

# Frequency and severity of chronic scrotal pain in Canadian men presenting to urologists for infertility investigations

Aosama Aljumaily<sup>1,2</sup>, Ellen Forbes<sup>1,2</sup>, Hind Abdul Jaleel Al-Khazraji<sup>1</sup>, Allan Gordon<sup>3</sup>, Susan Lau<sup>1,4</sup>, Keith Allen Jarvi<sup>1,2,4,5</sup>

<sup>1</sup>Division of Urology, Department of Surgery, Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada; <sup>2</sup>Murray Koffler Urologic Wellness Centre, <sup>3</sup>Wasser Pain Management Centre, <sup>4</sup>Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital, Toronto, ON, Canada; <sup>5</sup>Institute of Medical Sciences, University of Toronto, Toronto, ON, Canada

**Contributions:** (I) Conception and design: A Aljumaily, A Gordon, KA Jarvi; (II) Administrative support: S Lau; (III) Provision of study material or patients: S Lau, KA Jarvi; (IV) Collection and assembly of data: E Forbes, HA Al-Khazraji, S Lau; (V) Data analysis and interpretation: A Aljumaily, KA Jarvi; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

**Correspondence to:** Keith Allen Jarvi, MD. 60 Murray Street, 6th floor, Box 19, Toronto, Ontario M5T 3L9, Canada.

Email: keith.jarvi@sinaihealthsystem.ca.

**Background:** Chronic scrotal pain (CSP) may be debilitating in men presenting for treatment for CSP, but we have little information on the frequency and severity of CSP in the men who do not seek care for the CSP. Our objective was to identify the frequency and characteristics of CSP in a population of men presenting for reasons other than CSP to a urology clinic.

**Methods:** Men presenting to a urology clinic for investigation of male infertility (INF) completed a standardized CSP questionnaires if they self-reported having CSP. This prospectively collected database was then retrospectively analyzed.

**Results:** Forty-five of 1,203 (3.7%) of INF patients (mean age 35: range, 24–59), reported having CSP (INF/CSP). Our comparison group was 131 men presenting for investigation of CSP [mean age 43±12 (SD) years with a mean duration of CSP of 4.7±5.95 years]. On average, men with INF/CSP had less severe and frequent pain than those with CSP, with significantly less pain during “bad” pain episodes (5.2±2.2 *vs.* 7.4±2.1, VAS score 0–10, P<0.0001 Student’s *t*-test), less frequent “bad” pain episodes (23%±21% *vs.* 42%±30% of the time, P<0.0001 Student’s *t*-test) and lower proportion of men who reported having severe pain (VAS score 7–10/10) (4/45 *vs.* 46/131, P<0.001, chi-squared test). Both groups reported a negative impact of the pain on quality of life (QOL), with 60% and 86% of men with INF/CSP and CSP alone reporting that they would feel ‘mostly dissatisfied’, ‘unhappy’, or ‘terrible’ if they had to continue life with their present scrotal pain symptoms.

**Conclusions:** Clinicians should be aware that CSP is common among men presenting for conditions other than CSP and that even if the pain levels are not “severe”, the chronic pain often has a significant negative impact on QOL.

**Keywords:** Chronic scrotal pain (CSP); varicocele; questionnaires; sexuality; infertility (INF)

Submitted Aug 29, 2017. Accepted for publication Nov 24, 2017.

doi: 10.21037/tau.2017.11.28

View this article at: <http://dx.doi.org/10.21037/tau.2017.11.28>

## Introduction

Chronic scrotal pain (CSP) has usually been described as a pain of at least 3 months duration in the scrotum (1). The pain is often debilitating in nature and may interfere with the man’s ability to function normally including limiting his

ability to work and have normal sexual and social activities.

While we as clinicians recognize that CSP is a relatively common condition, the actual frequency of CSP is poorly studied. Ciftci *et al.* reported that 4.75% of all men presenting to urology clinics for other reasons had CSP (2).

A lower incidence was reported in Switzerland of 350 to 400 cases of CSP per 100,000 men annually (3). These estimates were based on a survey of urologists recall of the numbers of men with CSP they treated and as such is likely an underestimate of the true incidence (3).

