

VESICO-VAGINAL FISTULA: EXPERIENCE OF 11 YEARS

¹Taufik Rakhman Taher, ¹Zulfikar, ¹Irfan Wahyudi, ¹Arry Rodjani.

¹Department of Urology, Faculty of Medicine/Indonesia University, Cipto Mangunkusumo Hospital, Jakarta, Indonesia.

ABSTRACT

Objective: To evaluate the outcome of surgical repair in patients with vesico-vaginal fistula at Cipto Mangunkusumo Hospital. **Material & Method:** A retrospective study of 30 patients with vesico-vaginal fistula, who underwent surgical repair of the fistula at Urology Department Cipto Mangunkusumo Hospital between the period of 1998-2008, were reviewed. Patients were analyzed with regard to age, location of fistula, etiology, size of fistula, and surgical approach. The outcome of the surgery was analyzed. **Results:** This study included 30 patients who underwent surgery with age between 18-69 years old. The most common etiology was due to obstetrical trauma and hysterectomy. Bladder trigone was the most common location of fistulae (40%). During the surgery the transvesical (43%) approach was commonly used. However, the most excellent outcome was surgery by transvesical-transvaginal approach (100%). Success rate of fistula repair was 73%. **Conclusion:** This disease is a medically and psychosocially devastating condition for the patient. The diagnosis was easy but complicated in decision of treatment. Best results were observed by transvesical-transvaginal approach.

Keywords: Vesico-vaginal fistulae, surgical approach, surgical outcome.

ABSTRAK

Tujuan Penelitian: Mengevaluasi hasil dari penanganan bedah pada pasien dengan fistel vesiko-vagina di Rumah Sakit Cipto Mangunkusumo. **Bahan & Cara:** 30 pasien dengan fistel vesiko-vagina yang dilakukan operasi penutupan fistel di Rumah Sakit Cipto Mangunkusumo pada periode tahun 1998-2008 dikumpulkan dan dianalisa. Pasien dianalisa berdasarkan umur, lokasi fistel, etiologi, ukuran fistel, pendekatan operasi dan hasil operasi. **Hasil Penelitian:** Terdapat 30 pasien yang menjalani operasi dengan umur berkisar 18-69 tahun. Penyebab tersering pada penyakit ini adalah trauma obstetrik dan histerektomi. Daerah trigonum merupakan lokasi fistel yang paling umum terjadi (40%). Pendekatan operasi transvesika paling sering digunakan (43%). Pada penelitian ini hasil terbaik didapatkan dengan menggunakan pendekatan transvesika-transvagina (100%). Angka keberhasilan dari operasi pada penelitian ini adalah 73%. **Simpulan:** Penyakit ini merupakan kondisi yang tidak menyenangkan untuk pasien dari segi medis dan psikologis. Diagnosis dari pasien ini tidak sulit tetapi pemilihan terapi yang rumit. Hasil terbaik didapatkan pada pendekatan transvesika-transvagina.

Kata kunci: Fistel vesiko-vagina, pendekatan bedah, hasil operasi.

Correspondence: Taufik Rakhman Taher, c/o: Department of Urology, Faculty of Medicine/Indonesia University, Cipto Mangunkusumo Hospital, Jl. Diponegoro 71, Jakarta 10430, Indonesia. Phone: +62-21-3152892, 3923631, 3923632. Email: taufik.taher@gmail.com.

INTRODUCTION

Vesico-vaginal fistula is the presence of a communication between the bladder with the vagina, where urine from bladder will flow to the vagina continuously resulting in urinary incontinence. The disease also has social consequences with detrimental result in quality of life of and daily activities. This patient will feel frustrated, frightened and embarrassed from resulting of the urinary odor.¹ This disease has existed since ancient Egypt, where in

1923 Derry found vesico-vaginal fistula in mummies from 2300 BC. The first succesful fistula repair was reported by Johan Fatio in 1675,² while James Marion Sims, known as the "Father of Fistula Repair", is a physician who first published in 1852 on methods of surgical treatment of vesico vaginal fistula with the operating principles still applied until now.³

Cause of the disease can be categorized into congenital and acquired.⁴ Acquired fistula can occur due to obstetric trauma, surgery, infection, malig-

nancy, and radiation therapy. Incidence of this disease differs from country to country. In the developing countries the disease is most often caused by long confinement. Whereas in developed countries with advances in obstetric management, the most common cause is iatrogenic due to hysterectomy. Incidence of the disease is still not known exactly.

