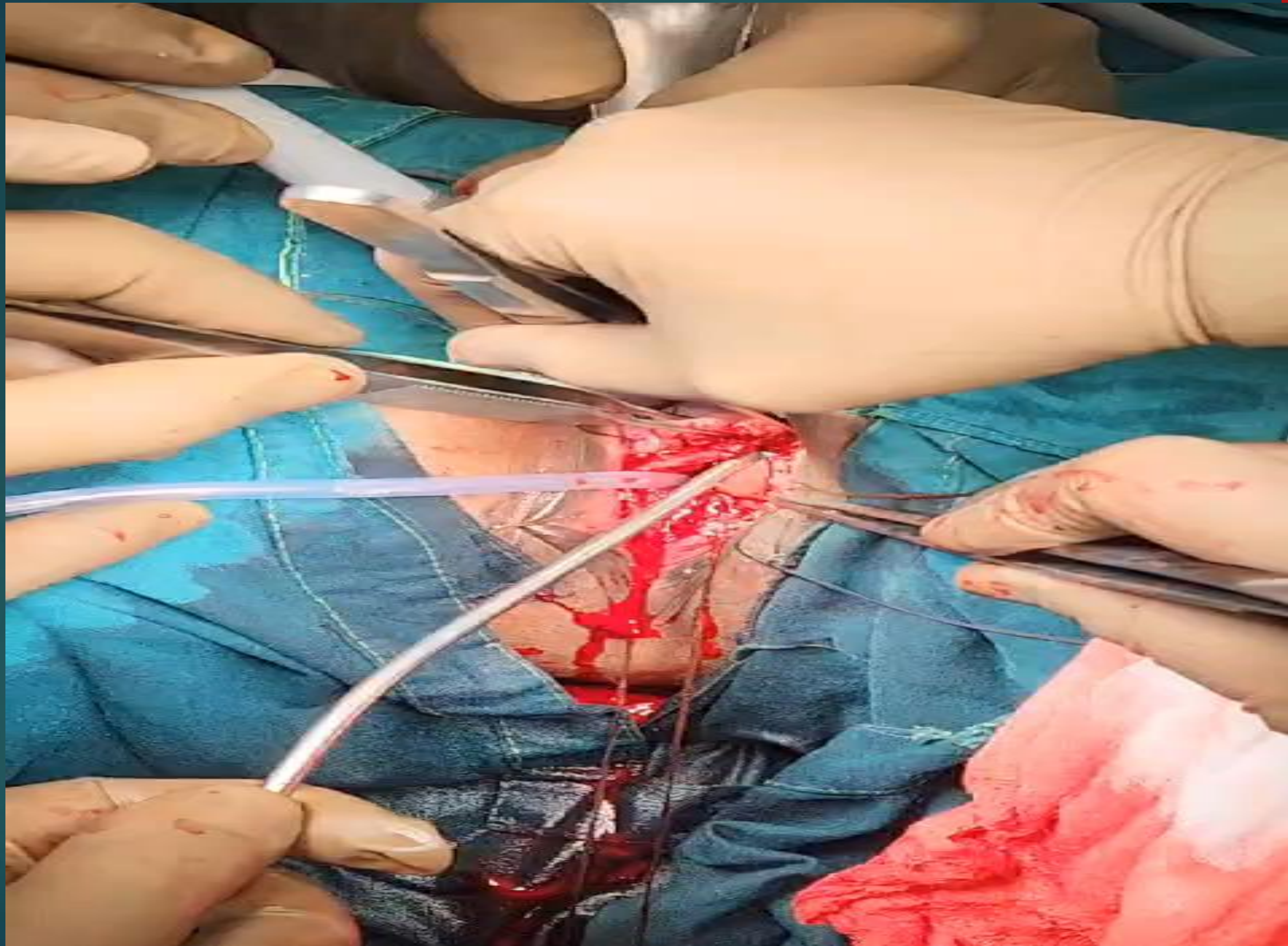

Cystoscopy was done for preoperative evaluation
Cystoscopy showed
No EUM
Wide open communication between bladder and vagina
Practically no urethra available
Bladder – adequate capacity , normal
B/L ureteric orifices – normal

