

A STUDY OF THE UROLOGICAL COMPLICATIONS FOLLOWING SEX REASSIGNMENT SURGERY

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ABSTRACT**BACKGROUND**

Sex reassignment surgery is the GOLD standard in the management of gender dysphoria. As the issue of gender dysphoria is on the rise, new management strategies need to be evolved in the way of multidisciplinary approach. Contrary to other countries, India lacks a definite policy and legislation towards transsexuals. Lack of insurance coverage for SRS and paucity of specialised tertiary centres compel the gender dysphoric to seek medical assistance from persons who lack formal training and also resort to traditional methods with high morbidity, seriously undermining their quality of life and hampering future reconstructive procedures. The social stigma coupled with illiteracy and unemployment deter the transsexuals from a regular follow-up. The high rate to alcoholism and substance abuse, lack of a decent job and low self-esteem make them vulnerable to unsafe sex practices and acquiring HIV and other STD. Paucity of the Indian inputs in medical literature concerning transsexualism was noted by the authors. They also found deficiencies in the Indian Law as applied to the individuals undergoing gender affirmation surgery (GAS).^[1] Transsexuals experience themselves as being of the opposite sex, despite having the biological characteristics of one sex.^[2] Aim- To study the urological complications following Sex Reassignment Surgery in male to female individuals in a tertiary institute for a period of 1 year.

MATERIALS AND METHODS

All post SRS patients who attended the Urology OP between January 2012 and December 2012 in a tertiary institute were included in the study. A total of 33 patients were studied, clinically evaluated and subjected to USG, Uroflowmetry, Urine culture, Renal function test and CT scan in selected cases. The observations were recorded and statistically evaluated. There was obstructive voiding disorder due to progressive meatal stenosis.

RESULT

In our study, urologist was not involved in any of the surgeries. Most of the complications were preventable. Severe complications were seen in surgeries done by inadequately trained persons. Lack of proper follow-up aggravates the situation. It must be mandatory for the urologist to be included in primary surgery. A proper mucosal to mucosal apposition is needed to prevent urethral stenosis. Patient must be motivated to come for regular follow-up.

CONCLUSION

GID is a complex disorder and a clinical entity demanding a multidisciplinary approach. The goal is to produce an outward appearance consistent with the patient's gender identity. Hormonal and surgical treatment should be managed by a multi-professional team familiar with the procedures.^[3] In my study, urologist was not involved in any of the surgeries. Most of the complications were preventable. Severe complications were seen in those surgeries done by inadequately trained persons. Lack of proper follow-up aggravates the situation. It must be mandatory for the urologist to be included in primary surgery. A proper mucosal to mucosal apposition is needed to prevent urethral stenosis. Patient must be motivated to come for regular follow-up. Male-to-female surgery can achieve excellent cosmetic and functional results. Although, the operative technique is partly standardised, surgery remains challenging because of several possible complications. None of the present patients claimed to regret their decision to undergo gender-transforming surgery.^[4]

KEY WORDS

GID- Gender Identity Disorder, GAS- Gender Affirmation Surgery, SRS- Sex Reassignment Surgery, FTM- Female-to-Male, MTF- Male-to-Female, PVR- Post-Void Residue, USG- Ultrasonogram, CT- Computed Tomogram, AUG- Ascending Urethrogram, SPC- Suprapubic Catheter, PN- Pyelonephritis.

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**BACKGROUND****Urological Complications following URS Lower Urinary Tract Symptoms**

1. Obstructive voiding disorder due to progressive meatal stenosis.
2. Urinary retention mostly observed 3 to 4 months after the second surgery (4%).
3. Dribbling (8%).
4. Stress urinary incontinence, grades I - II.
5. Urgency and urge incontinence.
6. Urethral injury was found in (4%) requiring primary repair.

7. Distal urethral necrosis in (1%).
8. Neomeatus bleeding occurred in (3% requiring external haemostatic sutures of its walls or catheterisation with 22-Fr catheter.
9. Complete urethral stricture.

Infective and Inflammatory Complications

Meatal stenosis or urethral narrowing causing significant post-void residue causes recurrent cystitis and ascending infection and PN when the host immunity is compromised or when the causative organism is highly virulent. The most common pathogens are E. coli, Staphylococcus aureus and Proteus species.^[5]

Perinephric Abscess

Most perinephric abscesses result from ascending infection or dissemination from other sites of infection. Percutaneous drainage under image guidance is the treatment of choice. If it fails or is contraindicated, open surgical drainage is performed.

MATERIALS AND METHODS

Study Group

All transgenders who attended the Urology OP between January 2012 and December 2012.

Study Design

Observational study.

Materials

- Patient evaluation, history.

