

# A Cross-sectional Analysis of Vesicovaginal Fistula Patients at Patan Hospital, Nepal

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## Abstract

Nepal is a small Himalayan country with difficult geographical terrains and population of 2.3 million. Emergency obstetric care is not available in all the districts of Nepal and > 80% of the deliveries occur at home. Many women suffer from genitourinary fistulas as a result of obstructed labor.

Exact incidence of fistula in the country is unknown and surgeries done so far at Patan Hospital seem to be the tip of the iceberg. Patan Hospital is a 300 bedded district hospital. Of the 300 beds, 88 beds are utilized by the obstetrics and gynecology services and the average numbers of deliveries are 7000 per year (2007). This hospital is serving as a referral hospital for genitourinary fistula repair.

A cross-sectional study of genitourinary fistulas operated at Patan Hospital over a period of 16 years has been done. Three hundred cases of genitourinary fistulas attended Patan Hospital OPD during this period. Seven files could not be traced and 4 cases were referred to surgical department for urinary diversion surgery. Therefore, 293 files were analyzed and repair was done by the layered repair/flap splitting method for 289 cases.

The majority of the patients were in the age group of 25 to 34 years. The youngest patient was 15 years and the oldest patient was 72 years. Three patients had never conceived, these were the cases of traumatic fistulae. 36.2% of the patients sustained their fistulae following the first pregnancy. 37.2% were multiparous, 25.6% of the patients were grande multiparous 90.8% of these cases were of obstetric origin and 90.78% cases were vesicovaginal fistulas. More than half of the cases (52.6%) were complicated. Out of the 293 cases, 11 had an associated RVF (rectovaginal fistula).

79.2% cases were cured after the first attempt of surgery. Eighteen of the failed cases underwent a second attempt operation and success rate after second attempt was 81.9%.

**Keywords:** Genitourinary fistula, Vesicovaginal fistula, Rectovaginal fistula, Grand multipara.

## INTRODUCTION

Nepal is a small Himalayan country between India and China with an area of 1,47,181 sq km. It has three distinct geographical regions—mountain region (35.2%), hill region (41.7%) and plain or terai region (23%). It has a population of 2.3 million and almost half of the population is living in the mountain and hill regions. Approach to health care becomes difficult because of these difficult terrains. Comprehensive and basic emergency obstetric care is not available in all the districts of Nepal. More than 80% of the deliveries occur at home.

Maternal mortality rate is still as high as 281 per 100,000 live births (NFHS). Majority of maternal deaths occurred at home (67%)—62% during postpartum period, 28% during antenatal period and 10% during delivery. Major causes of maternal death are PPH, obstructed labor, eclampsia/pre-eclampsia, puerperal sepsis and unsafe abortion.

Women in reproductive age group comprise 23% of the total population in Nepal and 37.8% of them are literate (67.9% of men). Life expectancy of a woman in Nepal is 57 years (men

58 years). Mean age at marriage of the female is 17.1 (1996) and contraceptive prevalence rate is 39.6%. 70% or reproductive age group women are found to be anemic and malnourished.

Nepalese woman still face difficulty in accessing safe motherhood services not only due to the difficult geographical terrain but also due to very limited number of human resource in the field of health. There is one doctor available per 22,961 population, one nurse for every 3719 population and one paramedic for every 2002 population. Many women suffer from genitourinary fistulas as a result of obstructed labor.

Prevalence of VVF can be taken as an indicator of quality of obstetric care available in the society. Dr James Marion Sims (1813 to 1883) “Father of American Gynecology” was the pioneer in managing fistula cases. First fistula hospital was established on May 4th, 1855 to 1883 at Madison Avenue, New York and at Addis Ababa, Ethiopia second fistula hospital was opened on May 24th, 1975. Exact incidence of fistula in the country is not known and surgeries done so far at Patan Hospital seem to be the tip of the iceberg. A few of the cases also came from Indian border.

Health care delivery system in Nepal works through 45556 female community health volunteers. 13507 PHC outreach clinics, 3,195 subhealth posts, 747 health posts, 137 primary health care centers and health centers, 74 district hospitals, 11 zonal hospitals, 2 regional hospitals and 5 central hospitals.

Patan hospital is a 300-bedded district hospital situated in Southern belt of Lalitpur district, 2 km from the Kathmandu City. It is jointly run by the government of Nepal, UMN and the community health, Lalitpur district. The services offered include: general surgery, orthopedic surgery, anesthesia and intensive care, general medicine, emergency medicine, pediatrics and obstetrics and gynecology, well supported by laboratory, pathology and blood bank facilities, ultrasound and radiology. Other services offered are dental, dermatology, psychiatry, physiotherapy and an inhouse pharmacy.

Of the 300 beds, 88 beds are utilized by the obstetrics and gynecology services and the average numbers of deliveries are 7000 per year (2007). This hospital has served for years now as a referral hospital for genitourinary fistula repair.

