

Long-Term Functional Outcomes in Males Suffering a Genital Burn

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Citation

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Abstract

Objectives: Male patients suffering a genital burn are an understudied patient population who may experience long-term sexual and urinary dysfunction.

Methods: A retrospective analysis of 111 genital burn male patients (18-80 years of age) treated between 1995 and 2009 was conducted.

Results: Sixteen of the 111 (14%) male patients completed the survey. Eight of 14 patients (57.1%) had a visible scar on the genitalia and 2 patients (12.5%) were currently urinary catheter dependent. Ten patients (71%) were sexually active; however three patients (30%) were unable to sustain an erection adequate for penetration. Thirty-eight percent of patients felt frustrated about sexual performance, 57.1% of patients felt anxious about sexual encounters and 46.1% of patients felt like they had lost something when questioned about sexual performance.

Conclusion: Males who have experienced a genital burn often suffer long term urinary and/or sexual dysfunction, while also harboring feelings of frustration and anxiety associated with sexual performances.

INTRODUCTION

Trauma secondary to a burn injury is a common cause of disfigurement which may ultimately affect a person's appearance, self-esteem, and relationships, as well as their social, psychological, recreational and sexual health¹. In addition, the quality of life among burn survivors may be further influenced by physical factors such as pain², functional impairment³, and psychological factors, including body image dissatisfaction⁴. Fortunately, genital burn injuries are rare and are typically a part of a larger total body surface area (TBSA) burn given the anatomical protection of the vulva, penis and scrotum by the thighs and abdomen⁵.

The prevalence of erectile dysfunction in the general population ranges from 2-9% in men younger than 40 years of age, and from 10-71% in men older than 70 years of age⁶, while the prevalence of urinary incontinence is between 3 and 11% among elderly men⁷. Male patients suffering genital trauma, particularly genital burns, are an understudied subset of patients who may suffer from long-term sexual and urinary dysfunction of which the prevalence is unknown. This study sought to assess the extent of long-term urinary and sexual function among male genital burn patients.

MATERIAL AND METHODS

Male patients between the ages of 18 and 80 who suffered a genital burn and were treated at the Saint Barnabas Medical Center Level 1 Burn Center between January 1, 1995 through December 31, 2009 were retrospectively identified following Institutional Review Board approval. This cohort of patients was contacted via a telephone survey to inquire about the patients' current urinary and sexual function. Questions pertaining to the psychosexual aspects of the patient's life were adapted from a validated Sexual Quality of Life Questionnaire⁸. Patients were contacted three times by telephone and subsequently non-responders were mailed a survey.

The parameters analyzed from the original genital burn hospitalization included: mean age at burn, mean TBSA burn, mean TBSA burn specific to the genitalia, degree of genital burn, burn etiology, urinary catheter use, mean hospital length of stay (LOS) and mean burn intensive care unit LOS. Statistical analysis for donor and recipient data were performed using the Fisher's exact test for nonparametric data and the two-tailed Student t test for parametric data. Statistical significance was accepted at $p < 0.05$.

RESULTS

Patient Demographics and Clinical Outcomes (Table 1) – One hundred and eleven patients were retrospectively identified through the Burn Center database as suffering a genital burn [ICD-9 code 942.25 (second degree genital burn) and 942.35 (third degree genital burn)] and surviving hospitalization. Of these 111 patients, 16 patients (14.4%) completed the survey (survey responders) and 95 patients (85.6%) could not be contacted for survey completion (survey non-responders). Patient demographics and clinical outcome variables were uniform between the two groups except for Burn ICU LOS (survey responders: 17.0 ± 30.6 days, survey non-responders: 6.9 ± 15.0 days, $p < 0.04$). The overall mean patient age was 34.0 ± 16.5 years and mean TBSA was $16.8 \pm 19.5\%$. The most common cause of burn injury was scalding ($N=65$, 58.6%). Overall hospital LOS was 20.0 ± 22.8 days, with a mean length of stay of 8.4 ± 17.2 days in the Burn ICU. Mean follow-up was 7.6 ± 4.2 years for survey responders and 9.3 ± 4.1 years for survey non-responders ($p < 0.13$).