- Place of surgery, date of surgery and the qualification of the primary surgeon are noted down.
- History of hypertension, diabetes and HIV status recorded.
- General examination: Fever, pallor and lymphadenopathy are noted.
- Abdomen palpated for bladder distension.

Investigations

Urine routine exam, Urine culture and sensitivity, Blood urea sugar creatinine, HIV status, Haemogram, AUG, Uroflowmetry, USG, Cystoscopy, X-ray Chest, X-ray KUB, CT Scan abdomen. In patients presenting with acute urinary retention, SPC was done.

Post-Operative Period

Catheter removed either on 7 or 10 days as dictated by the nature of surgery.

In Meatoplasty, catheter was retained for a week and in urethroplasty for 10 days.

At the end of 14 days, PVR was assessed by USG and Uroflowmetry was done.

Statistical Analysis

The data obtained were subjected to following statistical tests. Chi-square test to compare proportions, to compare means and percentages. Data were analysed with the SPSS 20 software and a p-value of 0.05 or less was considered statistically significant.

RESULTS

Based on Symptomatology

Sex reassignment surgery was done by traditional group of people and general surgeons and plastic surgeons based on their symptoms were followed up and tabulated as follows:

			Symptom					Total	P-value (Chi-Square Test)
			LUTS	LUTS+ Fistula + AUR + Sepsis	LUTS + Fistula	LUTS + AUR	LUTS + Sepsis		
SRS done by	Traditional	Count	2	9	1	7	1	20	0.001
		% within SRS done by	10.0%	45.0%	5.0%	35.0%	5.0%	100.0%	
		% within symptom	40.0%	56.3%	14.3%	100.0%	100.0%	55.6%	
	General Surgeon	Count	0	7	6	0	0	13	
		% within SRS done by	0.0%	53.8%	46.2%	0.0%	0.0%	100.0%	
		% within symptom	0.0%	43.8%	85.7%	0.0%	0.0%	36.1%	
	Plastic Surgeon	Count	3	0	0	0	0	3	
		% within SRS done by	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
		% within symptom	60.0%	0.0%	0.0%	0.0%	0.0%	8.3%	
Total	Count	5	16	7	7	1	36		
	% within SRS done by	13.9%	44.4%	19.4%	19.4%	2.8%	100.0%		
	% within symptom	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

Table 1

Sex Reassignment Surgery based on Intervention with Suprapubic Catheterisation

Sex reassignment surgery done by traditional methods and general surgeon and plastic surgeons based on intervention by Suprapubic Catheterisation (SPC) were tabulated as follows:

			SPC		Total	P-value (Chi-Square Test)
			Yes	No		
SRS done by	Traditional	Count	16	4	20	0.006
		% within SRS done by	80.0%	20.0%	100.0%	
		% within SPC	76.2%	26.7%	55.6%	
	General Surgeon	Count	5	8	13	
		% within SRS done by	38.5%	61.5%	100.0%	
		% within SPC	23.8%	53.3%	36.1%	
	Plastic Surgeon	Count	0	3	3	
		% within SRS done by	0.0%	100.0%	100.0%	
		% within SPC	0.0%	20.0%	8.3%	
Total	Count	21	15	36		
	% within SRS done by	58.3%	41.7%	100.0%		
	% within SPC	100.0%	100.0%	100.0%		

Table 2

Surgical procedures done for complications in sex reassignment surgery patients in their serial follow-up were studied based on intervention by traditional group, general surgeons and plastic surgeons and tabulated as follows:

			Intervention					Total	P-value (Chi-Square Test)
			Urethroplasty	Vesicolithotomy and Urethroplasty	Conservative	Open Drainage	Dilatation		
SRS done by	Traditional	Count	17	1	2	0	0	20	0.01
		% within SRS done by	85.0%	5.0%	10.0%	0.0%	0.0%	100.0%	
		% within Intervention	54.8%	100.0%	100.0%	0.0%	0.0%	55.6%	
	General Surgeon	Count	12	0	0	1	0	13	
		% within SRS done by	92.3%	0.0%	0.0%	7.7%	0.0%	100.0%	
		% within Intervention	38.7%	0.0%	0.0%	100.0%	0.0%	36.1%	
	Plastic Surgeon	Count	2	0	0	0	1	3	
		% within SRS done by	66.7%	0.0%	0.0%	0.0%	33.3%	100.0%	
		% within Intervention	6.5%	0.0%	0.0%	0.0%	100.0%	8.3%	
Total	Count	31	1	2	1	1	36		
	% within SRS done by	86.1%	2.8%	5.6%	2.8%	2.8%	100.0%		
	% within Intervention	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

Table 3

Extent of urethral scarring was studied in the follow-up of sex reassignment surgery patients. The length, density and location of the scar in all patients were studied and the extent of scarring was compared with traditional group, general surgeon and plastic surgeons were tabulated as follows.

