Poster Session 11: Andrology
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MP 11.1

Evaluating mental health risk and psychiatric care access in 18–40-year-old men with erectile dysfunction in Ottawa, Canada

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Introduction: Mental health conditions (MHCs) are established risk factors for the development of erectile dysfunction (ED), yet it is unclear whether ED patients are accessing MHC care. The objectives of this study were to assess the proportion of men under 40 years old with an MHC diagnosis within five years of their ED diagnosis and characterize their interactions with psychiatric and psychological subspecialists within that timeframe.

Methods: A retrospective review was performed using The Ottawa Hospital's data from June 1, 2019, to June 1, 2025. Male patients aged 18–40 years at the index date of their ED diagnosis were included. MHCs were defined as any DSM-5 diagnosis and related terms. Outcomes included demographics, prevalence of MHCs, and rates of referrals/appointments for psychiatry/psychology services.

Results: Overall, 535 patients were included, with a median age at ED diagnosis of 32.4 years, BMI of 27, 5.35% (n=19) with uncomplicated diabetes, and 0.85% (n=3) with complicated diabetes. Of these, 15.14% (n=81) were diagnosed with an MHC within five years before/after their ED index date. Of those with an MHC, 28.4% (n=23) received a psychiatry referral (14.81% [n=12] before and 13.58% [n=11] after their ED diagnosis). Only 6.17% (n=5) of those with an MHC had a psychiatry appointment, all of which were prior to their ED diagnosis. Psychology referrals were received by 13.58% (n=11) of those with an MHC (8.64% [n=7] before and 4.94% [n=4] after their ED diagnosis). Conversely, 22.22% (n=18) of those with an MHC had a psychology appointment (14.81% [n=12] before and 7.41% [n=6] after their ED diagnosis).

Conclusions: Patients consistently had more interaction with mental health specialists prior to their ED diagnosis, suggesting MHCs may potentially contribute to ED onset. These findings highlight a significant gap in post-diagnosis mental healthcare access, emphasizing the need to integrate psychological and psychiatric support into ED management for young men.

MP 11.2

Caregiver attitudes toward testicular tissue cryopreservation in prepubertal male cancer/hematopoietic stem cell transplant patients: A non-metropolitan Canadian cohort

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Introduction: Patients who undergo cancer treatment or hematopoietic stem cell transplant (HSCT) are at risk of future infertility. Post-pubertal males can sperm bank for fertility preservation (FP). There are no current clinical FP options for pre-pubertal males. In animal models, immature testicular tissue cryopreservation (TTC) has been used to generate sperm used for in vitro fertilization, pregnancies, and live births. Human TTC options exist outside Canada for experimental biobanking, with potential to expand TTC options within Canada. Patients/caregivers at Canadian metropolitan sites have previously demonstrated interest in TTC.[1] To build an equitable national strategy, attitudes of caregivers from less densely populated provinces need to be documented. The aims of this study were to describe attitudes of caregivers of pre-pubertal male cancer/HSCT patients diagnosed in Saskatchewan within the last five years towards TTC, and to determine willingness thresholds for potential consent to TTC.

Methods: At our tertiary pediatric hospital, a questionnaire with demographic information, a rank order list regarding perceived barriers to TTC, and open-ended questions was administered. An additional theoretical threshold-setting exercise was conducted.

Results: Fifty-two caregivers participated (response rate 85.2%; 75% female; age 36.9 years; 75% White; 15.4% Indigenous; all five income quintiles represented). Caregivers endorsed theoretical willingness thresholds for TTC: minimum 26% chance of infertility from underlying treatment; maximum 29% chance of testicular biopsy complications; minimum 18% chance of future FP use; maximum $616 annual storage cost; maximum 7.4 hour driving time. Per questionnaire responses, attitudes were child-focused (procedural risks/benefits) rather than caregiver-focused (travel, logistics, cost).

Conclusions: Caregivers across Saskatchewan demonstrated interest in TTC. These results can inform efforts to expand local/national TTC options for pre-pubertal cancer/HSCT patients.

Funding: Dawson Holt was awarded a Dean's Project Summer Studentship Award from the University of Saskatchewan College of Medicine.

Reference:

1. Gupta AA, Donen RM, Sung L, et al. Testicular biopsy for fertility preservation in prepubertal boys with cancer: Identifying preferences for procedure and reactions to disclosure practices. *J Urol* 2016;196:219-24. https://doi.org/10.1016/j.juro.2016.02.2967

MP 11.3

Determinants for discontinuing intracavernosal injection therapy in men with erectile dysfunction

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Introduction: Intracavernosal injection (ICI) therapy is an effective treatment for erectile dysfunction (ED) in men who have not seen benefit from oral PDE type-5 inhibitors. Despite its efficacy, a considerable portion of patients who are prescribed ICI elect to discontinue therapy or fail to refill their prescription. Our study aimed to elucidate demographic, clinical, and treatment-related factors associated with ICI discontinuation to improve future adherence and patient outcomes.

