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Can the Rate of Idiopathic Cases in Chronic Scrotal Pain be Reduced with an Effective Multidisciplinary Approach?

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What's known on the subject? and What does the study add?

This study aims to evaluate the etiological distribution among patients presenting with chronic scrotal pain, to demonstrate the contribution of a multidisciplinary approach to diagnosis, and to help determine possible causes, especially in cases classified as idiopathic.

Abstract

Objective: This study aims to evaluate the etiological distribution among patients presenting with chronic scrotal pain, to demonstrate the contribution of a multidisciplinary approach to diagnosis, and to help determine possible causes, especially in cases classified as idiopathic.

Materials and Methods: In this retrospective study, 127 patients (mean age 35 years, range 18-66 years) who presented to our urology clinic with chronic scrotal pain (CSP) between January 2023 and June 2025 were evaluated. All patients underwent a diagnostic evaluation, including a detailed medical history, a comprehensive physical examination, scrotal Doppler ultrasonography, and laboratory investigations. To identify possible sources of pain beyond urological causes, patients were evaluated in multidisciplinary consultations.

Results: Pain was unilateral in 40 patients (31.5%) and bilateral in 87 patients (68.5%). Chronic epididymitis and prostatitis were present in 25 patients (19.68%); varicocele was present in 27 patients (21.26%); and pain after varicocelectomy-inguinal hernia repair was present in 18 patients (14.17%). Of the 57 patients (44.90%) with undetermined urological etiology, 20 (15.75%) were diagnosed with perianal pathologies during consultation in the general surgery clinic, and 7 (5.51%) were diagnosed with lumbar disc herniation during consultation in the neurosurgery clinic. The cause of pain could not be determined in 30 patients (23.62%).

Conclusion: CSP is a multifactorial clinical condition. We believe that rates of idiopathic cases, reported in the literature as 35-45%, can be reduced to 23.62%, as observed in our study, through a multidisciplinary approach that includes systematic evaluation and clinical consultations.

Keywords: Andrology, chronic scrotal pain, multidisciplinary approach, regional neuroanatomy

Introduction

Chronic scrotal pain (CSP) is defined as intermittent or constant scrotal pain that lasts for at least three months and negatively affects quality of life (1). It is a condition frequently encountered in urological practice. However, diagnosis and treatment remain challenging due to its heterogeneous etiology and the frequent inability to identify a definitive cause.

According to the literature, approximately 1% of urology clinic visits—particularly those by young men—are related to CSP. In addition, complaints of scrotal pain account for 2-5% of outpatient urology visits (2,3).

The etiology of CSP is multifactorial. Infectious conditions, previous surgical interventions, vascular pathologies, neurogenic and musculoskeletal causes, as well as retroperitoneal and scrotal malignancies, have all been reported as potential etiological

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factors. Despite extensive evaluation, the etiology remains idiopathic in 35-45% of cases reported in the literature (4).

CSP is not only a physical symptom but also has significant negative effects on sexual function, psychosocial well-being, and overall quality of life (5). Therefore, a systematic evaluation and a multidisciplinary approach are essential, particularly for patients in whom an initial urological evaluation fails to identify a clear cause.

This study aims to evaluate the etiological distribution among patients presenting with CSP, to demonstrate the diagnostic contribution of a multidisciplinary approach, and to contribute to determining possible causes, especially in cases classified as idiopathic.

The aim of this study was to evaluate the etiological distribution among patients presenting with CSP, to demonstrate the diagnostic contribution of a multidisciplinary approach, and to identify possible underlying causes, especially in cases initially classified as idiopathic.

Materials and Methods

Study Design and Patient Selection

This retrospective study evaluated patients who presented to our urology clinic with complaints of CSP between January 2023 and June 2025. CSP was defined as intermittent or persistent pain localized to the scrotal contents lasting for at least three months.

