Moderated Posters 6: ED, Peyronie's Disease, Infertility
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MP-06.01
Antinuclear Antibody Titres Are Not Significantly Altered in Peyronie's Disease

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Introduction and Objectives: Peyronie's disease is a fibrotic, multifocal structural degeneration of the penile tunica albuginea, and is one of the most common causes of pathological penile bending acquired chordee. Fibrosis is a prominent feature in PyD and is characterized by a process of replacement of normal tissue by mesenchymal cells and the extracellular matrix produced by these cells. The excessive deposition of collagen gives rise to a plaque, which is initially fibrotic, and then, over time, can become calcific. The aim of this study was to evaluate any relationship between the antinuclear antibody and PyD.

Methods: We recruited 100 consecutive patients diagnosed with PyD by clinical and ultrasound examinations (group A). Another 30 healthy individuals who had no curvature of the penis, congenital or acquired, and who offered no history of trauma, served as the control group (group B). Basic laboratory investigations were obtained. Antinuclear antibody titres (ANA) together with serum total testosterone (TT), free testosterone (FT), and sex hormone binding globulin (SHBG) were all obtained.

Results: Demographic parameters were comparable in both groups. Serum TT and FT were significantly lower in group A than group B. No similar findings were obtained regarding SHBG. The normal titer of ANA is 1:40 or less. Higher titers are indicative of an autoimmune disease. ANA antibody may positive in 5% of individuals. Only 8 (8%) and 3 (10%) patients had positive ANA positive titres in groups A and B, respectively. All 11 patients expressed a speckled pattern in their positive ANA titres.

Conclusions: We have not found any significant association of the ANA titres in patients with PyD. Low testosterone blood levels may be associated with PyD.

MP-06.02
A Novel Rat Model for Peyronie's Disease That Demonstrates Durability and Functional Detriments

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Introduction and Objectives: Peyronie's Disease (PD) is a benign disease of localized fibrous plaque formation affecting approximately 5% of the male population with a significant impact on sexual health. The development of suitable animal models for PD has met with difficulty including spontaneous resolution of the plaque, no demonstrable deficit in penile pressures and no gross deviation. A durable and practical animal model for further study does not exist and we present our novel animal model.

Methods: Our model used intratunical tetradecyl sulphate (TS), a sclerosing agent, with transforming growth factor beta-1 (TGFb1), compared to the accepted model of TGFb1 intratunical injections. 14 male Sprague-dawley rats were injected with TS, TGFb1 or both (9, 3 and 2 respectively) and repeated 1 week later. Rats were then sacrificed at 1, 3 and 6 weeks in the TS group, 6 weeks in the TGFb1, and 9 weeks in the combined group. Functional and histological analysis was performed in all groups.

Results: Histological plaques were identified in all groups. The combined group demonstrated gross curvature and palpable scar at 9 weeks. Gross curvature and palpable plaque was noted at 3 and 6 weeks in the TS alone group. The TGF-b1 group did not demonstrate detriments in penile pressures or gross curvature. Functional detriments were seen in the TS alone and combined groups, trending towards worse maximal penile pressures detriments in the combined group.

Conclusions: Combination TS with TGFb1 appears to be a superior model for severe PD in the rat as we observed gross deviations and deleterious effects on penile pressures which have not been previously reported. Previous animal models spontaneously resolved by 9 weeks whereas our model has demonstrated durability up to 9 weeks. We present an animal model of severe PD which better emulates the human condition as compared to previous animal models.

MP-06.03
Efficacy and Histologic Changes of Repeated Saline or Intralesional Verapamil Injections and Traction Therapy in an Animal Model of Peyronie's Disease

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Introduction and Objectives: Peyronie's disease (PD) is a benign disease of localized fibrous plaque formation affecting approximately 5% of the male population with an impact on sexual health. Intralesional verapamil has demonstrated clinical benefits, but the histological effects of treatment have not been investigated. Further, traction therapy has been proposed in the literature to provide benefit to PD, and this has not been studied histologically.

Methods: 12 male Sprague-dawley rats were injected with tetradecyl sulphate and transforming growth factor beta-1 with repeat injections 1 week later to induce PD-like plaques. The group was then divided into controls (2), traction (2), intralesional saline (3), and verapamil (5) therapy. Intralesional therapy was performed 3 times per week for 2 weeks at week 4. Traction therapy was applied by placing 2 horizontal mattresses outside the plaque on the tunica at weeks 4 and 6 to apply tension on the plaque. Functional and histologic analysis was performed.

Results: Controls demonstrated gross curvature and palpable scar at 9 weeks with detriments in penile pressures. Saline showed slight improvements in penile pressures over controls, with further improvements with verapamil and traction therapy. Gross curvature improved only in the verapamil group. Subjective plaque softening was seen in all treatment arms. Trichrome stains demonstrate increased disorganized collagen most pronounced in the controls, with improvements in the saline, verapamil and traction arms.