Methods: A retrospective analysis was conducted on men who initiated ICI therapy at the Manitoba Men's Health Clinic between April 2024 and January 2025. Baseline variables (age, BMI), etiology, duration of ED, type and duration of ICI use, reported adverse events, and subsequent surgical intervention with inflatable penile prosthesis (IPP) were collected. Reasons for discontinuation of ICI were thematically categorized. Descriptive statistics were performed to characterize the above factors.

Results: Of 170 patients, 77 did not refill their ICI prescription (mean age 60.0 years; BMI 30.50 kg/m2). ED etiologies included organic (45.5%), DM (35%), psychogenic (13%), CVD (11.7%), prostate cancer (8%), CKD (3.9%), Peyronie's (3.9%), DLD deficiency (2.6%), and other (6.5%) urologic issues, Some patients presented with multiple etiologies. Mean ED duration was 6.4 years. Mean duration of ICI use for quadmix was 8.6 months, trimix 5.4 months, super quadmix 6.8 months. No adverse events were reported. Thirteen patients (7.64%) elected to undergo IPP. Of 170 patients enrolled, 18 (23.4%) patients discontinued ICI use due to injection aversion/pain, 15 (19.5%) were lost to followup, 14 (18.2%) were dissatisfied with the effectiveness of ICI, seven (9.1%) chose alternative therapy, six (7.8%) had cost

barriers, two (2.6%) had cancer treatment priority, and two (2.6%) did not have a documented reason for discontinuation.
Conclusions: Discontinuation of ICI therapy is influenced by a combination of physical, psychological, and social factors rather than disease severity or demographic characteristics alone. Targeted patient counseling and structured followup may improve long-term adherence to ICI therapy and optimize treatment outcomes.

MP 11.4

Is 2-octyl cyanoacrylate with four interrupted sutures non-inferior to continuous suturing as a wound closure technique in adult male circumcision: A randomized controlled pilot study

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Introduction: This randomized controlled pilot study evaluated the use of 2-octyl cyanoacrylate (2-OCA) combined with four interrupted sutures vs. continuous suturing for wound closure in adult male circumcision. While continuous sutures are the current standard at the Men's Health Clinic Manitoba, 2-OCA has demonstrated superior results in the context of cosmesis, postoperative pain, and operative time, as shown in pediatric populations. The primary objective was to assess cosmetic satisfaction. Secondary outcomes included operative time, postoperative pain, and complications.
Methods: Twenty patients undergoing circumcision were randomly assigned to receive either 2-OCA with four interrupted sutures or continuous suturing for wound closure. Demographics, patient-reported pain, and surgical variables were collected. Postoperative assessment on wound closure, complications, pain, and satisfaction with cosmesis post-circumcision were assessed at followup six and 12 weeks postoperatively.
Results: While both groups reported similarly high cosmetic satisfaction and low pain at six and 12 weeks, the 2-OCA group demonstrated significantly shorter procedure times; however, the study was terminated early due to a higher incidence of wound dehiscence in the 2-OCA group.
Conclusions: Although 2-OCA with sutures may offer comparable cosmetic results and faster procedures, the observed complications do not support its routine use in adult circumcision. Larger, blinded trials are needed to further evaluate the safety of tissue adhesives and address current study limitations, including small sample size, non-blinded design, and reliance on patient-reported outcomes.

MP 11.5

Do testosterone levels vary between internal and external spermatic veins in men with varicocele?

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Introduction: Testosterone production by Leydig cells is regulated by gonadotropins, and venous effluent from the testis provides the most direct biochemical reflection of Leydig cell activity. Testosterone concentrations in the internal spermatic vein (ISV) are substantially higher than in peripheral blood; however, testosterone levels in varicocele-associated veins have not been previously quantified, and the relationship between testosterone in the external spermatic vein (ESV), ISV, and peripheral venous (PV) circulation remains unclear. This study is the first to measure testosterone levels in both varicocele veins (ISV and ESV) and to establish their relationship with PV concentrations in men with left-sided varicocele.
Methods: This prospective observational study included 14 men with clinically palpable left-sided varicocele undergoing microsurgical varicocelectomy (August 2025 to January 2026). During surgery, 2 mL blood samples were obtained under sterile conditions from the ISV, the ESV when present and dilated (>2.5 mm), and a peripheral cubital vein. Serum testosterone was measured using the ARCHITECT second-generation chemiluminescent microparticle immunoassay. In the first six patients, serum testosterone exceeded the assay's upper detection limit, prompting modification of lab protocols to include higher manual dilution for accurate measurement. Quantitative analysis included only patients with fully measurable values at all sites.
Results: Of the 14 patients, six had testosterone concentrations in the ISV and ESV that exceeded the assay's upper limit (3460.8 ng/dl), precluding precise quantification; in all these cases, both spermatic vein levels were comparable to each other but markedly higher than PV levels. In the remaining eight patients, the median [IQR] testosterone concentrations differed significantly across venous compartments: ISV (22 650.75 [7512–63 221.35]), ESV (12 ,441.25 [3978.4–24 179.5]), and PV (270.3 [180.93–344.02]). A Friedman test confirmed a significant overall difference (χ^2=13.0, df=2, p=0.002). Post-hoc Wilcoxon analysis showed PV levels were significantly lower than both ISV and ESV (both p=0.012), while ISV and ESV did not differ significantly (p=0.123).
Conclusions: Testosterone levels in varicocele-affected spermatic veins are substantially higher than those in the PV; however, no significant difference was observed between the ESV and the ISV.