			Extent			Total	P-value (Chi-Square Test)
			Dense Scar	Short Segment Narrowing	Meatal Narrowing		
SRS done by	Traditional	Count	18	1	1	20	0.011
		% within SRS done by	90.0%	5.0%	5.0%	100.0%	
		% within Extent	72.0%	12.5%	33.3%	55.6%	
	General Surgeon	Count	7	5	1	13	
		% within SRS done by	53.8%	38.5%	7.7%	100.0%	
		% within Extent	28.0%	62.5%	33.3%	36.1%	
	Plastic Surgeon	Count	0	2	1	3	
		% within SRS done by	0.0%	66.7%	33.3%	100.0%	
		% within Extent	0.0%	25.0%	33.3%	8.3%	
Total	Count	25	8	3	36		
	% within SRS done by	69.4%	22.2%	8.3%	100.0%		
	% within Extent	100.0%	100.0%	100.0%	100.0%		

Table 4

DISCUSSION

To understand transsexuality, we have to understand the difference between sex and gender. While ‘sex’ represents physical differentiation as male or female, indicated by the external appearance of genitalia and the presence of gonads, ‘gender’ is the psychological recognition of self and wish to be regarded by others as fitting into the social categories such as boy/ man or girl/ woman. In short, sex is what one is seen as (external appearance as male/ female) and gender being the identity is what one feels (playing the role of and living the life of male/ female).^[6]

Harry Benjamin (1885 - 1986)^[3] recognised transsexualism, treated hundreds of patients and established the modern scientific management of this condition. He wrote many books, especially ‘The Transsexual Phenomenon’ in 1966.^[7]

The morphological proportions of each patient vary and the different shapes and sizes of the tissues can be used for plastic operations. Thus, the modelling of each individual genital in transsexuals can be considered ‘original’.^[3]

In my study all 36 patients were transwomen. All except one were school dropouts coming from a low social stratum. Most of them were isolated from their original families once they started developing symptoms of gender dysphoria and started living with their peer groups. Most of them earned their livelihood through begging or performing folk dances. Only one of the patients took oestrogen and progesterone therapy for breast development.

Two of the 36 people were engaged as commercial sex workers. Two of them were married to seemingly normal men.

All of them were garishly dressed as females with female mannerisms and all were mostly polite but demanded immediate attention.^[8]

Oestrogen alone therapy (ET) or Oestrogen and Progesterin (EPT) as menopausal Hormone Therapy (HT) has been commonly used to alleviate menopausal symptoms.

Treatments containing ≥ 10 days/ month (d/m) of progestin are considered relatively safe with respect to endometrial cancer risk. However, the endometrial safety of long-term EPT regimens is uncertain.^[9]

Age Group

Youngest member was 19 years and oldest was 50 years. The mean age was 27 years.

Primary Surgery

Primary Surgery was one by either of the 3 Group of Persons-

1. Traditional group comprised of quacks and transsexuals.
 2. Surgery done by general surgeons.
 3. Surgery done by plastic surgeons.
- In my study, 20 individuals have undergone SRS by traditional methods accounting for 55%.
 - 13 persons had undergone surgery by general surgeon accounting for 36%.
 - Only 3 of them underwent surgery by plastic surgeon accounting for 8.3%.

Symptomatology

30% of the patients presented to OPD within 3 months of primary surgery and the rest within the next 1 year.

Majority of the patients, about 16 cases (44%) presented with LUTS, AUR and Fistula.

5 cases (19.45%) presented with LUTS and fistula.

Cases with Acute Urinary Retention (AUR) had a prior UTI as a precipitating cause.

Stein et al in Journal of Urology 2000 says that obstructing voiding is the commonest complication.

Patients with meatal stenosis used cloves toothpicks and ear buds to keep the meatus open.

Rehman in archives of sexual behaviour 1999 reports similar usage of objects.

Two patients presented with loin pain and tenderness and fever. One patient presented with fever with chills, acute urinary retention suggestive of frank septicaemia. There was a palpable tender mass occupying the right hypochondrium and lumbar regions and the right loin. Prior to considering surgical reassignment, the key issue for the surgeon is to establish beyond reasonable doubt that the gender dysphoria or transsexual feeling is genuine and that surgical reassignment will be beneficial.^[10]

Nature of Intervention

Nature of intervention was decided on the degree of obstruction and urethral narrowing and the primary complaints. Although guidelines from organisations, such as the Harry Benjamin International Gender Dysphoria Association, have been helpful. Management remains complex and experience guided. We discuss the range of treatment used by transsexual people, the rationale behind these and the expectation from such treatment.^[11]

Krege et al in 2000 recommend similar management.