Clinical symptoms of this disease is a discharge of urine that can not be controlled. Patients will complain of urinary incontinence or vaginal discharge after any number of operations on the pelvic region. Other tests used were metylene blue test, cystoscopy and/or cystography, plain abdominal radiography and intravenous urography (to exclude other morbidity accompanying the uretero-vaginal fistula).³

Aggressive treatment of fistula repair is usually required, there are many factors that influence the success of fistula repair. Several factors influence the etiology, fistula size, location of fistula, the chosen approach, the type of suture material, and adequate bladder drainage.⁵ Given the medical illness is a difficult thing, especially regarding decisions and actions are also psychologically affect the quality of life of patients. It is very important absence of studies to evaluate the treatment of this disease.

OBJECTIVE

To study the incidence of vesico-vaginal fistula who underwent surgical repair, the characteristics of the fistula, surgery approaches and successful operation in Cipto Mangunkusumo Hospital.

MATERIAL & METHOD

The methodology of this study was retrospective descriptive. Data were collected from patient medical records of RSCM Urology Department with the diagnosis of vesico-vaginal fistula who underwent surgery from January 1998 until December 2008. Patient characteristics are taken and analyzed age, length of fistula, location of fistula, fistula size, new or recurrent cases, urinary tract infection (based on examination of urine), surgical approach chosen, and success of closure. All patients in this study underwent cystoscopy to

determine location and size of the fistula. The data processing is done using SPSS 12.

RESULTS

During the period 1998 to 2008 there were 37 cases of vesico-vaginal fistula treated at the RSCM. There are 4 patients who underwent surgery with incomplete data, and 3 patients who refused surgery for fistula repair, 30 patients had complete records for evaluation. Age of patients with vesico-vaginal fistula varied widely from 18 to 69 years old. Recurrent cases (fistula with previous failed repair) represented 34% of all cases. Prolonged labor (43,4%) and hysterectomy (46,6%) still dominates the vesico-vaginal fistula causes in this study. Most fistula is located in the trigone (40%) with fistula of the largest size of 40 mm and duration of leakage suffered by the patient until surgery performed varied between 3 to 240 months. The most common technique used was transvesical (43,3%) followed by transvesical-transvaginal (33,3%). Urinary tract infection (defined as urine leukocytes > 10/field or positive bacterial urine culture) before surgery was observed in 8 patients (table 1).

In the operation of the selected approach (table 2), for the location of fistula in the trigone transvesical approach was chosen for 6 patients; transvesical-transvaginal approach in 5 patients. In patients with posterior location of fistula is preferable to use a transvaginal approach yaitu transvesica as much as 5 patients. For the location of fistula in the bladder neck with surgery performed transvesica approach, transvagina and fulgurasi with each 1 patient.

Success of surgery in this study is defined as no urinary leakage from the vagina. Percentage of success of the operation (table 3) on new cases was similar to the recurrent case (70% and 80%). Patients with radiation etiology and myomectomy surgery has a success rate of 100% while success rate was 78% post hysterectomy and 61% after prolonged labor. Fistula located posteriorly had good results in terms of urine leakage post-surgery. Transvesical-transvaginal approach had a success rate of operation is 100%. There are two patients who underwent fulguration only, 1 patient with result no leakage. There are five patients with UTI who succeeded in fistula repair, while there are eight of the patients without UTI with successful fistula repair surgery.

Table 1. Vesico-vaginal fistula characteristics in patients who take action on fistula repairing.

	Range	Average
Age	18-69 years	40,3 (SD + / - 14,18) years
Duration of fistula	3-240 months	34,3 (SD + / - 56,32) months
Fistula size	1-40 mm	10,9 (SD + / - 8,69) mm
		Number of case (%)
Case	New	20 (66%)
	Recurrent	10 (34%)
Etiology	Prolonged labor	13 (43,4%)
	Hysterectomy	14 (46,6%)
	Radiotherapy	2 (6,7%)
	Myomectomy	1 (3,3%)
Location	Trigone	12 (40%)
	Subtrigone	5 (16,6%)
	Lateral wall	6 (20%)
	Posterior wall	4 (13,4%)
	Bladder Neck	3 (10%)
Urinary Tract Infection	UTI	8 (27%)
	Without UTI	14 (46%)
	No data	8 (27%)
Surgical technique	Transvesical	13 (43,3%)
	Transvaginal	2 (6,7%)
	Transvesical and transvaginal	10 (33,3%)
	Transvesical with omental flap	3 (10%)
	Fulguration	2 (6,7%)

Table 2. Vesico-vaginal fistula location and operation of the chosen approach.