MP 11.6

L-citrulline for erectile dysfunction: A systematic review

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Introduction: Erectile dysfunction (ED) is common, and interest in adjunctive non-pharmacologic therapies continues to grow. L-citrulline is increasingly used both over-the-counter and within post-prostatectomy penile rehabilitation programs due to its role as a precursor to L-arginine and nitric oxide production; however, evidence supporting L-citrulline for ED remains heterogeneous, with substantial variability in study design, dosing, formulations, and outcome measures, underscoring the need for a systematic review.
Methods: A systematic review of the literature (PubMed, EMBASE, LILACS, Web of Science, Cochrane) was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Studies investigating L-citrulline for erectile function were included. Secondary outcomes included fertility and libido.
Results: A total of 462 articles were screened, with 32 studies included. These comprised 16 human clinical studies, 13 preclinical in vivo animal studies, and three in vitro experimental studies. Eleven studies evaluated L-citrulline monotherapy, while the remainder assessed L-citrulline in combination with nutraceutical formulations or as part of penile rehabilitation regimens. Outcomes were heterogeneous and included biochemical parameters (n=12), validated questionnaires (n=9), semen parameters (n=5), intracavernosal pressure/mean arterial pressure ratios (n=4), subjective erectile function (n=1), erections per night (n=1), and penile length or girth (n=1). Overall, 24 studies reported significant improvement in at least one outcome with L-citrulline use.
Conclusions: L-citrulline supplementation is increasingly used as an adjunct to penile rehabilitation and for ED; however, substantial heterogeneity in the literature limits consensus regarding its primary benefit, optimal formulation, and target population. Well-designed studies with standardized dosing and validated outcome measures are needed to clarify the clinical role of L-citrulline in ED.

MP 11.7

When words become flesh: A history of classifying sex and ambiguity in medicine

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Introduction: The terminology used to describe individuals with sex characteristics diverging from binary female/male norms has shifted repeatedly throughout Western medical history. From Greco-Roman mythologies and Galenic theories of bodily balance to Renaissance ideals of anatomical perfection, sex variation has been variously interpreted and classified. This study examined how these terminological shifts not only reflect changing biomedical knowledge and social values, but also consolidate surgical authority, shaping enduring norms of intervention.
Methods: A narrative historical review was conducted using structured searches of PubMed and JSTOR with the terms 'hermaphroditism,' 'intersex,' 'genital ambiguity,' and 'disorders of sex development' (DSD). Classical texts, early surgical treatises, and modern biomedical literature were analyzed thematically to examine changes in terminology and their clinical and ethical implications.
Results: Across historical periods, terminology functioned as a tool of clinical governance rather than neutral description. In Greco-Roman and medieval con-

texts, sex variation was interpreted through mythology, philosophy, and theology, with limited scope for surgical intervention. By the 19th century, advances in anatomy and pathology reframed sex variation as a correctable abnormality, positioning surgeons as authoritative arbiters of "true sex" and normal anatomy. This shift established paradigms of early operative intervention that continue to influence contemporary urological practice. The 2006 international consensus introducing the term DSD sought to standardize and modernize classification; however, the terminology remains contested and continues to shape surgical timing, counseling practices, and approaches to consent.

Conclusions: The evolution of language about sex variation reflects contested intersections of scientific authority, cultural norms, and ethical priorities. For urologists, engaging with this history is essential for critically assessing contemporary clinical pathways. Recognizing the increasing emphasis on patient autonomy, alongside shifting concepts of sex, may support more reflective and ethically responsible decision-making in the care of patients with sex variation.

MP 11.8

Safety of testosterone replacement therapy in critically ill tracheostomized and failed-to-wean patients

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Introduction: Testosterone deficiency is common in chronic critical illness and may impair ventilator weaning and recovery. At our center, select intensive care unit (ICU) patients with failure to wean are initiated on testosterone replacement therapy (TRT), although safety data in this population are limited. This study evaluated mortality, venous thromboembolism (VTE), and myocardial infarction (MI) following TRT in tracheostomized ICU patients and compared observed mortality with APACHE II-predicated mortality using the standardized mortality ratio (SMR).

Methods: A single-center, retrospective cohort (2019–2024) included adults admitted to the ICU who underwent tracheostomy and subsequently received TRT intentionally initiated by the ICU team. Outcomes at 30, 60, and 90 days following TRT initiation were assessed. Expected mortality was derived from APACHE II predicted probabilities, and SMR with 95% Byar confidence intervals (CI) was calculated.

