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Female Genito-Urinary Fistulae

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ABSTRACT. During the period from 1987 until 1989, twenty-eight female patients with genito-urinary fistulae were seen at King Abdulaziz University Hospital, 78.6% of which were of obstetrical etiology. Thirteen patients had small fistulae (< 2 cm) and fifteen patients had large fistulae (> 2 cm), nine of which were considered to be giant fistulae (> 5 cm). The patients' age, parity, nationality and duration of their fistulae are presented. Our experience of repairing twenty-four fistulae showed that the cure rate was higher in small fistulae (90.9%) compared to large fistulae (69.2%). The cure rate was also found to be higher in patients who underwent the abdomino-vaginal approach (71.4-100%), compared to those who underwent the vaginal approach (66.7-83.3%).

KEY WORDS. Genito-Urinary. Fistulae.

Introduction

Female genito-urinary fistulae are rarely a fatal condition, but the fistulae may lead to extreme embarrassment for the patient due to the associated incontinence of urine, regardless of size and site of the fistula. It manifests a surgical problem which requires extensive knowledge of various techniques for an adequate, successful repair. Vesicovaginal fistulae are still a common and serious problem for patients in developing countries where access to adequate health care is limited[1]. The etiology of the genito-urinary fistula differs in various populations. With the goal of identifying the etiological factors of female genito-urinary fistulae in our population, and impro-

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ving the success rate of repair by evaluating the surgical modalities, we review in this paper our recent experience of all cases of female genito-urinary fistulae in our hospital.

Material and Methods

All patients in this report were seen at King Abdulaziz University Hospital, Jeddah, during the period from 1987 until 1989. Twenty-eight female patients with genito-urinary fistulae were evaluated, of which twenty-four underwent operative repair.

The age, parity, nationality and etiological factors were obtained from the patients' history. All patients were subjected to our planned pre-operative investigation protocol, which included intravenous pyelogram (IVP) and examination under anesthesia, as well as cystoscopy through which the size and site of the fistulae were identified. The repairs were performed by a team consisting of a gynecologist and a urologist. The decision of the approach towards the repair was made after completing the initial pre-operative investigation protocol.

Twenty-four patients underwent surgical repair of their fistulae. Of the remaining four patients, two were terminal cases of carcinoma of the cervix, and two patients refused surgery and discharged themselves against medical advice.

The youngest patient was twelve and the oldest was sixty years old. The mean age was 35.54 with a standard deviation of 11.34. The parity ranged from 0 to 10.

The duration of the fistulae was rather interesting; in four patients, the fistulae were present for more than twenty years and in sixteen patients, for more than five years.

Table 1 shows the classification of fistulae according to size and complexity.

TABLE 1. Classification of genito-urinary fistulae according to size and complexity (N = 28).

Type	Criterion	Number
Small	< 2 cm	13
Large	2-5 cm	6
Giant	> 5 cm	9
Multi-operated	Failed previous surgery.	16
Complex	Vesico-urethro-vaginal, with or without ureteric involvement, with large substance loss or bladder neck involvement, and small bladder capacity or altered bladder wall, secondary to irradiation and previous surgery or prolonged infection.	7

Results

Table 2 lists the causes of genito-urinary fistulae by site. Twenty-two out of the twenty-eight patients (78.6%) were of obstetrical etiology. Table 3 differentiates the

nationalities of the twenty-eight patients with fistulae, whereby 39.2% were Saudi nationals, most of whom were referred from the south of the Kingdom. 42.9% were Yemeni nationals and the remaining patients were of other nationalities.

TABLE 2. Causes of genito-urinary fistulae by site.

	Vesico-urethro-vaginal	Vesico-vaginal	Urethro-vaginal	Vesico-uterine	Total	%
Obstetric						
Obstructed labor	3	10	0	0	13	
Forceps	0	2	0	0	2	
Cesarean section	0	1	3	1	5	
Cesarean section/ postpartum hysterectomy	0	1	1	0	2	
Total					22	78.6%
Non-obstetric						
Hysterectomy	0	1	2	0	3	
Trauma	1	0	0	0	1	
Cancer cervix	2	0	0	0	2	
Total					6	21.4%
Grand total	6	15	6	1	28	100%

TABLE 3. Nationalities of patients with genito-urinary fistulae.