Location	Surgical Technique					Total
	Transvesical	Transvaginal	Transvesical transvaginal	Transvesical + omental flap	Fulgurasi	
Trigone	6 (20%)	0 (0%)	5 (16,7%)	1 (3,3%)	0 (0%)	40%
Subtrigonum	2 (6,6%)	1 (3,3%)	0 (0%)	2 (6,7%)	0 (0%)	6,16%
Posterior	0 (0%)	0 (0%)	5 (16,6%)	0 (0%)	1 (3,4%)	20%
Lateral	4 (13,4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	13,4%
Bladder neck	1 (3,3%)	1 (3,4%)	0 (0%)	0 (0%)	1 (3,3%)	10%
Total	43,3%	33,3%	6,7%	6,7%	10%	100%

Table 3. Patient characteristics and success of vesico-vaginal fistula repair.

		Success	Failure
Case	New	14 (70%)	6 (30%)
	Old	8 (80%)	2 (20%)
Etiology	Prolonged Labor	8 (61%)	5 (39%)
	Hysterectomy	11 (78%)	3 (22%)
	Radiotherapy	2 (100%)	0 (0%)
	Myomectomy	1 (100%)	0 (0%)
Location	Trigonum	9 (75%)	3 (25%)
	Subtrigonum	3 (60%)	2 (40%)
	The posterior wall	6 (100%)	0 (0%)
	Lateral wall	3 (60%)	2 (40%)
	Bladder neck	1 (33%)	2 (67%)
Urinary tract infections	UTI	5 (62%)	3 (38%)
	Without UTI	12 (85%)	2 (15%)
Approach to surgery	Transvesical	8 (61%)	5 (39%)
	Transvaginal	1 (50%)	1 (50%)
	Transvesical & transvaginal	10 (100%)	0 (0%)
	Transvesical + omental flap	2 (67%)	1 (33%)
	Fulguration	1 (50%)	1 (50%)

DISCUSSION

Vesico-vaginal fistula is a rare case but has serious effects for the patient. In medical terms this disease have many factors that can affect the success of the operation. Patients with this disease may experience psychological problems such as depression and anxiety because of urinary incontinence and characteristic odor.¹

This study describes some of the factors that influence the success of the operation, although not statistically analyzed. There is no difference in successful repair between new and recurrent cases. From the literature, success in fistula repair for new cases is higher than recurrent cases. Recurrent cases also increase the risk of failure.⁶

The number of patients with a fistula due to prolonged labor (43%) is almost equal to fistula due to hysterectomy (46%). This is different from other results where the etiology of fistula in developing countries more because of obstetric complications. A study in Tanzania, Nigeria and Lahore reported

obstetric fistula rate of 70-90% while in Madrid more gynecologic fistula is reported (about 83%).⁷ Research in Singapore get 70% (14 of 20 patients) fistula is caused by hysterectomy, with the remainder due to instrumental delivery and pelvic malignancy.⁸ Research in California with over 200 patients, 83% of fistula were caused by abdominal hysterectomy and only 5% of fistula were caused by obstetric complications.⁹

Obstetric complications are usually due to compression by the pubic bone at the time of parturition time (occurrence of tissue ischemia) or instrumental delivery, with possible damage to bladder and urethra.

Diagnosis of this disease can be inferred through history in which patients complains of urine leakage through the vagina. Patients may also complain of fever. In classic vesico-vaginal fistula, leakage occurs 7-12 days after the offending incident (the etiology of the fistula). Diagnosis of this condition can be established by instillation of methylene blue dye and subsequent leakage of

colored fluid in vagina. Cystoscopy should be conducted to confirm the location and size of the fistula, as well as involvement of the ureter and bladder.

Vesico-vaginal fistula can be classified by type and size. Type 2 is divided as simple (small size, not because of radiation, a single fistula) and complex (medium to large size, multiple fistula, recurrent fistula, and fistula resulting from radiation). Complex fistula is described in other literature based on clinical features (pelvic irradiation, previous surgery, malignant etiology) or associated procedures such as bladder augmentation, and ureterovesical reimplantation.⁶ Fistula may be classified by size as small (< 0,5 cm), medium (0,6 - 2,4 cm), and large (> 2,5 cm).⁴

At the time of diagnosis, vesico-vaginal fistula was diagnosed, there are two important things to think about before repair fistula in the timing of surgery performed and the type of action taken. Timing of operation is still debated. Fistula closure should be done as quickly as possible so that patients do not suffer too long.