Results: A total of 117 patients were included (65% male; mean age 65 years; mean ICU stay 46 days; mean APACHE II score 20.4). In males, mean total testosterone increased from 3.4±6.9 nmol/L to 12.1±11.4 nmol/L at 30 days (n=21, p<0.001). In females, levels increased from 0.37±0.55 nmol/L (n=12) to 1.69±1.26 nmol/L (n=9, p=0.004). Hematocrit decreased from 0.358±0.091 L/L to 0.313±0.058 L/L at 90 days (ΔHCT=-0.046±0.097, n=117). Mortality rates at 30, 60, and 90 days were 23.9% (95% CI 17.1–32.4), 29.1% (21.6–37.8), and 30.8% (23.1–39.6), respectively. VTE occurred in 12.8% (95% CI 7.9–20.1) at 30/60 days and 13.7% (8.6–21.1) at 90 days, while MI occurred in 4.3% (1.8–9.6) across all timepoints. Observed vs. expected 90-day deaths (36 vs. 39.4) yielded an SMR of 0.91 (95% CI 0.68–1.24), indicating no excess mortality.

Conclusions: In tracheostomized, critically ill ICU patients, TRT was not associated with increased mortality, VTE, or MI within 90 days. Mortality aligned with APACHE-predicted risk (SMR ≈ 1), and hematocrit did not increase. VTE and MI rates were comparable to published ICU benchmarks (~10% and ~24%, respectively). These findings support the short-term safety of TRT in this population and justify further investigation of its role in recovery and ventilator weaning.

MP 11.9

Disproportionate reporting of male fertility related adverse events associated with transplant immunosuppressive agents

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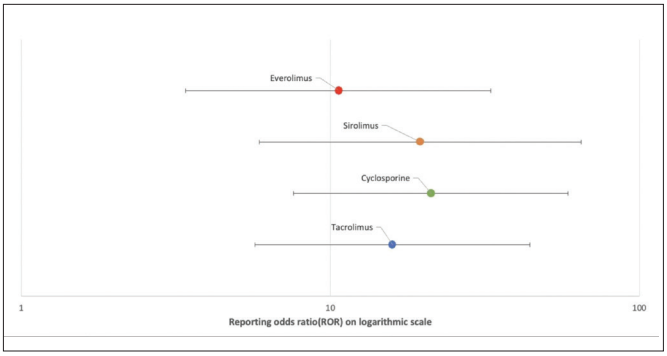
Introduction: Male fertility outcomes are infrequently evaluated in transplant recipients despite prolonged exposure to immunosuppressive therapy during reproductive years. Experimental data suggest that calcineurin inhibition and mammalian target of rapamycin pathway inhibition may impair spermatogenesis and testicular function. We conducted a pharmacovigilance study to evaluate fertility-related adverse event reporting associated with commonly used transplant immunosuppressive agents.

Methods: The U.S. Food and Drug Administration Adverse Event Reporting System was queried from January 2004 through September 2024. Reports listing tacrolimus, cyclosporine, sirolimus, or everolimus as the primary suspect drug were included. A composite male fertility endpoint was defined a priori and included male infertility, azoospermia, oligospermia, asthenospermia, teratospermia, testicular disorder, and testicular atrophy. Erectile dysfunction was excluded from the primary composite. Disproportionality was assessed using reporting odds ratios (RORs) with 95% confidence intervals and Bayesian information components (IC), with IC025 greater than zero indicating a statistically robust signal.

Results: A total of 292 096 reports were analyzed. All immunosuppressive agents demonstrated statistically significant disproportionate reporting for the composite fertility endpoint. The strongest signal was observed with sirolimus (IC 5.26, IC025 1.18, ROR 19.5, 95% CI 5.9–64.9), followed by everolimus (IC 3.11, IC025 0.66, ROR 10.7, 95% CI 3.4–33.1). Calcineurin inhibitors also demonstrated robust signals, including cyclosporine (IC 2.51, IC025 0.85, ROR 21.2, 95% CI 7.6–58.7) and tacrolimus (IC 2.19, IC025 0.63, ROR 15.9, 95% CI 5.7–44.2) (Figure 1). No individual fertility-related preferred term met signal thresholds independently. Composite results are summarized in Table 1, with individual preferred term analyses provided in Table 2.

Conclusions: Transplant immunosuppressive agents demonstrate consistent disproportionate reporting of male fertility related adverse events, with the strongest signals observed among mammalian target of rapamycin inhibitors. These findings highlight a previously under-recognized impact of immunosuppression on male reproductive health and support the need for fertility counseling and prospective evaluation in transplant recipients.



MP 11.9. Figure 1. Reporting odds ratio (ROR) on logarithmic scale.