Patients aged 18 years or older with scrotal pain persisting for at least three months and with complete clinical records and regular follow-up data were included in the study. Patients with acute genitourinary infections (acute epididymitis or prostatitis), patients with known or suspected scrotal or testicular malignancies, patients who developed acute scrotal pain due to trauma, and patients with insufficient clinical data or inadequate follow-up were excluded from the study.

Clinical Evaluation

All patients underwent a standardized clinical assessment that included a detailed medical history and a comprehensive physical examination. Particular attention was paid to pain characteristics (duration, localization, laterality, and triggering factors), surgical history, infection history, and associated systemic or musculoskeletal symptoms.

Following the initial clinical assessment, a stepwise diagnostic approach was applied. Scrotal Doppler ultrasonography and laboratory investigations, including urinalysis, urine culture, and semen analysis when indicated, were routinely performed at the first visit to evaluate possible urological etiologies. Patients in whom no urological pathology was identified on initial scrotal ultrasonography and laboratory tests underwent further evaluation at the second visit.

At the second visit, additional imaging studies, including abdominal or urinary tract ultrasonography and other cross-sectional imaging modalities when clinically indicated, were performed to further exclude urological causes of pain.

In patients in whom no urological etiology could be identified despite extended imaging and laboratory evaluation, a multidisciplinary assessment pathway was initiated. Symptoms suggestive of accompanying gastrointestinal or perianal pathology were re-evaluated in detail, and patients reporting such symptoms were referred to the Department of General Surgery for further assessment. Patients with findings indicative of neurogenic or musculoskeletal involvement, such as low back pain, radicular symptoms, or neuropathic pain characteristics, were evaluated by the Neurology and Neurosurgery departments. The results of all multidisciplinary consultations were incorporated into the final etiological classification.

Approval for this retrospective study was obtained from the Aksaray University Health Sciences Scientific Research Ethics Committee (approval number: 2025-144, date: 13.11.2025). The results were analyzed using descriptive statistics.

Results

In this study, data from 246 patients who presented to our clinic with CSP between January 2023 and June 2025 were evaluated retrospectively. Forty-five patients with insufficient file and/or follow-up data, 43 with acute prostatitis or epididymitis, 20 evaluated for acute scrotal pain due to trauma, and 11 with detected testicular malignancy were excluded from the study. Consequently, a total of 127 patients were included in the study.

The mean age of the patients included in the study was 35 years (range, 18-66 years). The mean duration of pain was 6.6 months (3-18 months). When pain localization was evaluated, pain was unilateral in 40 patients (31.5%) and bilateral in 87 (68.5%).

When the etiological distribution was examined, infectious causes among the most frequent. A diagnosis of chronic epididymitis and chronic prostatitis was made in 25 patients (19.68%). Following medical treatment, including long-term antibiotic therapy combined with anti-inflammatory agents, complete resolution of pain was achieved in 10 patients, and significant reduction in pain was achieved in 15 patients (Table 1).

Among vascular causes, varicocele was detected in 27 patients (21.26%). Varicocelectomy was performed in 20 of these patients (74%); pain was eliminated in 12 (60%) and decreased in 8 (40%). Calcium dobesilate (2×1) was initiated in 7 patients

(26%) who preferred medical treatment; all reported a significant reduction in pain (Table 1).

CSP developing after surgery was observed in 18 patients (14.17%) who had undergone varicocelectomy or inguinal hernia repair. 12 patients (9.45%) had undergone inguinal hernia repair, and 6 (4.72%) had undergone varicocelectomy. None of the patients had a history of vasectomy. Analgesic and anti-inflammatory treatment was administered to all patients, resulting in pain reduction in all; however, complete pain relief was not achieved (Table 1).

In 57 patients (44.90%) in whom no etiology could be determined following urological evaluation, potential neurogenic, musculoskeletal, and perianal causes were investigated. After the second visit, perianal pathologies (18 anal fissures and 2 anal fistulas) were detected in 20 patients (15.75%) during consultation at the general surgery clinic. Two patients were operated on by the general surgery clinic for anal fistulas, and 10 patients were operated on for anal fissures; their pain completely resolved. Eight anal fissures treated medically showed a reduction in pain in all patients; however, complete pain relief was not achieved.