## MATERIALS AND METHODS

This is a hospital-based retrospective and cross-sectional study of genitourinary fistulas operated at Patan Hospital over a period of 16 years from Aug 1986-Aug 2002. Detail information of the cases was obtained from the hospital register and also from individual files and fistula cards that have been prepared by the department.

The cases were analyzed in relation to age, parity, cause, duration of symptoms, type of fistula and outcome of the surgery. The results of surgery were graded as cured, failed and healed but incontinent (meaning the defect was closed but there was an unacceptable urinary incontinence).

## RESULTS

- Total number of genitourinary fistulas attending Patan Hospital OPD – 300
- Missing files – 7
- Total number of files analyzed – 293
- Refused surgery – 4 (were very severe and were referred to the department of surgery for possible urinary diversion procedures).
- Transvaginal repair done – 289 (98.6%)

### Age Distribution

Age (years)	Number	%	Total	%
15-19	19	6.48	78	26.6
20-24	59	20.13		
25-29	58	19.79	103	35.2
30-34	45	15.35		
35-39	40	13.65	69	23.5
40-44	29	9.89		
45-49	20	6.82	31	10.6
50-54	11	3.75		
55-59	6	2.04	12	4.1
60	6	2.04		
Total	293	100	293	100

The majority of the patients were in the age group of 25 to 34 years. The youngest patient was 15 years and the oldest patient was 72 years.

### Parity Distribution

Parity	Number	%	Total	%
P 0	3	1%	3	1%
P 1	106	36.2%	106	36.2%
P 2	43	37.2%	109	37.2%
P 3	26			
P 4	40			
P 5	26	25.6%	75	25.6%
P 6	18			
P 7	15			
P 8	4			
P 9	8			
P 10	2			
P 11	1			
P 12	1			
Total	293	100	293	100

Three patients had never conceived, these were the cases of traumatic fistulae. 36.2% of the patients sustained their fistulae following the first pregnancy. 37.2% were multiparous, 25.6% of the patients were grand multiparous.

### Durations of Symptoms

Duration	Number	%
< 6 months	104	35.5
1-5 years	119	40.6
6-10 years	30	10.2
11-15 years	18	6.2
16-20 years	9	3.1
> 21 years	13	4.4
Total	293	100

The shortest duration was 2 months. The longest duration was 52 years.

### Causes

Causes	Number	%	Comment
Obstetric	266	90.8	Following obstructed labor
Gynecological	21	7.2	Following hysterectomy for gynecological disease
Traumatic	3	1	
Radiotherapy	1	0.3	
Miscellaneous	2	0.7	Following dilatation and curettage
Total	293	100	

### Type of Fistula

Type	Number	%
Vesicovaginal	266	90.78
Vault fistula	21	7.16
Vesicouterine fistula	3	1.02
Urethrovaginal fistula	3	1.02
Total	293	100

### Vesicovaginal Fistula

Type	Number	%	Remark
<i>Juxta-urethral</i>	72	27.06	
• Simple	25		
• Complicated	47		Including 1 with no urethra, and 3 with RVF
<i>Juxtacervical</i>	108	40.60	
• Simple	42		
• Complicated	66		Including 3 with RVF
<i>Midvaginal</i>	45	16.91	
• Simple	36		
• Complicated	9		Including 1 with RVF
<i>Massive</i>	41	15.41	
• Simple	0		
• Complicated	41		Including 4 with RVF

More than half of the cases (52.6%) were complicated (i.e. 154 out of 293). Out of the 293 cases, 11 had an associated RVF (rectovaginal fistula).

### Results of Surgery

#### After the First Attempt Operation

Outcome	Number	%
Cured	232	79.2
Failed	39	13.3
Healed but incontinent	22	7.5
<b>Total</b>	<b>293</b>	<b>100</b>

Eighteen of the failed cases underwent a second attempt operation and 8 were cured, 8 failed and 2 healed but were incontinent.

#### After the Second Attempt Operation

Outcome	Number	%
Cured	240	81.9
Failed	29	9.9
'Healed but incontinent'	24	8.2
<b>Total</b>	<b>293</b>	<b>100</b>

### DISCUSSION

A woman has a 1 in 32 chance of dying because of pregnancy and childbirth. Obstructed labor is one of the important causes of maternal death in Nepal. This condition not only contributes to significant proportion of maternal death but also is a notorious factor for causing disabilities like genitourinary fistulas in the women.

These cases reach Patan Hospital from all over the country and also from India for treatment.

Incidence of genitourinary fistulas is still quite high in developing countries like ours. Magnitude seen in this study might just be the tip of iceberg. It is estimated to be as high as 0.5 to 3% of gynecological admission in referral hospitals of the developing countries.<sup>10</sup>

Women in this part of the world are shy and do not share or express their reproductive health problems till they succumb to

the disease. On the other hand, most of the women suffering from genital fistula of obstetric reason are socioeconomically less privileged group and reside in the remote areas where access to health care facility for safe delivery is lacking. Once they have continuous urinary leakage, they are abandoned by their husbands, family and society with nobody to take care of them. These are few of the reasons why they seek the service of fistula repair quite late.