MP 11.9. Table 1. Disproportionality signals for composite male infertility outcomes associated with immunosuppressive agents compared with acetaminophen

Outcome	Tacrolimus (n=124 650)			Cyclosporine (n=99 856)			Sirolimus (n=18 040)			Everolimus (n=49 550)		
	ROR	95% CI	IC025	ROR	95% CI	IC025	ROR	95% CI	IC025	ROR	95% CI	IC025
Male infertility (composite)	15.9005	5.718–44.21	0.633	21.1743	7.635– 58.72	0.848	19.5335	5.881–64.88	1.183	10.6654	3.4396– 33.070	0.66

MP 11.9. Table 2. Expected counts and information component (IC) for composite male infertility outcomes

Outcome	Tacrolimus (n=124 650)		Cyclosporine (n=99 856)		Sirolimus (n=18 040)		Everolimus (n=49 550)	
	Expected	IC	Expected	IC	Expected	IC	Expected	IC
Male infertility (composite)	20.308	2.187	18.815	2.511	1.115	5.263	3.513	3.115

MP 11.10

Novel oral testosterone undecanoate safely and effectively achieves ≥26 nmol/l mean testosterone levels in hypogonadal men

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Introduction: An estimated 1/4 men in Canada aged 40–62 years have hypogonadism, defined as serum testosterone (T) levels <10.4 nmol/L with symptoms of T deficiency. Negative effects associated with hypogonadism include development of metabolic syndrome, increased risk of coronary artery disease, decreased libido, low bone mineral density, and muscle loss. Oral testosterone therapies provide a route of administration that may be more appropriate for some patients' needs. We present secondary analyses of T data from the phase 3 inTUne study of oral titratable testosterone undecanoate (TU, JATENZO®), which was Health Canada approved in December 2025 and available in 158, 198, 237, 316, and 396 mg doses, with the goal of demonstrating that oral TU doses safely and effectively achieve and maintain normal mean serum T concentration in patients throughout the study. This novel oral TU employs a unique lipid-based, self-emulsifying drug-delivery system (SEDDS), which enables avoidance of first-pass hepatic metabolism and facilitates absorption through the intestinal lymphatic system.

Methods: A phase 3, randomized, active-controlled, open-label study was conducted to assess the safety and efficacy of oral TU in 166 hypogonadal men. The initial oral TU dose was 237 mg TU twice a day (BID). Titration opportunities were on days 35 and 70 based on the 24-hour average T concentration on days 21 and 56. Four hours post-dose, T measurements were taken before and after each titration adjustment (days 21, 56, and 105, respectively).

Results: A total of 155 patients had serum T data on all study days. Mean serum T at baseline was 9.0 nmol/L. Patients achieved four-hour post-dose mean serum T concentrations of 21.4, 24.7, and 26.8 nmol/L by say 21, 56, and 105, respectively. By day 105, 40%, 32%, and 26% were on a dose of 396 mg, 316 mg, and 237 mg, respectively, to achieve target T levels. With the starting dose of 237 mg, 92% of men achieved mean serum T >10.4 nmol/Lon day 21; with two titration opportunities, 99% of men achieved mean serum T >10.4 nmol/L.

Conclusions: This study demonstrated that this novel oral TU safely and effectively increased T levels in hypogonadal men, with patients achieving mean serum T concentrations above 26 nmol/L by day 105. Of note, there were no clinically significant changes from baseline in liver function tests. The range of titratable doses allowed for flexible treatment adjustments based on individual patient responses, providing an effective oral therapeutic option and filling a crucial unmet need in Canada.

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MP 11.11

Evaluation of chronic orchalgia presentation: A 10-year, prospective clinic perspective

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Introduction: Chronic scrotal pain (CSP) accounts for approximately 2.5–5.0% of ambulatory urology consultations. Despite its clinical prevalence, CSP remains inadequately characterized, with limited understanding of its etiologies, pathophysiology, and effects on patient quality of life. This study describes the largest Canadian clinical cohort of patients with CSP referred for tertiary-level assessment.

Methods: We conducted a retrospective analysis of a prospectively maintained database of men evaluated at the Multidisciplinary Orchialgia Clinic (MOC) at Mount Sinai Hospital, Toronto, from January 2016 onward. COVID-19 impacted recruitment from 2020–2025. The clinic comprises urologists, neurologists, and allied health professionals specializing in chronic pain. At initial consultation, patients completed a standardized CSP questionnaire capturing demographic data, pain characteristics, prior medical and surgical interventions, and quality-of-life outcomes. Quality of life was assessed using validated instruments — the quantitative Androgen Deficiency in the Aging Male (qADAM) questionnaire and the Sexual Health Inventory for Men (SHIM) — as well as non-validated items addressing functional impact on daily activities. Research ethics board approval was obtained. Descriptive statistics are reported as means with standard deviations.

Results: In total, 1494 new appointments occurred, with a total of 357 men completing the intake consultation questionnaire between January 2016 and December 2025. The mean age was 39.3 years (range 31.5–49), with a mean symptom duration of 4.82 years (range 1–6) prior to index consultation. Frequently reported pain-related comorbidities included chronic gastrointestinal pain (16.0%), headaches or migraines (12.9%), and fibromyalgia (2.0%). Mean baseline pain severity was 5.1 (range 3–7), with severe pain flares averaging 6.84 (range 6–8) and comprising 32.8% of pain episodes. A precipitating event was identified in 20.2% of cases, most commonly trauma (7.6%), prior vasectomy (7.0%), infection (3.4%), and hernia (2.2%). Prior to referral, commonly attempted treatments included over-the-counter analgesics (52.4%), anti-inflammatory medications (44.5%), antibiotics (38.1%), neuropathic agents (21.8%), prescription analgesics (13.2%), and antidepressants (10.6%). CSP was reported to have a moderate to severe impact on daily activities in 54.7% of patients, with significant impairment in work ability (40.0%) and sexual function (56.6%). The mean SHIM score was 17.1 (range 13.3–23.0), and the mean qADAM score was 3.3 (range 0–5).