Nationality	Number of patients	Percentage
Saudi	11	39.2%
Yemeni	12	42.9%
Others	5	17.9%
Total	28	100%

The twenty-eight patients were divided into two groups according to the size of the fistulae: those with fistulae of more than 2 cm (N = 15) and those with fistulae of less than 2 cm (N = 13). In the first group, thirteen patients underwent surgical repair, nine of which were considered to be giant fistulae (more than five cm in size). Only eleven patients out of the second group underwent surgical repair. Table 4 reflects the cure rate in those patients who underwent the vaginal and abdomino-vaginal approach, respectively. The cure rate in large and small fistulae was 69.2% and 90.9%, respectively. It was also found that the cure rate in both small and large fistulae was better if the abdomino-vaginal approach was elected, rather than the vaginal ap-

proach. Regarding our failed cases, two had very small fistulae, but both had very short urethrae and were awaiting to be scheduled for further surgery; one ended by uretro-sigmoid anastomosis and two were lost to follow-up.

TABLE 4. Cure rate of repaired genito-urinary fistulae.

Type	Total No.	No. repaired	Vaginal	Abdomino-vaginal	Cured	%
Large >2 cm	15	13	4/6 (66.7%)	5/7 (71.4%)	9	69.2%
Small <2 cm	13	11	5/6 (83.3%)	5/5 (100%)	10	90.9

Discussion

In 1920, Judd from Mayo Clinic and Mayo Foundation stated, "Better obstetric management has greatly reduced the number of fistulae which occur as a result of difficult labor"[2]. In a recent review from the same institution, only 8% of fistulae were due to obstetric procedures[3]. Vesico-vaginal fistulae remain a common and serious problem for women in West Africa[1]. Almost all cases were due to obstetric reasons.

In the present study, it was found that 78.6% of the fistulae were a result of obstetric procedures, the majority of which were due to obstructed labor. Most of these patients were referred from rural areas where adequate health care facilities are either lacking, or the patients prefer to have unattended deliveries, due to shyness or the social and educational background. In the rural areas, a large number of women still prefer to deliver at home in the attendance of a midwife, which renders health care less than optimal. For prevention, one should stress improvement in obstetrical care and hospital delivery; most important, however, is patient education.

There is no one preferred approach for all fistulae. The transvaginal approach is a simple procedure which avoids a cystotomy, involves minimal blood loss, and consequently involves less post-operative discomfort and a shorter hospital stay[4]. In Goodwin and Scardino's series, the success rate of repairing vesico-vaginal and urethro-vaginal fistulae through the transvaginal approach was 70%[5]. In our study, the success rate was 66.7% for large fistulae and 83.3% for small fistulae.

A high success rate was reported with the abdominal repair of vesico-vaginal fistulae, using the technique described by O'Connor[6,7], whereby the bladder is bisected and the fistulae excised completely, with separation of the bladder from the vagina. Enhanced healing of the bladder and vagina when the omentum is positioned in between, is believed to be due to the anatomical separation, improved blood supply and optimized lymphatic drainage of the healing edges[8]. The technique of placing healthy tissue between the repaired sites of the fistulae, mainly the omentum in the

abdominal repair and labial fat in the vaginal approach has been adopted by many surgeons.

Success has been the rule with the abdomino-vaginal approach, especially with interpositioning of the omentum between the vagina and bladder, with a success rate of more than 90%[9]. In our study, the success rate in patient who underwent the abdomino-vaginal approach was 71.4% and 100% for large and small fistulae, respectively.

Out of thirteen patients with large fistulae, four had complex vesico-urethrovaginal fistulae and nine had what is considered a giant fistula of larger than five cm, which is known to be the most difficult type to repair. The number of these complex fistulae reported in the literature is very limited and the method of repair is not universally accepted; it varies from center to center, depending on the surgeon's experience.

Webster *et al.* reported eleven cases of urethro-vaginal fistulae, using Martius operation with the labial fat pads being interpositioned between the repaired urethra and the vagina[10]. Bissada *et al.* reported fifteen patients, seven with giant vesico-vaginal and eight with vesico-urethrovaginal fistulae, of which six patients required a Tanagho bladder flat urethral reconstruction[11]. Udeh reported his experience of repairing twenty-nine vesico-vaginal fistulae by a simple method through an anterior transvesical approach[12]. In 1989, Gil-Verent *et al.* reported repair of forty-two complex fistulae, using a new procedure for vesical autoplasty[13].