Either of the above estimates of the frequency of CSP indicate that CSP is actually a common condition. Beyond the frequency of the CSP, the question arises as to the impact on men of CSP. Men presenting to a clinic for treatment of CSP often have debilitating and severe CSP (4-6) but we do not know if men with CSP who do not seek medical care have the same severity and impact of the condition as men presenting to clinics for treatment of CSP.

It has been shown that the severity and adverse impact of CSP for men who present for medical care for the CSP varies from man to man (4). While it would seem logical that men seeking medical care for CSP would have more significant symptoms than men with CSP who do not seek medical care for this condition, presently, there is no literature to support this contention. In addition, there is no literature to indicate the severity and impact of CSP on men who do not seek medical care for this condition. Are these men just suffering in silence?

The objective of this study was to determine the frequency, characteristics and impact of CSP on men with this condition who are not seeking medical care for their CSP.

## Methods

New patients with infertility (INF) or CSP presenting to the Urology Clinic at the Mount Sinai Hospital completed a standardized computerized questionnaire. Those who present for an INF investigation complete the INF questionnaire and also complete the scrotal pain questionnaire if they self-identify as having CSP; those who present for investigation of scrotal pain complete the scrotal pain questionnaire. Mount Sinai Hospital local ethical committee approval was obtained prior to commencement of the study. This is a retrospective review of a prospectively collected database.

Patients who selected the 'scrotal pain' option then completed a standardized questionnaire to elicit information on the pain severity, duration, potential etiology, quality, location, progression, previous treatments and the impact of different activities on severity of the CSP. Patient's selecting INF as the option completed a standardized questionnaire to obtain information on the duration, previous treatments, and general medical issues related to INF, medications and

causes of the INF.

The severity of patients' average and most severe episodes of pain was recorded in the questionnaire based on the standardized numeric rating scale (NRS) for pain from 0 to 10. The NRS is well known and widely accepted as a valid measure of pain severity in adults (7). We also developed an additional question to determine the frequency of severe pain experienced by the men.

Quality of life (QOL) was assessed with the question published by Nickel *et al.*, "if you were to spend the rest of your life with your symptoms just the way they have been during the last month, how would you feel about that?" Scores for this question were quantified on a linear scale from 1 to 7 as delighted (1), pleased (2), mostly satisfied (3), mixed (4), mostly dissatisfied (5), unhappy (6), and terrible (5,7).

The impact of CSP on depressive symptoms were assessed by two validated questions, "during the past month, have you often been bothered by feeling down, depressed, or hopeless?" and "during the past month, have you often been bothered by little interest or pleasure in doing things?" Scores were quantified by the answers "not at all", "several days", "more than half the days", and "nearly every day for both questions (8).

The impact of CSP on the men's sexual and work activities was graded as none, only a little, some or a lot using the published questionnaire from Nickel *et al.* (5). In addition, the impact on sexual life (SHIM: sexual health inventory) and symptoms of androgen deficiency (ADAM score) were also assessed. The ADAM Questionnaire yields a positive result if the patient answer, "Yes", to questions 1 or 7 or any 3 of the other questions (9).

Our questionnaire has been previously published (4).

Physical examination was used to identify varicocele and any other palpable abnormalities of the scrotal contents and inguinal region. Imaging in the form of a scrotal ultrasound was routinely performed on most patients. The results were analyzed with descriptive statistics, student's *t*-testing for continuous variable to compare groups (such as VAS scores) or chi-squared tests to compare fractions in the different groups.

## Results

The prevalence of self-reported CSP in our male INF patient population was 3.7% (45/1,203 patients). The average age of the patient at the time of their first clinic visit was 35 (range, 24–59), and the average duration of scrotal pain was 7 years (range, <1 to 32 years). A comparison

**Table 1** Pain and QOL scores for men presenting with CSP or infertility who have CSP

Patient category	Pain score (0–10) at baseline	Pain score during severe pain episodes	Frequency of severe pain episodes	QOL for men with moderate pain score 1–6	QOL for men with severe pain score 7–10
Infertility patients with CSP (n=45)	3.5±1.8 <sup>a</sup>	5.2±2.2 <sup>a</sup>	23%±21% <sup>a</sup>	4.6±4.0 (n=41)	6.75±1.1 (n=4)
Chronic scrotal pain patients (n=131)	5.7±2.3	7.4±2.1	42%±30%	5.0±3.9 (n=85)	6.2±3.0 (n=46)

<sup>a</sup>, significantly different ( $P < 0.0001$ , Student's *t*-test) INF/CSP vs. CSP patients. QOL, quality of life; CSP, chronic scrotal pain; INF, infertility.

group of 131 men presenting for investigation of CSP was used. The mean age of the CSP men was 43±12 (SD) years with a mean duration of CSP of 4.7±5.95 years.