Conclusions: CSP is associated with heterogeneous precipitating factors, frequent comorbid pain conditions, and substantial delays between symptom onset and tertiary referral. Quality-of-life assessments demonstrate impaired sexual function and reduced androgen-related well-being, highlighting the significant and multifaceted burden of CSP. Further research is required to identify barriers to timely tertiary care access, optimize referral pathways, and refine evidence-based management strategies.

MP 11.12

Testicular sperm aspiration or microdissection-testicular sperm extraction for men with intermittent azoospermia: A single-center, Canadian, retrospective cohort study

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Introduction: Assisted reproductive technology has greatly evolved, with approaches like in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) becoming pioneering approaches for successful pregnancy in infertile couples. While the use of ejaculate sperm has shown positive outcomes for some infertile men, it is less favorable for men with oligozoospermia. Thus, direct testicular sperm retrieval (TSR) procedures have been developed, such as testicular sperm aspiration (TESA) and microdissection-testicular sperm extraction (micro-TESE), demonstrating encouraging sperm retrieval rates (SRR) and subsequent remarkable pregnancy outcomes in men with oligozoospermia. Nevertheless, the optimal sperm retrieval technique for men with intermittent azoospermia (IA), a severe form of oligozoospermia defined by alternating presence and absence of spermatozoa in sequential semen analyses, remains unclear. We aimed to compare sperm retrieval outcomes by TESA and micro-TESE in cryptozoospermic and oligozoospermic men with IA to assess the efficacy of these procedures.

Methods: Charts from 49 consecutive TSRs in men with cryptozoospermic IA (n=28) and oligozoospermic IA (n=21) were reviewed. All patients underwent

either TESA or micro-TESE performed by a single urologist. The choice of TSR was made following a thorough discussion with the couple regarding the pros and cons of each procedure. Final assessment of sperm recovery was reported either as successful or unsuccessful based on sperm availability.

Results: In our combined cohort of IA men, we found no significant differences in age, hormone levels, or sperm motility between men undergoing TESA or micro-TESE. We found a significantly lower sperm concentration (0.085±0.33 vs. 0.16±0.20, p=0.0044) in the combined cohort undergoing micro-TESE, as well as a significantly improved SRR (95% vs. 70%, p=0.048) (Table 1). Subgroup analysis demonstrated that in men with oligozoospermia, there were no significant differences between the two retrieval techniques in hormone levels, semen concentration or motility, nor in SRR (100% vs. 78%, p>0.05) (Table 2). Overall, we found no significant difference in the SRR of micro-TESE between cryptozoospermic and oligozoospermic men with IA (93% vs. 100%, p>0.05) (Table 3).

Conclusions: Overall, our data demonstrates that micro-TESE offers higher SRR than TESA in men with IA, representing the first comparison of TSR in this subtype of severe oligozoospermia. Thus, patients with IA should be counseled on the success rates of these two techniques to inform their decisions. Future studies are needed to further assess success rates in men with cryptozoospermic IA.

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MP 11.12. Table 1. Clinical characteristics of men undergoing TESA (n=10) and micro-TESE (n=40) for cryptozoospermia or oligozoospermia

	TESA	Micro-TESE	p
Sample size (n)	10	40	
Mean (±SD) male age (years)	33.00±5.16	35.28±6.30	NS[a]
Mean (±SD) serum FSH level (IU/L)	14.07±7.86	15.78±10.26	NS[b]
Mean (±SD) serum testosterone level (IU/L)	15.78±4.79	12.85±4.99	NS[a]
Mean (±SD) right testicular volume (ml)	15.20±4.02	11.75±4.95	0.047[a]
Mean (±SD) left testicular volume (ml)	12.60±3.57	11.65±4.55	NS[a]
Mean (±SD) semen volume (ml)	2.84±1.28	3.14±1.63	NS[a]
Mean (±SD) sperm concentration (x106/mL)	0.16±0.20	0.085±0.33	0.0044[b]
Mean (±SD) total motility (%)	8.14±14.15	0.94±2.96	NS[b]
Successful sperm retrievals	70% (7/10)	95% (38/40)	0.048[c]

[a]Student t-test. [b]Mann-Whitney U-test. [c]Fisher's exact test.

