

# Psychosocial impact of penile carcinoma

François Audenet, John P. Sfakianos

Department of Urology, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA

**Contributions:** (I) Conception and design: JP Sfakianos; (II) Administrative support: JP Sfakianos; (III) Provision of study materials or patients: None; (IV) Collection and assembly of data: None; (V) Data analysis and interpretation: All authors; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

**Correspondence to:** John P. Sfakianos, MD. Department of Urology, Icahn School of Medicine, 5 East 98<sup>th</sup> street, 6<sup>th</sup> Floor, New York, NY 10029-6574, USA. Email: john.sfakianos@mountsinai.org.

**Abstract:** Penile carcinoma is a rare malignancy with a potential for local invasion and regional/distant extension. Penile cancer can be cured in over 80% of cases if diagnosed early. However, local treatment, although potentially lifesaving, can be mutilating and devastating for the patient's psychological well-being. In patients with long-term survival after penile cancer, sexual dysfunction, voiding problems and cosmetic penile appearance may adversely affect the patient's quality of life. Although there is little data in the literature about psychosocial impact of penile carcinoma, organ-preserving treatment seems to allow for better quality of life and sexual function and should be offered to all patients whenever feasible.

**Keywords:** Penile carcinoma; penectomy; sexual function; quality of life

Submitted Jun 30, 2017. Accepted for publication Jul 12, 2017.

doi: 10.21037/tau.2017.07.24

**View this article at:** <http://dx.doi.org/10.21037/tau.2017.07.24>

## Introduction

Malignant diseases of the penis are rare in the western world with an incidence of less than 1 in 100,000 men (1). However, these rates are 5 times higher in the developing nations such as Africa and South America, reflecting a higher prevalence of human papilloma virus (HPV) (2). The treatments for early stage disease typically include organ preservation strategies. Conversely, in invasive disease, the gold standard therapy is surgical resection with a partial or radical penectomy (1,3). The diagnosis of carcinoma of the penis along with these more radical disfiguring treatments may have a significant impact on the patient's sexual function, quality of life, self-image and self-esteem (4). Herein, in this review, we summarized the current literature on the psychological impact of a penile cancer diagnosis and its treatment for patients.

## Sexual function and satisfaction after conservative treatment

Sexual dysfunction and its effects on the psyche can

significantly vary based on the treatment patients received (*Table 1*). Different surgical organ-preserving treatments are possible for non-invasive disease, including laser therapy, topical therapy, Moh's micrographic surgery and glans resurfacing.

In a series of patients who underwent laser treatment for penile carcinoma, 30/40 (75%) patients who were sexually active prior to treatment reported to have resumed activity after treatment (5). Of the entire cohort analyzed, using the Fugl-Meyer Life Satisfaction Check List score (LiSat-11), 23/46 patients (50%) reported satisfaction with their sexual life after laser treatment. Only 3 patients (10%) reported dyspareunia affecting sexual activity.

A retrospective interview-based Swedish study after laser treatment for penile carcinoma *in situ* (CIS), in 46 out of 67 surviving patients with a mean age of 63 years, reported a marked decrease in some sexual practices, such as manual or oral stimulation, but a general satisfaction rate with life overall, including their sex life, similar to that of the general Swedish population (6).

In a large study on CO<sub>2</sub> laser treatment of penile cancer in 224 patients, complaints regarding changes in erection

**Table 1** Summary of the main articles published in the literature evaluating sexual function and quality of life after treatment for penile carcinoma