In this study the minimum waiting time for repair is three months, which is the optimal waiting time for tissue edema and inflammatory reaction to subside. In other literature, generally the ideal waiting time is 3-6 months.¹⁰ Other literature waiting period varied by type of fistula. Time to wait 4-6 weeks for a simple fistula, complex fistulae 6-12 weeks and 6-12 months for complex fistula with radiation. The waiting time for definitive action of this disease is varied but there are principles that must be followed by the waiting time in tissue repaired will have no edema, inflammatory and infection.⁴

It is important to think about after the operation timing is the kind of action that will be selected in order to close the fistula. Action can be either conservative or surgical fulguration. In this study there were 2 patients who underwent fulguration with result one patient no vaginal leakage of urine. Fulguration was performed by cautery of fistula track. According to literature the optimal size for fistula fulguration is defect less than 3mm.¹⁰ Conservative actions performed in patients with fistula are simple to perform fistula drainage of urine which is expected to close spontaneously.⁴

Operating on vesico-vaginal fistula has several approaches. This approach is usually chosen according to habit or comfort of the surgeon although it must still adhere to the principles of

operation. The principle of the fistula repair surgery is the optimal network conditions at the time of surgery, an adequate visual field operations, tension-free closure and adequate blood supply to the fistula area.⁵ In other publications were also added another principle, namely: watertight closure of the bladder, the selection of the correct thread, excision of necrotic tissue, healthy tissue interposition if needed, to prevent infection and adequate postoperative urinary drainage. In this study the most frequently chosen approach is transvesical and transvaginal transvesical. Transvaginal transvesical approach has an excellent success of the operation. Transvaginal transvesika approach is action that can include all of the above principle of operation compared to other approaches. In the literature this approach is usually used in cases with complex fistula. In the literature transvaginal approach typically used by a gynecologist, this approach has the advantage of being minimally invasive, minimize bleeding, hospitalization time is short, but this technique has an operating limitation is the narrow field of view of the bladder. This technique is more widely used in patients with a simple fistula.

Transvesical in this study is widely used with satisfactory success. The advantage to this approach is that minimal dissection with limited visual field, the technique also does not allow for tissue interposition.⁴ In this study there were 2 patients with radiation etiology, both cases-transvesical transvaginal approach with 100% success. In literature mentioned the success of repair in this case ranges from 40-100%, many institutions who choose conservative therapy (in the form of urinary diversion) with the reason this case is a complex case with a low success rate.⁴

Post-operative management is very important, namely to ensure continuous drainage of the bladder in order to avoid excessive stress on tissue repair. Other treatments such as post-operative antibiotics, hormone replacement therapy (vaginal atrophy) and anticholinergic treatment (to prevent bladder spasms that can cause tension on the suture) can be given post-operative.¹¹

CONCLUSION

Vesico-vaginal fistula is a medically and psychosocially devastating condition for the patient. The diagnosis was easy but complicated in decision of treatment. Best results were observed by transvesical-transvaginal approach.

REFERENCES

1. Becker HD, Stenzl A, Wallwiener D. In: Urinary and Faecal Incontinence. Berlin: Springer-Verlag; 2005. p. 369-84.
2. Nawaz H, Khan M, Tareen FM. Retrospective study of 213 cases of female urogenital fistulae at the Department of Urology & Transplantation Civil Hospital Quetta: Pakistan. J Pak Med Assoc. 2010; 60: 28-32.
3. Rasool M, Tabassum SA, Mumtaz F. Vesico-vaginal fistula repair: Urologist experience at Bahawalpur. Professional Med J Sep. 2006; 13(3): 445-52.
4. Angioli R, Penalver M, Muzii L. Guideline of how to manage vesico-vaginal fistula. Critical Review in Oncology Hematology. 2003; 48: 295-304.
5. Milicic D, Sprem M, Bagovic D. A method for repair of vesico-vaginal fistulas. International Journal of Gynecology & Obstetric. 2001; 73: 35-9.
6. Mondet F, Emmanuel J, Kastler C. Anatomic and functional result of transperitoneal-transvesical vesicovaginal fistula repair. Urology. 2001; 58(6): 882-6.
7. Sadiq G, Sadiq M, Sultana N. Obstetric trauma is the commonest cause of urogenital fistulae. Rawal Med Journal. 2008; 33: 197-200.
8. Kam MH, Tan YH, Wong MY. A 12-year experience in the surgical management of vesico-vaginal fistulae. Singapore Med Journal. 2003; 44(4): 181-4.
9. Elber KS, Kavalier E, Rodriguez LV. Ten-year experience with transvaginal vesico-vaginal fistula repair using tissue interposition. The Journal of Urology. 2003; 169: 1033-6.
10. Wein AJ, Kavoussi LR, Andrew CN. Urogynecologic fistula. Campbell's Urology. 9th ed. Philadelphia: Saunders; 2007.
11. Elber, Schlunt K, Kavalier. Ten year experience with transvaginal fistula repair using tissue interposition. Journal Urology. 2003; 169(3): 1033-6.