1. Only dilatation.
2. Meatoplasty.
3. Revision urethroplasty.
4. Vesicolithotomy with urethroplasty.
5. Open drainage of perinephric abscess.
6. Conservative management of pyelonephritis.

1) Dilatation

One patient who had a meatal narrowing had undergone SRS by plastic surgeons. Dilatation with metal sounds was done and voided well. An USG revealed a PVR of less than 15 mL and post dilatation uroflow revealed a Qmax of 22 mL/ sec compared to 12 mL/ sec before the procedure.

She was one of the 6 patients who came for follow-up for the next 3 months. She underwent dilatation on her monthly visits.

2) Meatoplasty

Meatoplasty was done for 2 patients who had undergone SRS by plastic surgeons, scarring extends just beyond the meatus. An inverted U-shaped Blandy's Flap created with perfect mucosal approximations without any major complications. After removal of catheter on 7th postoperative day, patients voided well with Qmax of 20 mL/sec. USG revealed an insignificant PVR less than 20 mL.

3) Revision Urethroplasty

Dense scarring involving the whole of the bulbar urethra was seen in 31 cases. Out of this, 20 was done by traditional surgeons. An inverted U-shaped incision was made in the perineum. Urethra mobilised, and sinus tract excision done. Perineal urethrostomy completed. Finally, patients were taught self-dilatation. Feldman in transgender primary care 2006 advocates urethroplasty.

4) Vesicolithotomy with Urethroplasty

One patient had formed bladder stone due to chronic bladder outflow obstruction. SRS was done again by a senior member of the group. Cystoscopy done, stones confirmed through a transverse suprapubic incision,

bladder opened, and stones removed. Suspicious area biopsied. Bladder closed with SPC. Perineal urethrostomy completed. Foleys inserted. Urethral Foleys and SPC clamped on POD 12. PVR was of 30 mL with uroflow of 18 mL/sec.

5) Open Drainage of Perinephric Abscess

One patient who had tested positive for HIV presented with a right perinephric abscess tracking down through right psoas muscle, bladder distension, severe urethral stenosis and septicaemia and raised renal parameters. CT confirmed the diagnosis. Open flank drainage of the perinephric abscess was done. Follow-up CT revealed resolution of collection.

6) Conservative Management of Pyelonephritis

Two patients with acute pyelonephritis showed urine growth with E. coli and treated with amikacin for 1 week. They responded well and were discharged at request, but lost for further follow-up. Journal of Acute Medicine 2000 reports stenting for acute pyelonephritis with dilated collecting system.

Observation in 3 Different Groups

The incidence of LUT, AUR, Multiple Fistulas and UTI was 56%.

- Incidence of flank pain was 5% compared to 52% and 0% in the general surgeon group.
- Nil incidence of sepsis or AUR in the plastic surgeons group.
- P value of 0.001 was considered statistically significant.

Incidence of SPC among the Groups

In the traditional group SPS was done in 80% of cases, whereas it was 38.5% in the general surgery group and nil in the plastic surgeon's group.

Surgical Intervention among 3 Groups

- Traditional group accounting for 54.8% of the interventions.
- General Surgeons accounted for 38.7% and Plastic Surgeons accounted for 6.5% of cases.
- P value of 0.01% was considered statistically significant.

Follow-Up

In patients with dense scarring, catheter was removed on 10th post-operative day and the rest had their catheter removed on the 7th post-operative day.

All the patients were in their hospital for 2 weeks. At 14th day, PVR estimation was done. At 3 months, uroflowmetry for Qmax and USG for PVR was done. Of the 3 patients, only 6 were available for follow-up. At 3 months, all 6 patients with regular dilatation were symptom free with a normal voiding pattern.

Limitation

Our study comprised of only 36 patients. It has patients who had undergone only masculinisation and not the complete genital reconstruction. It was not adequately powered.

It lacked long-term follow-up. Further studies are needed to arrive at definitive conclusions.

CONCLUSION

GID is a complex disorder and a clinical entity demanding a multidisciplinary approach. The goal is to produce an outward appearance consistent with the patient's gender identity. Hormonal and surgical treatment should be managed by a multi-professional team familiar with the procedures. In my study, urologist was not involved in any of the surgeries. Most of the complications are preventable. The severe complications were seen in those surgeries done by traditional persons. Lack of proper follow-up aggravates the situation. It must be mandatory for the urologist to be included in primary surgery. A proper mucosal to mucosal apposition is needed to prevent urethral stenosis. Patient must be motivated to come for regular follow-up.

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