MP 11.12. Table 2. Clinical characteristics of men undergoing TESA (n=9) and micro-TESE (n=12) for oligozoospermia

	TESA	Micro-TESE	p
Sample size (n)	9	12	
Mean (±SD) male age (years)	32.44±5.15	33.33±4.96	NS[a]
Mean (±SD) serum FSH level (IU/L)	13.20±7.93	13.58±10.01	NS[a]
Mean (±SD) serum testosterone level (IU/L)	16.00±5.07	14.64 ±5.13	NS[a]
Mean (±SD) right testicular volume (mL)	15.78±3.80	12.50±6.84	NS[a]
Mean (±SD) left testicular volume (mL)	12.67±3.77	13.00±5.54	NS[b]
Mean (±SD) semen volume (mL)	3.10±1.13	2.89±1.69	NS[a]
Mean (±SD) sperm concentration (x106/mL)	0.18±0.20	0.07±0.14	NS[b]
Mean (±SD) total motility (%)	4.00±9.80	2.72±4.67	NS[b]
Successful sperm retrievals	78% (7/9)	100% (12/12)	NS[c]

[a]Student t-test. [b]Mann-Whitney U-test. [c]Fisher's exact test.

MP 11.12. Table 3. Sperm retrieval rates with TESA and micro-TESE according to sperm concentration in men with cryptozoospermia and oligozoospermia

	Sperm retrieval rates		
Sperm concentration	TESA	Micro-TESE	p
0.00 million/mL	100 % (1/1)	97 % (28/29)	NS
>0.00 million/mL	71% (5/7)	90% (9/10)	NS
<0.1 million/mL	80% (4/5)	93% (28/30)	NS
>0.1 million/mL	67% (2/3)	100% (7/7)	NS
<0.01 million/mL	100% (1/1)	97% (28/29)	NS
>0.01 and <0.1 million/mL	75% (3/4)	66% (2/3)	NS
>0.1 million/mL	67% (2/3)	100% (7/7)	NS

Fisher's exact test used for all comparisons.

MP 11.13

AI-driven, 3D assessment for Peyronie's disease

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Introduction: Peyronie's disease (PD) is a fibrotic disorder of the tunica albuginea causing penile curvature and deformities during erection, with significant functional and psychological impact. Current clinical assessments are variable and often inaccurate. In-office evaluation typically requires induced erections and manual goniometry, whereas digital photography enables at-home assessment but is limited to 2D and cannot capture complex 3D morphology or multiplanar deformities.

Methods: We developed an automated AI pipeline for 3D reconstruction and objective PD curvature assessment from 2D images. A synthetic dataset of penile shaft models was generated with systematic variation in curvature angle, direction, location, and circumcision status. Digital models were rendered and 3D-printed to create multiview image sets. The pipeline preprocesses images, reconstructs a 3D model using the TRELLIS generative framework, and quantifies curvature via the PenoMeter tool.

Results: Reconstruction fidelity was evaluated using geometric and perceptual metrics; curvature estimates were benchmarked against ground truth. Increasing input views improved reconstruction accuracy, with F-score rising from 0.59 (one image) to 0.82 (12 images) for printed models and from 0.83–0.92 for renders. Across all samples, the median and mean absolute differences between predicted and ground truth curvature were 8.64° and 11.4° (95% CI 10.0–12.9). When comparing reconstructed-model assessments to ground truth renders from identical viewpoints, correlation was 0.902, and correlation with original design specifications was 0.86, demonstrating strong agreement and validating end-to-end accuracy from 2D input to curvature estimation.

Conclusions: This pipeline enables objective, automated PD assessment and has potential for treatment monitoring, surgical planning, and at-home evaluation. Strengths include a comprehensive synthetic dataset, integration of state-of-the-art 3D vision, and validation across both renders and 3D-printed mod-

els. Limitations include evaluation under controlled conditions; clinical testing is required.

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MP 11.14

Engineering human induced pluripotent stem cell-derived testis cells to establish an in-vitro functional somatic spermatogenic niche

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Introduction: Pediatric patients undergoing gonadotoxic cancer therapy currently lack clinically established fertility preservation options. Autologous testicular tissue transplantation remains experimental and carries the risk of reintroducing malignant cells, while in-vitro spermatogenesis (IVS) has been limited by poor long-term tissue viability and incomplete maturation of the human spermatogenic niche. Progress in IVS research is further constrained by limited access to human testicular tissue. We evaluated a lab-generated human testis tissue derived from induced pluripotent stem cells (hiPSCs) as a platform to support functional somatic niche maturation in vitro.

Methods: hiPSCs were differentiated into the principal human testicular cell types, including Sertoli cells, Leydig cells, peritubular myoid cells, and spermatogonial stem cells (SSCs). Using a defined and simplified co-culture system, somatic support cells were optimized to establish endocrine and structural niche function. Leydig and myoid cell maturation was assessed by immunocytochemistry for lineage-specific markers (i.e., AR, STAR, ZO1, MYH11, CX43, GDNF) and by testosterone secretion measured using ELISA. Mono-cell 2-dimensional cultures and multi-cell co-cultures incorporating Sertoli cells and SSCs were evaluated for viability, organization, and endocrine support under optimized in-vitro conditions.