Neurogenic causes, such as lumbosacral radiculopathy or pudendal nerve irritation, were identified in 7 patients (5.51%) following consultation with the neurology clinic. Two patients underwent surgery and reported complete pain relief. five patients given medical treatment and physical therapy reported regression in pain; however, complete pain relief was not achieved (Table 1).

A total of 30 patients (23.62%) had no identifiable cause for their symptoms after urological and other clinical evaluations. Anti-inflammatory analgesics were prescribed for symptomatic relief. All patients reported that their pain remained unchanged. No patients with persistent pain accepted interventional treatment options, such as nerve blocks or spermatic cord denervation.

Data regarding the etiology, treatment, and outcomes of the patients included in the study are shown in Table 1.

Discussion

CSP is a multifactorial clinical condition. Following a thorough anamnesis and examination, Evaluation must continue with imaging and consultations directed at the source of the pain. Recent large-scale reviews support the heterogeneity of this condition, emphasizing that patients often present with co-occurring genitourinary and musculoskeletal symptoms, underscoring the need for a standardized approach (6).

In a prospective study evaluating post-vasectomy pain syndrome in 488 patients, Leslie et al. (7) reported new-onset scrotal pain in 65 patients (14.7%). In our study, no patients presented with post-vasectomy pain. This is because only two vasectomies were performed in our clinic during the study period, and their follow-up records were not available. a recent national practice survey by Bettencourt et al. (8) found that, although vasectomy reversal is the guideline-recommended treatment for post-vasectomy pain, many urologists prefer microsurgical denervation because of financial barriers or practice patterns. Our lack of post-vasectomy cases prevents a direct comparison

Table 1. Etiology, treatment, and outcomes of patients

Etiology	Number of patients (n)	(%)	Treatment	Results
Infectious causes (chronic epididymitis, chronic prostatitis)	25	19.69%	Medical treatment (n=25)	No pain: 10 Less pain: 15
Vascular causes (varicocele)	27	21.26%	Varicocelectomy (n=20) Medical treatment (n=7)	Surgical: No pain: 12 Less pain: 8 Medical: No pain: 0 Less pain: 7
Post-surgical pain (inguinal hernia repair varicocelectomy, vasectomy)	18	14.17%	Medical treatment (n=18)	No pain: 0 Less pain: 18
Neurogenic/musculoskeletal (lumbosacral radiculopathy, pudendal nerve irritation)	7	5.51%	Lomber surgery (n=2) Medical treatment/physical therapy (n=5)	Lomber surgery: No pain: 2 Medical treatment/physical therapy Less pain: 5
Perianal pathologies (anal fissures, anal fistules)	20	15.75%	Surgery (n=12) Medical treatment (n=8)	Surgery: No pain: 12 Medical treatment Less pain: 8
Idiopathic	30	23.62%	Medical treatment (n=30)	Medical treatment: No improvement in pain

but highlights the variability in patient populations across centers.

In the literature, CSP has been reported at rates of approximately 10% after inguinal hernia repair and 8-15% after varicocelectomy (9,10). In our study, complaints of CSP secondary to surgery occurred in patients with a prior surgical history of varicocele and inguinal hernia repair. The recent study reported that urologists generally perceive conservative management as having a lower success rate than surgery (8). However, in our study analgesic and anti-inflammatory treatment was administered to both patient groups (12 post-inguinal hernia repairs, 6 post-varicocelectomies) without additional surgery; although their symptoms regressed significantly, complete pain relief was not achieved. This suggests that while conservative measures may not offer a complete cure for post-surgical neuropathic pain, they provide a meaningful reduction in symptoms without exposing the patient to the risks of reoperation.