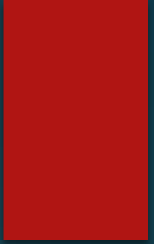


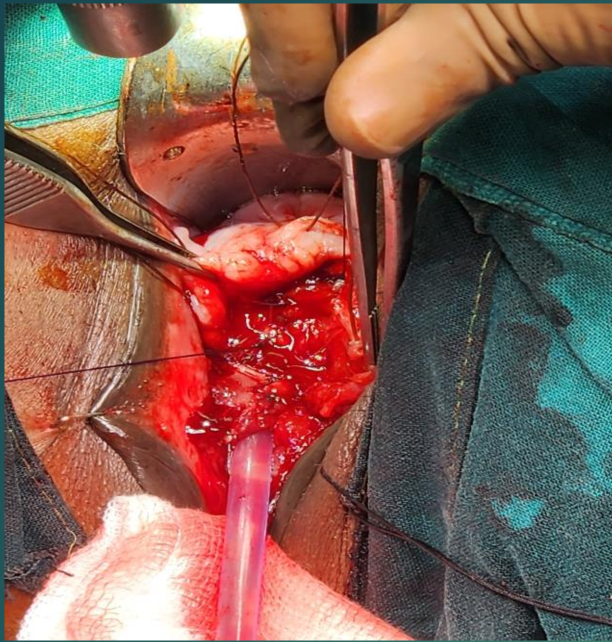

In consultation with Plastic surgery department various flap options were discussed
Martius Flap- rejected due to large defect size
Gracilis flap – rejected due to large defect size and added morbidity
Rectus Abdominis flap – considered but rejected due to possible transection of the muscle during emergency LSCS

- Initial cystoscopy and bilateral DJ stenting was done in lithotomy position
- Patient was taken for UVF repair in Jackknife position
- An anterior vaginal wall flap was marked with a racquet shaped incision surrounding the fistulous opening
- A 2.5cm strip was mobilised from the vaginal wall
- Fistula was narrowed down to create a bladder neck taking precautions for ureteric opening and intramural tunnel of ureter with help of preplaced DJ stent

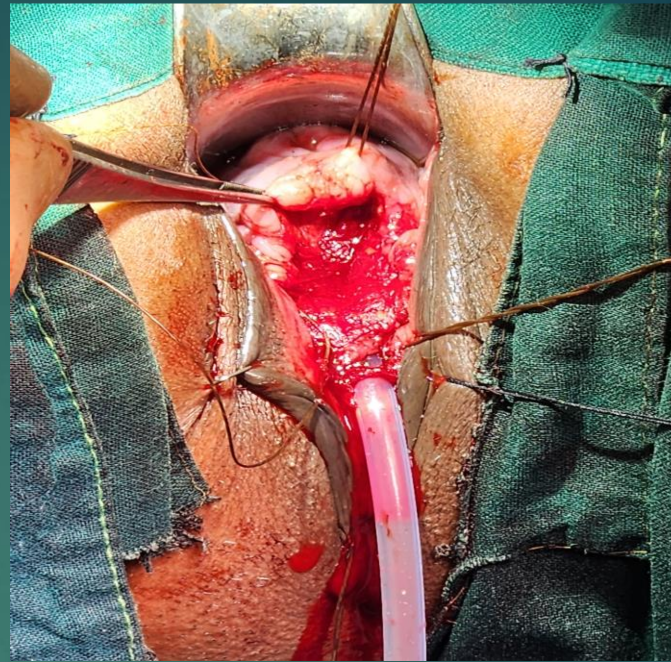
- Neo urethra was created using vaginal flap over a silicone foleys catheter
- Matriderm (an artificial dermal matrix containing bovine collagen and elastin) was used for interposition
- Anterior vaginal wall was pulled down and a neo EUM created
- A mold was created with guaze , over which the vagina was sutured
- The patient had an uneventful postoperative course
- Vaginal pack was removed after 48 hours. Foleys removed after 3 weeks.