Results: hiPSC-derived Leydig and myoid cells demonstrated functional maturation characterized by appropriate marker expression and sustained testosterone production under optimized co-culture conditions using several growth factors (FSH, hCG, T3, T, BDNF, NGF, high EGF, FGF, BMP4, SCF, and Retinoic acid microspheres). Incorporation of Sertoli cells and SSCs into multi-cell co-cultures resulted in stable, viable lab-generated testis tissue with maintained endocrine output and organized somatic support over extended culture (Figure 1).

Conclusions: Lab-generated human testis cells derived entirely from hiPSCs addresses critical limitations in access to human testicular tissue and enables formation of a functional somatic spermatogenic niche in vitro. Future work will integrate in silico AI-derived therapeutic targets to further promote cellular maturation and differentiation.

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MP 11.15

Tolerability and clinical outcomes of penile plication using inhaled methoxyflurane (Penthrox®): A retrospective cohort study

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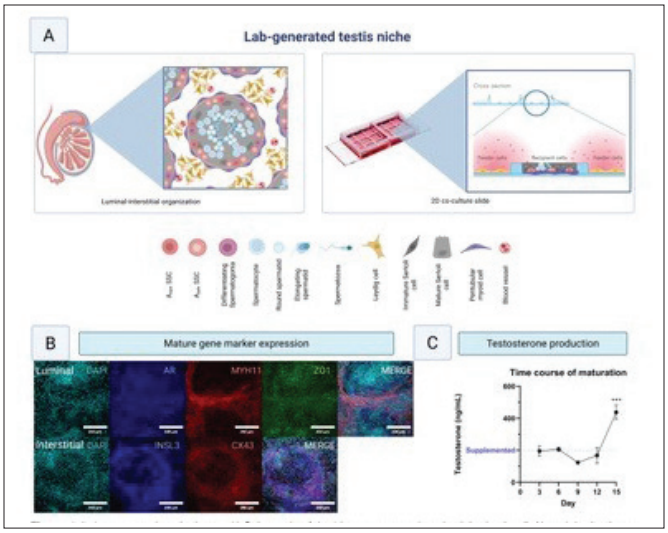
Introduction: Penile plication is commonly performed with general or spinal anesthesia. Previously, our group compared deep intravenous sedation (DIS) with nursing-administered conscious sedation (NACS) plus local anesthesia (LA) and found that patients tolerated NACS, with no difference in perioperative pain scores or recurrence of curvature on followup. The use of inhaled, self-administered analgesics such as methoxyflurane (Penthrox®) as an adjunct to local anesthesia represents a potential alternative to NACS in the ambulatory setting. This approach offers advantages, including convenience, negligible risk of airway compromise, and shorter recovery times, thereby reducing overall patient turnover time. Additional benefits include lack of requirement for intravenous access and reduced nursing support during the procedure. In this study, we evaluated the tolerability of penile plication performed with Penthrox® as an adjunct to local anesthesia.



MP 11.14. Figure 1. Lab-generated testis tissue. (A) Schematic of the bicompartmental testis niche in-vivo (left) and the in-vitro bicompartmental testis niche (right). (B) Mature somatic cell gene expression after 15 days of co-culture under maturation conditions. AR and ZO1 are Sertoli cell markers indicating testosterone sensitivity and tight junction functionality, while MYH11 is a smooth muscle protein in mature periubular myoid cells, and INSL3 and CX43 are hormone and connexin proteins associated with mature Leydig cell function. (C) Testosterone ELISA shows that mature Leydig endocrine function begins between days 12–15 in the co-culture system.

Methods: We retrospectively evaluated tolerability in patients undergoing penile plication before and after a practice change from NACS with local anesthesia to inhaled methoxyflurane with local anesthesia. NACS consisted of intravenous midazolam and fentanyl. Local anesthesia was identical in both cohorts and comprised a 1:1 mixture of 1% lidocaine and 0.25% bupivacaine (marcaine). Dorsal penile nerve block, penile ring block, and pudendal nerve block were performed for all procedures. In the methoxyflurane cohort, a single vial of inhaled methoxyflurane was administered, and patients were instructed on self-administration prior to the procedure. Baseline characteristics, intraoperative complications, safety outcomes, and recurrent curvature at three-month followup were collected and analyzed.

Results: A total of 75 patients underwent penile plication during the study period (September 2022 to September 2025), including 60 patients who received NACS and 15 who received inhaled methoxyflurane. The median preoperative curvature in the NACS group was 45° (IQR 45–75), while the median curvature in the methoxyflurane group was 52.5° (IQR 30–53.5). All patients in both cohorts reported tolerating the procedure. One patient in the methoxyflurane group sought postoperative assessment from their family physician for pain management. There were no urgent care or emergency department visits in either cohort. At followup, all patients in both groups reported functionally satisfactory curvature correction.

Conclusions: These findings demonstrate the feasibility and clinical utility of self-administered inhaled methoxyflurane as an alternative to NACS or deep intravenous sedation (DIS) for penile plication in the ambulatory surgical setting. This approach may offer advantages in patient recovery while also contributing to reduced operating room turnover times and improved surgical access.