INTRODUCTION

Genitourinary fistulae are one of the most devastating complications in the urogynecology setting.

➢ **Types**

a-**vesicovaginal fistula (VVF):**
- The commonest type
- **Etiology:** in developed countries mostly iatrogenic secondary to gynecological procedures, while in developing countries it is usually secondary to prolonged obstructed complicated labor

b-**vesicouterine fistulae (VUF):**
- represents about 1-4 % of all genitourinary fistulae
- **Manifestations:** in 1957, Youssef reported on the classical symptoms including amenorrhea and cyclic hematuria coinciding with time of menstrual cycle; known afterwards as Youssef syndrome
- **Etiology:** iatrogenic, secondary to bladder injury during low uterine segment cesarean delivery
INTRODUCTION

c-Uretrovaginal fistulae (UVF)
- Occurs in about 0.5–2.5% of major gynecological surgical procedures.
- **Risk factors**: endometriosis, pelvic inflammatory disease, radiotherapy and pelvic malignancy
- **Manifestations**: The most common presenting symptomatology is continuous urinary incontinence, but the patients continue to have normal voiding pattern as bladder filling is maintained from the contralateral kidney.

INTRODUCTION

- **Management**: 
  - The majority of cases VVF can be repaired the **transvaginal approach**.
  
  - **Transabdominal approach**: in highly located suprtrigonal VVF, VUF and UVF, however, this is associated with significant morbidities in such previously operated patients

  - Recently, **laparoscopy, LESS and robotic-assisted laparoscopy** became an attractive tool in genitourinary fistulae repair. It offers low morbidity while preserving the same success rates of the open surgical approaches
AIM

To present our single-center ten year experience of laparoscopic repair of different types of female genitourinary fistulae via both conventional laparoscopy and LESS

METHODOLOGY

➢ Study design
This is a retrospective study that included our records over the last ten years in the faculty of medicine, Alexandria University

➢ Patients
46 patients with different genitourinary fistulae were included

➢ Methods
A- preoperative:
• pelvic examination, retrograde cystography, cystoscopy, intravenous urography were done
• Retrograde pyelography was done only if there was any suspicion of ureteric injury.
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B- *intraoperative*

1- General anesthesia

2- Position: lithotomy Trendelenburg position with legs spread apart

3- Nasogastric tube was inserted.

4- Cystoscopy with bilateral ureteral stenting, another 5 Fr ureteric catheter with a different color was inserted in the fistula.

5- Foley’s catheter (22 F) was then fixed in the urinary bladder while a betadine-soaked vaginal gauze was inserted to prevent gas leak.

METHODOLOGY

6- **Port insertion**

- **In conventional group**
  camera port infra-umbilically, 10-mm port in the left side midway between the umbilicus and left ASIS and a third 5-mm port at the same point on the right side.

- **In LESS group:** umbilical incision was done for either the TriPort or QuadriPort. At the time of suturing, an additional 5-mm port was inserted midway between the right ASIS and the umbilicus.
METHODOLOGY

7-VVF repair
- The peritoneum is incised between the bladder and vagina extravesically till the site of the fistulous communication which was then sharply incised by the scissors.
- The fistula edges in both sides were trimmed and the bladder is closed longitudinally in two layers in a water-tight fashion.
- The vagina was closed transversally in a single layer in continuous fashion.
- A well vascularized interposing omental flap was mobilized and interposed between the bladder and the vagina and fixed to the vagina.
- Finally, tube drain was inserted in the pelvis.

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- Postoperatively, the urethral catheter was left in place for 3 weeks. And a retrograde cystogram was done to ensure complete healing of the fistula.

8-VUF repair: uterine opening was closed by a single figure of eight 3/0 Vicryl sutures

9-Uretro-vaginal fistule (UVF): managed by conventional laparoscopy only
- Extra-vesical dissection by incising the posterior peritoneum till UVJ or to the fistula site was done.
- Extravesical submucosal tunnel to re-implant the ureter in the bladder was performed.
- The ureter was divided, spatulated and anastomosed to the new hiatus in the bladder.
- JJ stent inserted in retrograde fashion.
- A tube drain was inserted and urethral catheter left for 7 days.
- Postoperatively, CT urography was done in all cases and compared with the preoperative films.
METHODOLOGY

Results

➢ Descriptive results
A- Overall, 46 patients were reported
  • VVF: 25 patients, 18 by conventional laparoscopy and 7 by LESS
  • VUF: 14 patients; 8 by conventional laparoscopy and 6 cases by LESS
  • UVF: All the 7 reported cases of UVF were repaired via conventional laparoscopy
B- Mean operative time was 176 ± 25 minutes, mean blood loss was 105 ± 25 c.c.
C- There were no intraoperative or postoperative complications in all patients and none of the patients was converted into open surgery.
RESULTS

D-Mean postoperative hospital stay was 3.2 ± 1.2 days.

E-After a mean follow up of the patients of 6.3 ± 3.1 years, all patients had successful repair except one patient with complex VVF in LESS group

- **Analytical results**
  
  We compared conventional laparoscopy group with the conventional laparoscopy group. **LESS has a significantly shorter hospital stay and lower analgesic requirements** (p<0.003).
DISCUSSION

➢ Laparoscopic surgery (LS) has significant advantages over conventional open surgery (OS) including better cosmesis, minimal analgesic requirement, rapid convalescence and shorter hospital stay.

➢ VVF: Laparoscopic repair of VVF was first reported by Nezhat et al. in 1994.

Our study included the largest reported number of laparoscopic repair of VVF till now (25 cases) with the longest period of follow up.

➢ For VUF,

• The first laparoscopic repair was reported in 2001 by Hemal et al. as a case report, and our group has reported for the first time in the literature a series of LESS repair of VUF in 2013.

• In this recent study, we continue to expand the number of laparoscopic repair of VUF by both conventional laparoscopy (8 cases) and LESS (6 cases) with a longer period of follow up.

➢ UVF:

• Lap repair of UVF is the most technically challenging. In the literature, few case reports were found with either laparoscopic Boari flap or extravesical repair.
DISCUSSION

• our study included larger number of patients and all were repaired by extravesical reimplantation

➢ To our knowledge, this is the largest reported series that included a variety of different types of female genitourinary fistula repaired by either conventional laparoscopy or LESS with the longest period of follow up after laparoscopic repair up to with a very high success rate.

CONCLUSION

❖ Laparoscopic repair of VVF, VUF and UVF is technically feasible and safe procedure with high success rate and low morbidity.

❖ LESS repair of VVF and VUF is a valid alternative with comparable success rate to conventional laparoscopic repair and a with shorter hospital stay and less analgesic requirements.
Thank you