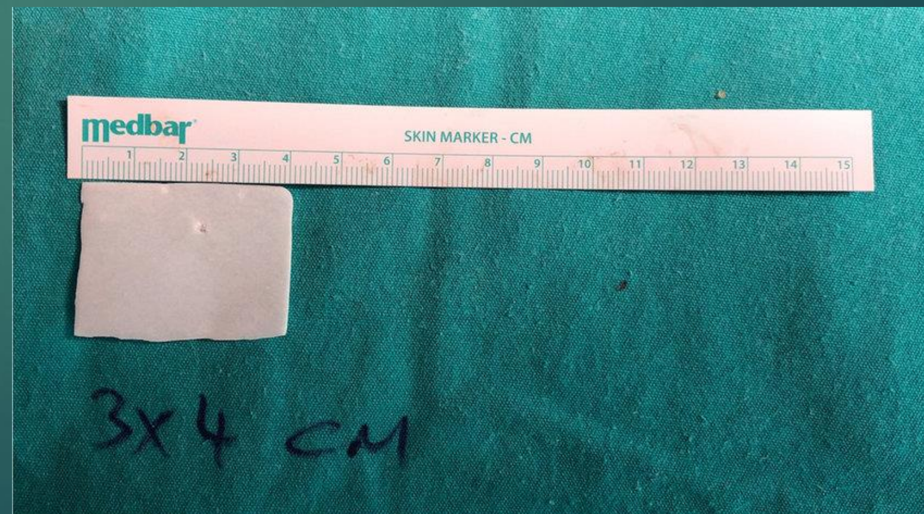


Pre insertion



Post insertion

MATRIDERM

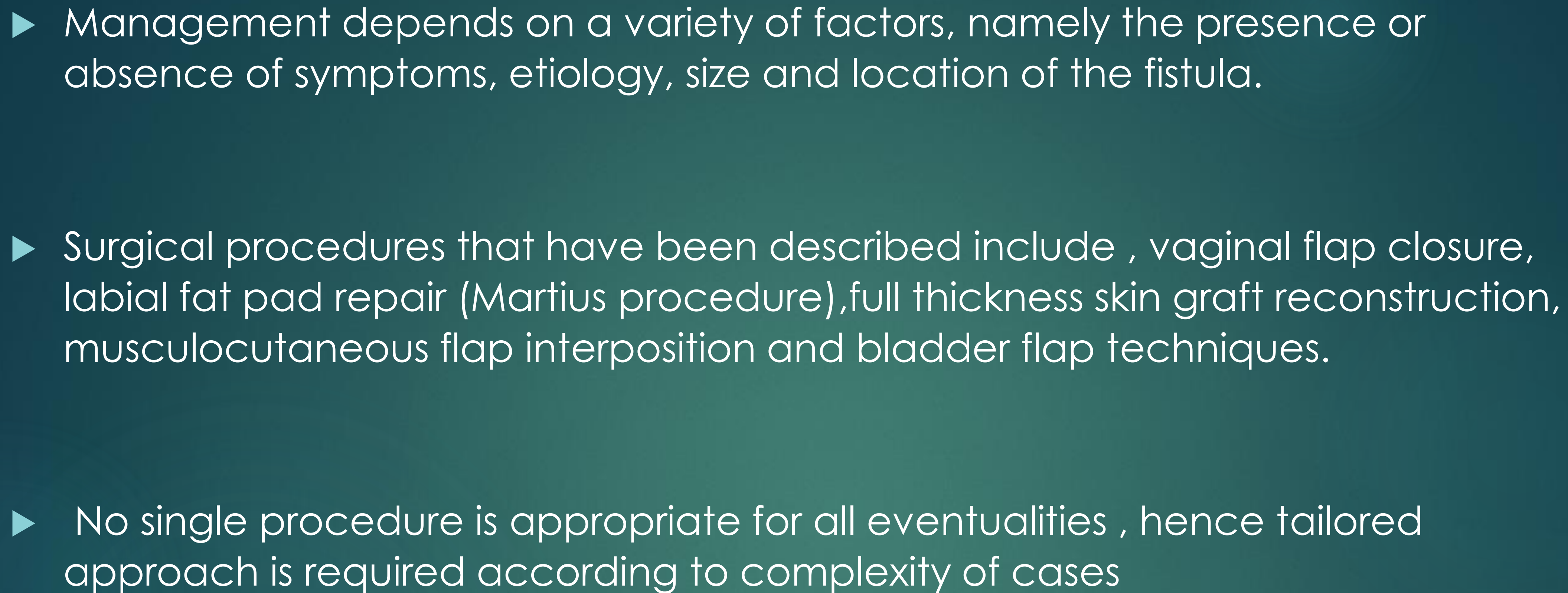


FOLLOW UP

- Patient is on regular follow up
- Patient is continent and dry at present
- Patient has been planned for cystoscopy and stent removal after 1 week

Discussion

- In developing countries, birth trauma accounts for the majority of urethrovaginal fistulas.
- Necrosis of the bladder base and urethra is induced by prolonged labor, which results in tissue loss.
- Symptoms depend on the position of the fistula in relation to the sphincter mechanism.
- Proximal fistulas may result in continuous or stress incontinence, while distal fistulas may remain asymptomatic or simply cause messy voiding.
- Pseudoincontinence may result from voiding through the fistula into the vagina, which empties when the patient stands.



- Management depends on a variety of factors, namely the presence or absence of symptoms, etiology, size and location of the fistula.

- Surgical procedures that have been described include , vaginal flap closure, labial fat pad repair (Martius procedure),full thickness skin graft reconstruction, musculocutaneous flap interposition and bladder flap techniques.

- No single procedure is appropriate for all eventualities , hence tailored approach is required according to complexity of cases

MATRIDERM

- Newer dermal substitutes containing collagen elastin matrix can be used as dermal replacement scaffold

Mechanism of action :-

- During the healing phase the invading cells use the fibres of this scaffold as guiding ridges for structured healing

- The cells recognise binding sites on native collagen fibres and get activated by binding to them

- Activated fibroblasts then start to produce body’s own collagen

- Advantages include
- Fast integration and revascularisation
- Effective closure of full thickness injuries
- Functional and aesthetic outcomes

- Limitations
- Cost

Take home message

- Complex urethrovaginal fistulas present a challenging therapeutic dilemma for the operating surgeon.
- Adequate preoperative assessment and planning is required for their management.
- Sometimes out of the box thinking and innovative techniques are necessary to achieve excellent results

Thank You!