In conclusion, this report underscores the importance of obstetrical care and the need to reduce the incidence of genito-urinary fistulae in our population. It also emphasizes the pre-planned, co-operative approach of gynecologists and urologists, since adequate knowledge of the various techniques and intricate surgical maneuvers are required for the successful repair of what has long been believed to be a resistant problem.

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References

1. **Elkins TE, Drescher C, Martey JO, Fort D.** Vesicovaginal Fistula Revisited. *Obstet Gynecol* 1988; **72:** 307-12.
2. **Judd ES.** The Operative Treatment of Vesicovaginal Fistula. *Surg Gynecol Obstet* 1920; **30:** 477-82.
3. **Lee RA, Symmonds RE, Williams TJ.** Current Status of Genito-urinary Fistula. *Obstet Gynecol* 1988; **72:** 313-9.
4. **Zimmern PE, Hadley HR, Staskin DR, Raz S.** Vaginal approach for repair of vesicovaginal fistulae. *Urol Clin North Am* 1985; **12:** 361-7.
5. **Goodwin WE, Scardino JK.** Vesicovaginal and urethrovaginal fistula: A Summary of 25 years of experience. *J Urol* 1980; **123:** 116-9.
6. **O'Connor VJ Jr.** *Suprapubic closure of vesico-vaginal fistula.* Houston: American Urological Association Update Series, 1983; Lesson 2, Vol. II, pp. 3-7.

7. **O'Connor VJ Jr.** Review of experience with vesico-vaginal fistula repair. *J Urol* 1980; **123:** 367-9.
8. **Turner-Warwick R.** Urinary fistulae in the female. *In:* **Walsh, Gittes, Perlmutter, Stamey (ed.)** *Campbell's Urology,* Vol. 3, 5*th* ed. Philadelphia: The W.B. Saunders Company, 1986; Chapter 74, pp. 2499-517.
9. **Guerriero WG, Devire Jr J.** Fistulas. *In:* **Appleton, Century, Crofts (ed.)** *Urologic Injuries,* Newalk, Connecticut, 1984: 83-107.
10. **Webster, GD, Sihelnik SA, Stone AR.** Urethrovaginal fistula: A review of the surgical management. *J Urol* 1984; **132:** 461-2.
11. **Bissada NK, McDonald D.** Management of giant vesicovaginal fistulas and vesico-urethrovaginal fistulae. *J Urol* 1983; **130:** 1073-5.
12. **Udeh F.** Simple management of difficult vesicovaginal fistulas by anterior transvesical approach. *J Urol* 1985; **133:** 591-3.
13. **Gil-Verent JM, Gil-Verent A, Campos JA.** New surgical approach for treatment of complex vesicovaginal fistulae. *J Urol* 1989, **141:** 513-6.

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النواسير البولية التناسلية الأنثوية

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المستخلص : تمت معاينة ثمان وعشرين مريضة يعانين من نواسير بولية تناسلية في مستشفى جامعة الملك عبد العزيز بجدة خلال الفترة مابين سنة ١٩٨٧م وسنة ١٩٨٩م . كانت الولادة سببًا في ٧٨,٦٪ من الحالات . أما بالنسبة لامتداد الناسور ، فقد كانت هناك ثلاث عشرة حالة صغيرة (أقل من ٢ سم) ، وخمس عشرة حالة كبيرة (أكبر من ٢ سم) ، في حين اعتبرت تسع حالات نواسير عملاقة (أكثر من ٥ سم) ، وسنعرض في هذه الدراسة الحالات متضمنة العمر والجنسية وعدد الولادات بالإضافة إلى فترة وجود النواسير .

أظهرت خبرتنا في علاج هذه الحالات أن معدل الشفاء كان عاليا بالنسبة للنواسير الصغيرة (٩٠,٩٪) في حين كان (٦٩,٢٪) بالنسبة للنواسير الكبيرة . كما كان معدل الشفاء عاليا في المريضات حين أجرى التدخل الجراحي من خلال البطن (٧١,٤-١٠٠٪) ، في حين كان أقل من ذلك عندما كان التدخل الجراحي من خلال المهبل (٦٦,٧-٨٣,٣٪) .