In the developing countries, the commonest cause of fistula is obstetrical and constitutes about 80 to 90% of cases as opposed to only 5 to 15% in developed countries.<sup>12</sup>

Vesicovaginal fistula is the commonest type (>90%) of genitourinary fistula prevalent here. More than 50% of these fistulae are complicated where access is poor, tissue is necrotic or mostly lost, there is much scarring, urethra is totally destroyed, the ureteric orifices are close to/ at the edge of the fistula and is usually associated with rectovaginal or ureterovaginal fistula.

These fistulas were repaired by the layered repair/flap splitting method with very good results.

It is difficult to compare the results of different series since the contributing factors vary in different settings. Factors that affect the results of surgery are as follows:

- The range and severity of the lesion
- The general condition of the patient
- The number of previous attempts at repair
- Pre, intra- and postoperative care
- Experience and expertise of the surgeon.

Success rate of surgery at Patan Hospital, which is 81.9%, is at par with the results shown in other parts of the world. Following table shows the comparison and it shows cure rate in these series range from 76 to 82%.

Outcome	Kelly J (1983) <sup>1</sup>	Moudouni S <sup>2</sup> (2001)	Amr MF (1998) <sup>3</sup>	Patan Hospital <sup>4</sup> 2002
Cure rate	80%	76%	82%	81.9%
Incontinence	10%	11%		8.2%
Failure	10%	13%	18%	9.9%

Another retrospective study was done at Denmark<sup>5</sup>. This study analyzed the fistula cases attending this hospital over a period of 10 years. They had operated 49 cases with 100% success rate after second attempt. In this context also Patan Hospital results are very encouraging.

Variables	Numbers	%
Total cases	55	
Inoperable	1	
Operated	49	89.09
• Postradiation	19	
– closure attempted	7	
– urinary diversion	12	
• Postoperative	30	
Success rate	After 1st attempt	90
	After 2nd attempt	100

A few other studies done by Gunaratne M and Benchekroun A also showed that 88 to 94% of the fistulas in their settings were of obstetric origin.

Variable	Gunaratne M <sup>6</sup>	Benchekroun A <sup>7</sup>	Patan hospital <sup>4</sup>
Primi	42%	31%	36.2%
Multip	25%...31%	69%	37.2%...25.6%
Mean age	22-24	-	25-34 (35.2%)
Obstetric cause	88%	94%	90.8%
No. of cases	254	600	293

Analysis of the causes of genitourinary fistula cases treated at Ramathibodi Hospital, Bangkok was done in the year 2000.<sup>8</sup> Unlike Patan Hospital figures it was surprising to see that only 4% of the fistulas in their settings were of obstetric origin. Most of them were from gynecological surgery. Similarly, a Finland National Survey<sup>9</sup> also finds gynecological surgeries to be number one cause of genitourinary fistula. It shows the overall incidence of VVF to be 1 in 1200 hysterectomies (1 in 455 post-Lap hyst, 1 in 958 after TAH, 1 in 5636 after vaginal hysterectomy). Following table clearly indicates that 86.95% of fistula cases in their series were following gynecological surgeries. Only 4.34% of cases were of obstetric origin. Carcinoma cervix and radiotherapy also contributed to some extent in causing fistulas.

Variable	Number	%	Patan hospital study <sup>4</sup>
Total cases	230		293
Post-TAH	164	86.95	
Postanterior colporrhaphy	5		
Postradical hysterectomy	8		
Postvaginal hysterectomy	23		
Postobstructed labor	10	4.34	90.8%
Postradiation for Ca Cx	9		
Ca Cx invasion	7	8.69	
Postsuprapubic cystolithotomy	2		
Postpelvic Fx	2		

## CONCLUSION

In developing countries, over 90% of fistulae are of obstetric origin and due to pressure necrosis from prolonged obstructed labor whereas in developed countries over 70% of fistulae follow pelvic surgery.

There is a definite relationship between social, economical and political issues and the incidence of urinary fistulae. In an underdeveloped country like ours, factors predisposing to obstetric fistulae are early marriage, poor status of women

(social, economic and educational) and harmful tribal beliefs and customs. Similarly, other contributory factors are illiteracy and lack of awareness, attitudes to antenatal care and hospital delivery, lack of roads and poor access to health care facilities, lack of hospital with facilities for operative delivery and lack of health manpower to staff them.

Obstetric fistulae<sup>11</sup> patients are usually social outcasts, socioeconomically underprivileged and undernourished group and their general health need to be improved prior to surgery. Malnutrition, anemia and infection need to be treated before attempting surgical closure. These women need to stay in the hospital for a long time and with support from the family or community. This type of surgery does not require sophisticated and high-tech equipment or expensive medicines and can be very successfully conducted in a hospital like Patan Hospital. Surgical repair offers the only hope for women so afflicted. Transfer of the skill to other service providers for its repair is very important. Therefore, obstetric fistulae are not only a challenge to the surgeon but even more so to the society where they occur.

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