Figure 1

Table 1: Demographic and outcomes among genital burn patients.

	Survey Responders	Survey Non-Responders	Overall	p-value <
Patients N= (%)	16 (14.4)	95 (85.6)	111	
Age, years (mean ± SD)	41.0 ± 20.8	32.8 ± 15.8	34.0 ± 16.5	0.07
TBSA, % (mean ± SD)	16.7 ± 19.0	16.8 ± 19.6	16.8 ± 19.5	0.98
TBSA - Genitalia, % (mean ± SD)	0.83 ± 0.27	0.81 ± 0.26	0.81 ± 0.26	0.78
Genital Burn Degree				
2nd Degree N= (%)	14 (87.5)	72 (75.8)	86 (77.5)	0.52
3rd Degree N= (%)	2 (12.5)	23 (24.2)	25 (22.5)	
Burn Etiology				
Scald, N= (%)	12 (75.0)	53 (55.7)	65 (58.6)	0.18
Flame, N= (%)	2 (12.5)	22 (23.2)	24 (21.6)	0.52
Other, N= (%)	1 (6.3)	5 (5.3)	6 (5.4)	1.00
Contact, N= (%)	1 (6.3)	5 (5.3)	6 (5.4)	1.00
Chemical, N= (%)	0	5 (5.3)	5 (4.5)	1.00
Electrical, N= (%)	0	5 (5.3)	5 (4.5)	1.00
Foley Catheter, N= (%)	5 (31.3)	24 (25.3)	29 (26.2)	0.76
Hospital LOS, days (mean ± SD)	28.8 ± 36.8	19.3 ± 20.4	20.0 ± 22.8	0.14
Burn ICU LOS, days (mean ± SD)	17.0 ± 30.6	6.9 ± 15.0	8.4 ± 17.2	0.04*
Follow-Up, years (mean ± SD)	7.6 ± 4.2	9.3 ± 4.1	9.1 ± 4.1	0.13

Abbreviations: TBSA, total body surface area; SD, standard deviation; LOS, length of stay; ICU, intensive care unit; * $p < 0.05$

Urinary and Sexual Function Outcomes for Survey Responders (Table 2) – The 16 patients who completed the urinary and sexual function survey comprised the study cohort. Two patients (12.5%) were currently urinary catheter dependent, resulting in a self-reported overall continence rate of 87.5% ($N=14$). Twenty percent ($N=3/15$) of patients reported having a urinary tract infection post-burn and one patient (6.3%) reported the use of urinary flow medications since hospital discharge (tamsulosin). Seventy-one percent

($N=10$) of patients were sexually active; however 3 (30%) patients were not able to sustain an erection adequate for penetration and reported use of sildenafil (mean age – 53 ± 23 years). Eight of 14 patients (57.1%) had a visible scar on the genitalia as a result of their burn injury; however none of the respondents reported having any urological or plastic surgery procedures completed post-burn.

Thirty-eight percent ($N=5/13$) of patients reported feeling frustrated about their sexual life and 57.1% ($N=8/13$) of patients felt anxious about future sexual encounters. Forty six percent ($N=6/13$) of patients felt they had lost something when questioned about their sexual life and 30.8% ($N=4$) reported they worried their sexual partner feels hurt or rejected. Three patients (23.1%) reported loss of confidence in themselves as a sexual partner. Most patients did not feel guilty (92.3%, $N=12$), angry (84.6%, $N=11$), embarrassed (77.0%, $N=10$) or depressed (77.0%, $N=10$) about their sexual life; however, 30.8% ($N=4$) did worry about the future of their sexual life (mean age – 45 ± 10 years of age), including two of the three patients taking sildenafil for erectile dysfunction.