Study	Number of patients	Treatment	Evaluation	Mean FU (months)	Results
Windhal <i>et al.</i> , <i>J Urol</i> 2004 (5)	36	Laser	Face-to-face interview	36	75% had resumed sexual activity; 72% reported unaltered erectile function; 50% were satisfied with their sexual life; 10% had dyspareunia; 78% considered satisfying cosmetic results
Skeppner <i>et al.</i> , <i>Eur Urol</i> 2008 (6)	46	Laser	Face-to-face interview	54	65% had resumed sexual activity; 75% were satisfied with life as a whole; 54% were satisfied with their sexual life; 76% were satisfied with their sexual health
Hadway <i>et al.</i> , <i>BJU Int</i> 2006 (7)	7	Total glans resurfacing	IIEF-5	Median: 30	All patients who were previously sexually active were sexually active within 3–5 months of surgery
Li <i>et al.</i> , <i>Urology</i> 2011 (8)	29	Radical circumcision and/or wide local excision	IIEF-5	Median: 26.5	In the group of patients with no to mild erectile dysfunction prior to surgery, 21/22 had the same rating of sexual function as before
Opjordsmoen <i>et al.</i> , <i>Br J Urol</i> 1994 (9)	30	Local excision/laser beam treatment [5], radiotherapy [12], partial penectomy [9], total penectomy [4]	IES, GHQ-12, EORTC QLQ C-30	80	Patients treated with partial or total penectomy had a worse outcome with regard to sexual function than patients treated conservatively; 50% had mental symptoms at follow-up
D'Ancona <i>et al.</i> , <i>Urology</i> 1997 (10)	14	Partial penectomy	OSFQ, SPQ, GHQ-12, HAD	11.5	In 64% the overall sexual function was normal or slightly decreased; sexual interest and satisfaction remained normal or slightly reduced in 9 and 12 patients, respectively
Ficarra <i>et al.</i> , <i>Prog Urol</i> 1999 (11)	17	Partial penectomy [11], total penectomy [4], radiotherapy [2]	GHQ-12, HADS, SPQ, OSFQ,	69	The global sexual function was compromised in 76.5%; 29.5% presented with anxiety and 6% with depression
Ficarra <i>et al.</i> , <i>Urol Int</i> 2000 (12)	16	Partial penectomy	GHQ-12, HADS	69	6% were depressed; 31% were found to have anxiety
Romero <i>et al.</i> , <i>Urology</i> 2005 (13)	18	Partial penectomy	Personal interview + IIEF-15	23.5	55.6% reported erectile function that allowed sexual intercourse; 33.3% maintained their preoperative sexual intercourse frequency and were satisfied with their sexual relationship and their overall sex life
Gulino <i>et al.</i> , <i>J Urol</i> 2007 (14)	14	Partial penectomy	IIEF	13	71% had spontaneous and/or induced erections; IIEF scores in the ejaculation and orgasm domains did not significantly change
Alei <i>et al.</i> , <i>Ann Ital Chir</i> 2012 (15)	10	Partial penectomy	IIEF-5	40	The average IIEF score in the preoperative period was 21.6 points, one month postoperatively it was 13 points, 40 months postoperatively it was 19.7 points (mild erectile dysfunction)

IIEF-5, International Index of Erectile Function; OSFQ, Overall Sexual Functioning Questionnaire; GHQ, General Health Questionnaire; HADS, Hospital Anxiety and Depression Scale.

capability or functional impairment in sexual activity were never reported following treatment (16). In another study, no sexual dysfunction occurred in 19 patients who underwent laser treatment (17).

These studies show that sexual function and sexual satisfaction are only marginally reduced after laser treatment of penile carcinoma, and the cosmetic results, judged by the patients themselves, are highly satisfactory. However, there is a risk of clinically manifested dyspareunia and, to some degree, decreased sexual interest.

Glans resurfacing is an alternative to laser treatment for superficial non-invasive disease. In one study with ten patients (7), seven out of ten completed questionnaires [International Index of Erectile Function (IIEF-5)] and a non-validated 9-item questionnaire at their six-month follow-up visit. There was no erectile dysfunction according to the median IIEF-5 score of 24. All patients who were sexually active before treatment were active again within three to five months. According to the non-validated questionnaire, all patients stated that the sensation at the tip of their penis was either no different or better after surgery and that they had erections within two to three weeks of surgery. Six out of seven patients had sexual intercourse within three months of surgery and five out of seven patients felt that their sex life had improved. Overall patient satisfaction with glans resurfacing was high.

### Sexual function and satisfaction after radical treatment

A large portion of patients with carcinoma of the penis will require more aggressive intervention, with two opposite goals: oncological control for the cancer and preservation of sexual function.

Traditional surgical treatment of penile carcinoma was amputation of the glans penis 2 cm proximal to the tumor. Two studies reported sexual function after glansectomy (8,18). In one study (n=68), 79% did not report any decline in spontaneous erection, rigidity and penetrative capacity after surgery, while 75% reported recovery of orgasm (18). In another study (8), all twelve patients had returned to "normal" sexual activity one month after surgery.

Sexual function after partial penectomy was reported in a few small studies. In a series of 18 patients treated with partial penectomy, with a median flaccid penile length of 4 cm post operatively, Romero *et al.* identified 55.6% of patients having reported erectile function suitable for intercourse post treatment, using the IIEF-15 survey (13).

In those patients without sexual activity, 50% reported the main reason was a feeling of shame owing to the small penis size and absence of the glans. Furthermore, while more than half of the patients continued sexual activity, only a third maintained their preoperative frequency of intercourse. This study, while limited by its small number, clearly demonstrated a decrease in sexual function for patients undergoing partial penectomy that led to self-esteem concerns for these patients, with 12/18 (66.6%) patients having reduced overall satisfaction postoperatively.

In a similar study of 14 patients, D'Ancona and colleagues used the Overall Sexual Functioning Questionnaire (OSFQ) and identified 5 patients (36%) having decreased or no sexual function after partial penectomy. In their cohort of patients, no significant levels of anxiety or depression were reported (10).