Men who presented with INF who also reported having CSP (INF/CSP: men with CSP who did not seek medical care) on average had far less severe pain compared to men presenting for management of CSP. Comparing INF/CSP vs. men presenting with CSP the severity of the average pain reported on a 10 point liker scale was significantly less (3.5±1.8 vs. 5.7±2.3,  $P < 0.0001$  student's *t*-test), the severity of "bad" pain episodes was significantly less (5.2±2.2 vs. 7.4±2.1,  $P < 0.0001$  Student's *t*-test), the frequency of "bad" pain episodes was significantly less (23%±21% vs. 42%±30% of the time,  $P < 0.0001$  Student's *t*-test) and a significantly lower proportion of men complained of severe pain (VAS score 7–10/10) (4/45 vs. 46/131,  $P < 0.001$ , chi-squared test) (Table 1).

Overall the QOL was impacted for both those with INF/CSP and CSP alone, with a QOL score an average of 4.6±4.0 vs. 5.0±3.9 for those with mild or moderate pain increasing to 6.75±1.1 and 6.2±3.0 for those with severe pain (Table 1). Close to 60% and 86% of men with INF/CSP and CSP alone reported that they would feel 'mostly dissatisfied', 'unhappy', or 'terrible' if they had to continue life with their present scrotal pain symptoms. In addition, 62% and 69% of men with INF/CSP and CSP reported depressive symptoms, with significantly higher reported levels of depressive symptoms in men with more severe pain.

The CSP also affected work performance and sexual activities. Work performance was reported to have deteriorated for 31% and 42% of the men with INF/CSP and CSP alone after the pain started. Sexual function, as reported by the SHIM score, was compromised in 49% and 61% of men with INF/CSP and CSP. Libido was reported to be lower in 37% and 42% of the men with INF/CSP vs. CSP alone (significantly different between INF/CSP and CSP groups,  $P < 0.0001$ , chi-squared test).

The men with INF/CSP often complained of other existing chronic pain conditions, such as chronic bowel pain in 17.8%, migraines in 26.7% and fibromyalgia in 2.2%.

A total of 51% of the patients with CSP were found to have a varicocele detected with a physical examination and confirmed with a scrotal ultrasound. This compared to a varicocele frequency of 83/185 (45%) in a cohort of men presenting with INF.

## Discussion

There are very few studies on the incidence of CSP in the population, with Cifti *et al.*'s study on men presenting to urology clinics reporting an incidence of 4.75% and Strebel *et al.* report indicating yearly incidence of 350–400/100,000 population (2,3). This latter study is likely to be a significant underestimate since this was based on the recall of urologists in Switzerland for how many men with CSP had been seen in the physicians' offices.

The present study reports an incidence of 3.7% of CSP in men presenting for an INF investigation. This is likely to be a low estimate of the actual frequency of CSP since the men needed to self-identify to be included as having CSP.

Most of the men in the INF/CSP group reported that the pain was not severe, while the majority of men who presented for investigation and management of CSP complained of more severe and more frequent CSP. While the frequency of CSP in men with INF seems high at 3.75%, the incidence of severe CSP in this group is quite low at 0.36%. Any general population studies on the incidence of CSP must take into account not only the frequency, but also the severity of the CSP. This study indicates that men presenting for investigation of CSP have much more severe CSP than is found in a population of men with CSP not seeking medical care for the CSP.

Despite the less severe pain experienced for men with CSP who did not seek medical care for the CSP, the condition had persisted an average of 7 years and close to

60% of these men reported that they would feel ‘mostly dissatisfied’, ‘unhappy’, or ‘terrible’ if they had to continue life with their present scrotal pain symptoms. Over 60% reported depressive symptoms and 31% reported that the CSP had affected their work performance. While even men who reported less severe pain noted a negative impact of the pain on the QOL, the more severe the reported pain, the greater the reported impact on QOL. It seems that these men not seeking medical care for CSP are unhappy to have the pain, just not unhappy enough or motivated enough to seek specialist medical care for this condition.