Figure 2

Table 2: Urinary and Sexual Function Outcomes for Survey Respondents.

Urinary Function Questions	N=	Yes, N= (%)	No, N= (%)
1) Are you urinary catheter dependent?	16	2 (12.5)	14 (87.5)
2) Are you continent?	16	14 (87.5)	2 (12.5)
3) Have you been treated for a urinary tract infection since discharge?	15	3 (20.0)	12 (80.0)
4) Are you taking any urinary flow medications since your discharge?	16	1 (6.3)	15 (93.8)
5) Have you had any additional urological or plastic surgery procedures specific to the urinary tract or genitalia since discharge from SBMC?	16	0	16
Sexual Function Questions			
1) Are you able to achieve an erection?	14	13 (92.9)	1 (7.1)
2) Are you sexually active?	14	10 (71.4)	4 (28.6)
If yes, is the erection sufficient to sustain adequate penetration for sexual intercourse?	10	7 (70.0)	3 (30.0)
3) Are you using any form of erectile dysfunction medication, injection, device, etc.?	13	3 (23.1)	10 (77.0)
4) Is there any visible scar on the genitalia as a result of the burn?	14	8 (57.1)	6 (42.9)
5) When you think about your sexual life, do you feel frustrated? ²⁸	13	5 (38.5)	8 (61.5)
6) When you think about your sexual life, do you feel depressed? ²⁸	13	3 (23.1)	10 (77.0)
7) When you think about your sexual life, do you feel less masculine? ²⁸	13	4 (30.8)	9 (69.2)
8) Have you lost confidence in yourself as a sexual partner? ²⁸	13	3 (23.1)	10 (77.0)
9) When you think about your sexual life, do you feel anxious? ²⁸	13	8 (57.1)	5 (38.5)
10) When you think about your sexual life, do you feel angry? ²⁸	13	2 (15.4)	11 (84.6)
11) Do you worry about the future of your sexual life? ²⁸	13	4 (30.8)	9 (69.2)
12) When you think about your sexual life, do you feel embarrassed? ²⁸	13	3 (23.1)	10 (77.0)
13) When you think about your sexual life, do you feel guilty? ²⁸	13	1 (7.7)	12 (92.3)
14) When you think about your sexual life, do you worry that your partner feels hurt or rejected? ²⁸	13	4 (30.8)	9 (69.2)
15) When you think about your sexual life, do you feel like you've lost something? ²⁸	13	6 (46.1)	7 (53.8)

Abbreviations: SBMC, Saint Barnabas Medical Center

COMMENT

Male patients suffering genital burn injuries represent a unique group of patients at risk for long-term urinary and/or sexual dysfunction. These patients usually suffer injuries at a young age which may result in long-term sequelae including

catheter dependency, persistent visual genital scarring, feelings of frustration and anxiety about their sexual life, and even loss of masculinity⁹. Scarring and disfigurement from burns have a dramatic effect on body image satisfaction and self-esteem and often leads to significant perceptual and subjective body changes^{4,10}. Numerous authors have reported that patients with long term scarring or disfigurement from burn trauma harbor feelings of shame¹¹, posttraumatic stress symptoms¹², and social avoidance¹³. McDougal et al.¹⁴ reported that perineal and the genitourinary complications that follow burn injury may contribute to the morbidity and mortality in the thermally injured patient, including urethra and/or testicular loss, as well as significant long-term functional disabilities.

In 1990, Cobb et al.¹⁵ investigated patient perception of quality of life after sustaining a burn injury. They utilized a 25-item questionnaire in 290 adults (mean age 39.6 years) and 26 students assessing how patients viewed their quality of life after burn injuries, specifically analyzing physical and psychological functioning, social relationships, and economic status. Their study demonstrated no change in physical, psychological, social or economic status perceptions post- burn injury; however, when further categorized by age, the older patient group was found to have more concern with physical and economic effects to their quality of life, while the younger patient group was more concerned with psychological, vocational, avocational, and the social impact of their injury¹⁵.

