

Any Benefit of Martius Flap in Repair of Female Urethral Diverticulum

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Abstract: Female urethral diverticulum is not common urethral pathology. The commonest presentation is post voiding dripping. Its surgical repair done vaginally. In our study we compare cases which repaired with or without the use of martius flap regarding their post operative outcome. **Methods:** we reviewed all done cases over 5 years and classify them into group one with martius flap and group 2 without any flap. We reviewed patient post operative outcome. **Results:** total of 34 patients with mean age of 37 only 15 females had martius flap there was no significant difference between both groups regarding recurrence rate, vaginal tightness and urine incontinence post repair. **Conclusion:** Use of martius flap in urethral diverticulum repair doesn't add any additional repair benefit. We recommend to be used only in large diverticular repair.

Keywords: urethral Diverticulum, female urethra, Martius flap, urethral diverticulum repair

1. Introduction

Female urethral diverticulum (UD) is not common. Usually present as urethral or vaginal lump associated with recurrent Urinary tract infection and post voiding residual. The gold standard for diagnosis is MRI pelvis [1] which will confirm the diverticulum and excluded from genital cysts. Its surgical excision done vaginally involve excision of mass and its urethral connection to reduce chances for recurrence in our research we compare the cases were martius flap was used to those whom not used.

2. Methodology

We reviewed all patients file from August 2012 till August 2019 for all females diagnosed with urethral diverticulum. All patients underwent vaginal exam and MRI confirmed diagnosis. All urinary tract infection was treated pre operatively. Patients were categorized into 2 groups. Group 1 martius flap used, group 2 no flap.

3. Surgical Technique

The principles of successful transvaginal urethral diverticulectomy include: removal of the entire UD sac, watertight closure of the urethra, multi-layered and non-overlapping closure of surrounding tissue with absorbable suture to close dead space, and preservation or creation of continence. The patient is placed in lithotomy position with standard application of vaginal antiseptic. A 16-F urethral Foley catheter is placed. Exposure is facilitated with a weighted vaginal speculum. An inverted 'U' is marked out along the anterior vaginal wall with the base of the 'U' at the level of the distal urethra and the limbs extending to the bladder neck. The 'U' incision also minimises any overlapping suture lines at closure. To facilitate dissection, normal saline is injected along the incision line beneath the vaginal wall. An anterior vaginal wall flap is created by careful dissection with Metzenbaum scissors in the potential space between the vaginal wall and the periurethral fascia. Initial dissection laterally for a few millimetres from the limbs of the inverted 'U' incision towards the ipsilateral vaginal fornix aids in demarcation of the flap for closure

later. The use of sufficient counter-traction with Allis clamps on the flap during this portion of the procedure is important to maintain the proper plane of dissection. The proper plane is identified by noting the glistening internal side of the vaginal wall flap. Care is taken to preserve the periurethral fascia and avoid inadvertent entry into the Urethral Diverticulum. Preservation of the periurethral fascia is important, as this will allow a multilayered closure of dead space and decrease the risk of UD recurrence and fistula formation postoperatively. Once the anterior vaginal wall flap is dissected, it is packed cephalad with moist gauze deep in the vagina. The periurethral fascia is incised transversely over the UD and dissected down to the external UD wall. The periurethral fascia is then dissected off of the UD circumferentially to delineate the margins of the UD, UD is dissected to the ostium where it connects to the urethra. Every effort should be made to remove the entire epithelialised surface of the UD to prevent recurrence. The Foley catheter usually seen after the UD is excised at the site where the ostium was removed. The urethra can then be closed with a watertight fashion with 4/0 synthetic absorbable sutures following standard reconstructive principles of a tension-free and watertight closure. The periurethral fascia is then re-approximated with interrupted 3/0 synthetic absorbable sutures perpendicular to the orientation of urethral closure, with care taken to close all dead space. The anterior vaginal wall flap is then re-approximated with 2/0 absorbable sutures to complete a three-layer closure (four layers if a Martius flap is used). The Foley catheter is left indwelling and an antibiotic impregnated vaginal packing is placed after closure.

4. Results

Total of 34 patients were diagnosed as urethral diverticulum. Their mean follow up period was 9 month (5 years- 4 months) The mean age was 37 y. Their main presentation was recurrent urinary tract infection in 19 patients, post voiding residual in 5, vaginal (urethral mass) in 10. Median size of diverticulum was 4 cm (3 cm – 7 cm). total of 15 patients had martius flap there was no significant difference between both groups with or without flap use regarding recurrence rate, urine incontinence post repair and vaginal tightening, table 1.

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	Group 1 Excision + martius flap	Group 2 no martius flap	P value
Number	15	19	0.923
Patient mean age	38±1	37±1.5	0.765
Diverticulum mean size	5cm±1	3cm±2.3	0.09
Recurrence of Urethral diverticulum	0	0	0.87
Incontinence post excision	0	0	0.34
Vaginal tightness	0	1	0.44

5. Discussion

Urethral diverticulum is rare disease affecting 1%-6% of women at their 3rd to seventh decade [2-6]. Transvaginal urethral diverticulectomy has a high success rate of between 84% and 98%, with a re-operation rate of 2–13% after primary repair during a mean follow-up of 12–50 months [1, 7, 8, 9]. Those studies with longer follow-ups report a higher rate of recurrence. The use of martius flap is claimed to decrease post op complication rate and recurrence rate. In our study we didn't find any difference between cases operated whom used martius flap or not

6. Conclusion

Use of martius flap in urethral diverticulum excision don't add any additional benefit. We recommend to be limited to large urethral diverticulum repair.

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