Ficarra *et al.* in a series of 17 patients (15 treated with surgical intervention and 2 with radiotherapy) identified compromised sexual function in 76.5% of their patients, also using the OSFQ scale. As would be expected, they identified that patients with more mutilating treatment reported worse function and 35% reporting limitations in their state of health as well as social problems (11). However, Alei *et al.* showed an improvement in erectile function over time in a series of ten patients (15).

Distal reconstruction of the glans using distal urethra has been reported in a series of 14 patients (14). All patients noticed subjective and objective thermal and tactile epicritic sensibility in the area of the neoglans. Ten of 14 patients (71%) noticed spontaneous and/or induced rigid erections. Interestingly, IIEF scores in the ejaculation and orgasm domains did not significantly change in the period before and after surgery.

There is very limited data about total phallic reconstruction (19-21) following full or near-total penile amputation. It is not possible to restore function, but cosmetically acceptable results are obtainable.

### Quality of life

Several qualitative and quantitative instruments were used in the literature to assess "psychological behavior and adjustment" and "social activity" as quality of life indicators.

Opjordsmoen *et al.* included 30 patients followed up for a median of 80 months after treatment: local excision/laser beam treatment in 5, radiotherapy in 12, partial penectomy in 9, total penectomy in 4 (9). Patients underwent a semi-structured interview and completed the Impact of Events

Scale, General Health Questionnaire and the EORTC QLQ C-30 questionnaire. Patients treated with partial or total penectomy had a worse outcome with regard to sexual function than patients treated conservatively, but there was no difference in the other domains of quality of life, indicating that even the more radically treated patients usually adapted adequately. Half of the individuals had mental symptoms at follow-up, and these patients were less satisfied and showed less social activity. Seven men reported that, if asked again, they would choose treatment with lower long-term survival to increase the chance of remaining sexually potent, but the majority gave priority to higher long-term survival.

Ficarra *et al.* used the General Health Questionnaire (GHQ) and the Hospital Anxiety and Depression scale (HADS) to analyze the effects of urologic malignancies and their treatments on the patient's well-being (12). These levels were compared to those of patients undergoing treatment for benign prostatic hyperplasia. They did identify significant differences between the malignancy group and the control group in levels of anxiety, but not in levels of depression. Of the patients they studied, 16 had squamous cell carcinoma of the penis. They identified 6% (1/16) of patients to be depressed. They analyzed the anxiety levels after surgical intervention and 31% (5/16) of patients who underwent partial penectomy were found to have anxiety. The depression levels were comparable to the other urologic malignancies, such as renal cell carcinoma, prostate cancer and urothelial carcinoma, but the anxiety levels were more than double compared to patients undergoing other procedures for urologic malignancies, like radical cystectomy which was associated with 15% of anxiety (8/54). They concluded that patients undergoing partial penectomy for squamous penile carcinoma showed significant impairment in their general state of health, with anxiety being the most significant, compared with controls being treated for benign or other malignant disease.

In a similar study, D'Ancona *et al.* analyzed 14 patients after partial penectomy with no significant findings of anxiety and depression using the GHQ-12 and HAD questionnaires, respectively (10). "Social activity" remained the same after surgery in terms of living conditions, family life and social interactions. They did identify the greatest difficulty men faced in the first 3 months after surgery to be the difficulties with sexual activity and the discomfort with sitting to urinate. Patients reported fears of mutilation and of loss of sexual pleasure, as well as fear of dying and what this would mean for their families. The most common

response in what helped men to overcome their issues was the encouragement of their wives and families.

Interestingly, when looking at the men's experiences of penile cancer surgery using interviews, Witty *et al.* identified variable responses, making it difficult for health professionals to judge how surgery will impact on a man presenting to them (22). Those men who were able to return to sexual activity did report a difference in sensation, but still pleasurable. Furthermore, the concern for several patients was the inability to please their partner and this was more bothersome than the inability to please themselves.

It is clear from these studies that treatment of patients with penile cancer affects their sexual function. The effects on sexual function in part can lead to the worsening psychological well-being of these patients.

## Conclusions

In patients with long-term survival after penile cancer, sexual dysfunction, voiding problems and cosmetic penile appearance may adversely affect the patient's quality of life. Although there is little data in the literature about psychosocial impact of penile carcinoma, organ-preserving treatment seems to allow for better quality of life and sexual function and should be offered to all patients whenever feasible.

## Acknowledgements

None.

## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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**Cite this article as:** Audenet F, Sfakianos JP. Psychosocial impact of penile carcinoma. *Transl Androl Urol* 2017;6(5):874-878. doi: 10.21037/tau.2017.07.24