It is unclear if this incidence of CSP of 3.7% is the population average or if men with INF are more likely to experience CSP than the average man. Potentially there is a common etiology for the CSP and the male INF such as a varicocele or epididymis inflammation. We did identify a high prevalence of varicocele and treated varicocele in the infertile men with CSP.

CSP is an extremely common condition. But this is also a condition that many of the men in our study have lived with for years without seeking specialist care, despite many reporting that this pain is having a negative impact on their QOL, work and mood. There are implications of this study for clinicians to consider when assessing men. Since many men may not volunteer information about this chronic condition during medical assessments, routine directed questions about scrotal pain should be considered to identify men with CSP. In addition, clinicians should also be aware that CSP, even if the pain is not severe, may have a negative impact on QOL, mood and ability to work. Any man reporting CSP of any severity should be questioned about the impact of the pain.

There are limitations of this study that we have identified. There have been no proper studies to establish the prevalence, severity and impact of CSP in the general population and so we are unable to determine if the prevalence and characteristics of the men reporting CSP in our INF group is mirrored in the population. Future research will hopefully establish the prevalence and impact of CSP in the general population and establish why many men with this chronic condition don't seek medical care to investigate and manage the CSP.

## Conclusions

CSP among men with INF not seeking medical care for the CSP is a common condition. While the pain on average for these men was not severe, the majority of these men

reported that the pain had a negative impact on their quality of lives, mood and ability to work. Clinicians should be aware that men may not seek medical care for CSP and that CSP, even if the pain is reported to be of low severity, may have a negative impact on patients' lives.

## Acknowledgements

None.

## Footnote

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

*Ethical Statement:* Mount Sinai Hospital local ethical committee approval was obtained prior to commencement of the study (14-0342-E).

## References

1. Davis BE, Noble MJ, Weigel JW, et al. Analysis and management of chronic testicular pain. *J Urol* 1990;143:936-9.
2. Ciftci H, Savas M, Yeni E, et al. Chronic orchialgia and associated diseases. *Current Urology* 2010;4:67-70.
3. Strebel RT, Leippold T, Luginbuehl T, et al. Chronic scrotal pain syndrome: management among urologists in Switzerland. *Eur Urol* 2005;47:812-6.
4. Aljumaily A, Al-Khazraji H, Gordon A, et al. Characteristics and etiologies of chronic scrotal pain: a common but poorly understood condition. *Pain Res Manag* 2017;2017:3829168.
5. Nickel JC, Siemens DR, Nickel KR, et al. The patient with chronic epididymitis: characterization of an enigmatic syndrome. *J Urol* 2002;167:1701-4.
6. Khambati A, Lau S, Gordon A, et al. OnabotulinumtoxinA (Botox) nerve blocks provide durable pain relief for men with chronic scrotal pain: a pilot open-label trial. *J Sex Med* 2014;11:3072-7.
7. Hawker GA, Mian S, Kendzerska T, et al. Measures of adult pain: visual analog scale for pain (VAS Pain), numeric rating scale for pain (NRS Pain), McGill pain questionnaire (MPQ), short-form McGill pain questionnaire (SF-MPQ), chronic pain grade scale (CPGS), short form-36 bodily pain scale (SF-36 BPS), and measure of intermittent and constant osteoarthritis pain (ICOAP). *Arthritis Care Res (Hoboken)* 2011;63:S240-52.

8. Whooley MA, Avins AL, Miranda J, et al. Case-finding instruments for depression. Two questions are as good as many. *J Gen Intern Med* 1997;12:439-45.
9. Morley JE, Charlton E, Patrick P, et al. Validation of a screening questionnaire for androgen deficiency in aging males. *Metabolism* 2000;49:1239-42.

**Cite this article as:** Aljumaily A, Forbes E, Al-Khazraji HA, Gordon A, Lau S, Jarvi KA. Frequency and severity of chronic scrotal pain in Canadian men presenting to urologists for infertility investigations. *Transl Androl Urol* 2017;6(6):1150-1154. doi: 10.21037/tau.2017.11.28