In patients evaluated for infectious etiologies, CSP in prostate, epididymal, and testicular infections has been reported to be 11.5% in the literature (4). In our clinical study, this rate was determined to be 19.6%. The younger age group and limited awareness of sexually transmitted diseases may be reasons. It is crucial to distinguish between a diagnosed infection and empiric treatment. A recent retrospective analysis by Lam et al. (6) found that, although 42% of CSP patients were treated with antibiotics, only 7.6% achieved complete resolution, indicating a high rate of ineffective empiric antibiotic use. In our study, following medical treatment administered to these patients, complete resolution of pain was achieved in 10 patients (40%), and a significant reduction in pain was achieved in 15 patients. Our study focused on targeted therapy for confirmed chronic prostatitis and epididymitis, which may explain our higher success rates than those reported for empirical approaches in the literature. We also believe that younger, more sexually active patients positively influenced the success of our prostatitis treatment.

Classically, the presence of a varicocele can cause testicular pain, and surgical treatment is highly effective in relieving this pain (11). Varicocele was present in 18.1% (23 patients) of patients in our study. Among the 15 patients recommended for operation, pain was eliminated in 60%, while it regressed in 20%. The literature also reports that pain resolved in up to 70% of surgically treated patients (12).

Among neurogenic and musculoskeletal causes, lumbosacral radiculopathies or pudendal nerve irritations can also contribute to CSP via the neuroanatomical connections of the penoscrotal region (13-15). This regional neuroanatomy is one of the most important justifications for a multidisciplinary approach to patient care. Our findings align with Lam et al. (6), who reported that approximately 40% of men presenting with CSP experienced co-occurring low-back pain associated with functional disability, and nearly 66% had hip symptoms. In our study, lumbar and perianal pathologies were detected in 27 patients (21.26%). While a recent survey revealed that "reassurance" is the most frequent first-line strategy among urologists, our results demonstrate that active multidisciplinary intervention yields better outcomes (8). Twelve patients were completely relieved of pain by surgical treatment in the general surgery clinic and 2 by surgical treatment in the neurosurgery clinic; medical treatment was administered to the remaining 13 patients in the relevant clinics. All patients experienced a significant reduction in pain.

The results obtained in our own clinical study show that CSP has a multifactorial etiology, consistent with the literature. Although patients primarily present to urology clinics, an effective multidisciplinary approach is essential because of etiological heterogeneity. Contemporary literature and practice pattern surveys continue to cite idiopathic rates as high as 40-50%. reducing these idiopathic case rates to 23.62%, as observed in our study, is possible with an effective multidisciplinary approach (4). This significant reduction suggests that a subset of "idiopathic" patients in the general population actually suffer from undiagnosed, treatable non-urological pathologies.

Study Limitations

The present study has several limitations. First, its retrospective and single-center design may limit the generalizability of the findings. Although vasectomy is frequently reported in the literature as an important cause of post-surgical CSP, only two vasectomies were performed at our institution during the study period because of cultural and traditional factors. Therefore, the relationship between vasectomy and CSP could not be adequately evaluated. Another limitation is the absence of a standardized pain scoring system, which restricts the objective quantification of pain severity and treatment response. Consequently, outcome assessment was primarily based on patients' subjective reports.

Conclusion

CSP is a multifactorial clinical condition that is difficult to diagnose and treat. Primarily, a systematic investigation into the etiology of the pain is required. That idiopathic cases in our study were lower than in the literature indicates that a multidisciplinary approach involving systematic evaluation and multiple clinical consultations that consider regional neuroanatomy is critical for treatment success.

Ethics

Ethics Committee Approval: Approval for this retrospective study was obtained from the Aksaray University Health Sciences

Scientific Research Ethics Committee (approval number: 2025-144, date: 13.11.2025).

Informed Consent: Retrospective study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: S.G., M.B., Concept: S.G., Design: S.G., Data Collection or Processing: S.G., M.B., Analysis or Interpretation: M.B., Literature Search: S.G., Writing: S.G., M.B.

Conflict of Interest: No conflict of interest was declared by the authors.

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