The current study is the first to report on long-term urinary and sexual function in male patients with a history of a genital burn injury. The survey response rate of 14.6% reflects the transient and nomadic population in which these injuries occur, which often result in poor follow-up and limited our ability to contact a majority of patients for the survey. However, it is evident from survey responders that a significant subset of male patients who suffered a genital burn, most notably young males, do suffer from long term urinary and/or sexual dysfunction as a result of the genital burn injury. The psychosexual condition of these patients is important given the notable levels of frustration and anxiety associated with sexual performance reported.

CONCLUSION

In conclusion, it is important for clinicians, in particular burn surgeons, plastic surgeons and urologists, to recognize the physical and psychological consequences of male patients suffering from genital burn injuries. All physicians who see a genital burn patient in the immediate follow-up period, regardless of specialization, should inquire about urinary and sexual function (both physical and psychological aspects). Such vigilance may enable expedited treatment of physical, psychosocial and sexual sequelae for these patients.

References

1. Falder S, Browne A, Edgar D, et al: Core Outcomes for Adult Burn Survivors: A Clinical Overview. *Burns* 35: 618-641, 2009.
2. Blalock SJ, Bunker BJ, and DeVellis RF: Measuring health status among survivors of burn injury: revisions of the Burn Specific Health Scale. *J Trauma* 36: 508-515, 1994.
3. Jonsson CE, Schuldt K, Linder J, et al: Rehabilitative, psychiatric, functional, and aesthetic problems in patients treated for burn injuries-as preliminary follow-up study. *Acta Chirurgiae Plasticae* 39: 3-8, 1997.
4. Fauerbach JA, Heinber LJ, Lawrence JW, et al: Effect of Early Body Image Dissatisfaction on Subsequent Psychological and Physical Adjustment After Disfiguring Injury. *Psycho Med* 62: 576-582, 2000.
5. Michielsen DPJ, and Lafaie C: Management of genital burns: A review. *Int J Urol* 17: 755-758, 2010.
6. Prins J, Blanker MH, Bohnen AM, et al: Prevalence of erectile dysfunction: A systematic review of population-based studies. *Int J Impot Res* 14: 422-432, 2002.
7. Nitti VW: The Prevalence of Urinary Incontinence. *Rev Urol* 3: S2-S6, 2001.
8. Abraham L, Symonds T, and Morris MF: Psychometric validation of a sexual quality of life questionnaire for use in men with premature ejaculation or erectile dysfunction. *J Sex Med* 5: 595-601, 2008.
9. Bangma CH, Molen ABM, and Boxma H: Burns to the perineum and genitals - management, results, and function of the thermally injured perineum in a 5-year-review. *Eur J Plast Surg* 18: 111-114, 1995.
10. Bernstein NR: Objective bodily damage: disfigurement and dignity, in Cash TF, and Pruzinsky T (Ed): *Body images: development, deviance, and change*. New York, Guilford 1990.
11. Taal L, and Faber AW: Posttraumatic Stress and Maladjustment Among Adult Burn Survivors 1-2 Years Postburn. Part II: The Interview Data. *Burns* 24: 399-405, 1998.
12. Fukunishi I: Relationship of Cosmetic Disfigurement to the Severity of Posttraumatic Stress Disorder in Burn Injury or Digital Amputation. *Psychother Psychosom* 68: 82-86, 1999.
13. Ye EM: Psychological Morbidity in Patients with Facial and Neck Burns. *Burns* 24: 646-648, 1998.
14. McDougal WS, Peterson HD, Pruitt BA, et al: The thermally injured perineum. *J Urol* 121: 320-323, 1979.
15. Cobb N, Maxwell G, and Silverstein P: Patient Perception of Quality of Life after Burn Injury. Results of Eleven-Year Survey. *J Burn Care Rehab* 11: 330-333, 1990.

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