Conclusions: All treatment arms demonstrated histologic and subjective improvements, and a trend towards functional improvements towards the verapamil and traction arms. Gross improvements of curvature were seen only in the verapamil group. This supports the pharmacologic role of calcium channel blockade above and beyond the role of mechanical plaque disruption in plaque remodeling and the role of traction as monotherapy and possibly an adjunct.

MP-06.04

Do Patients Know Their Nerve-sparing Status Following Radical Prostatectomy?

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Introduction and Objectives: Nerve-sparing (NS) techniques during radical prostatectomy (RP) have been shown to improve potency and quality of life. Patients with erectile dysfunction following surgery should therefore take into account whether NS was performed in managing their expectations and satisfaction after surgery. Our aim was to determine patients' knowledge regarding their nerve-sparing status (NSS) and what factors during their clinical treatment were predictive for this.

Methods: 111 consecutive patients attending the Erectile Dysfunction Clinic at Princess Margaret Hospital in Toronto, ON with a prior RP were surveyed from December 2010 to June 2011 prospectively. Patients were questioned whether they had undergone a NS procedure. Complete clinical data, including patient demographics, clinical notes, surgeon, consent for surgery, approach, NSS, pathological stage and grade, salvage radiotherapy, and length of follow-up were collected. Operative reports were used to determine the NSS of each patient.

Results: 45 of 111 (40.5%) patients had no knowledge of their NSS. Factors predictive for a patient having knowledge of their NSS were a younger age at surgery (p=0.0289), NS technique mentioned in preoperative clinic note (p=0.0206), NS included in consent for surgery (p=0.0002), concomitant nerve graft (p=0.0107), and having a NS (unilateral or bilateral) procedure (p=0.0005). 45 of 61 (73.8%) patients correctly identified the type of procedure they had undergone. This included only 18.7% of patients undergoing a non-nerve-sparing procedure, compared to 60.1% with unilateral and 45.2% with bilateral.

Conclusions: Following RP, a significant proportion of patients with erectile dysfunction have no knowledge of whether they underwent a NS procedure. We have identified certain variables that can be optimized in the clinical setting to better inform patients about their surgery and hopefully improve postoperative expectations and quality of life.

MP-06.05

Erectile Function Recovery Following Nerve Sural Grafting in Open Radical Prostatectomy

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Introduction and Objectives: Nerve grafting had been proposed as an alternative technique to confer a greater chance of erectile function (EF) recovery after non-nerve sparing or unilateral nerve sparing RP. We report our experience with interposition of unilateral and bilateral sural nerve graft (SNG), analyzing the success rate and identified the potential independent predictor factors of EF.

Methods: We retrospectively reviewed the records of 66 pts with cT2b -cT3a disease underwent RP with neurovascular bundle wide excision and unilateral or bilateral SNG from 2002 to 2010. Pre-and postoperative IIEF questionnaires were assessed. EF recovery was defined as postoperative IIEF-EF domain score ≥22 Cumulative EF recovery rates were assessed using Kaplan Meier curves. Potential predictors were explored using a Cox regression models.

Results: Clinical characteristics of population are lised in Table 1. Of the 66 patients, 43 (65%) received unilateral SNG and 23(35%) bilateral. The preoperative IIEF-EF was 23.37±1.64 score. Median follow-up was 52 months (22-83). The cumulative EF recovery was 58% 35% 27% at 12, 24, 36 months and no significant differences were reported among groups (p=0.271). The postoperative IIEF-EF score was 12.92±4.94 vs. 14.82±5.27 (p=0.216) in unilatral and bilateral SNG achieved a score domain ≥22 in 12 (27%) patients and 4 (18%) patients respectively, 58% and 65% patients decided to use of PDE-5I and had significantly higher EF recovery vs. patients not received therapy (43% vs. 17% p=0.009) Age at surgery (p=0.006), Hypertension (p=0.027), PDE5-I use (p=0.009) and pre-IIEF-EF (p=0.005) were significant predictors of EF recovery after surgery. Positive surgical margins were reported in 15%.

Table 1. MP-06.05

Characteristics	USNG (n=43)	BSNG (n=23)
Age yr		
≤60	19(44)	15(65)
>60	24(56)	8(5)
Pre PSA ng/ml	7.42±3.94	7.03±3.65
C. Stage		
T2b	38(88)	21(91)
T3a	5(12)	2(9)
Pre-Gleason score		
≤6	14(32)	6(26)
7	20(46)	13(56)
≥8	9(22)	4(18)
Preoperative IIE-EF		
1-10 (Severe)	-	-
11-17 (Moderate)	-	-
18-21 (Mild-Moderate)	8(19)	-
22-25 (Mild)	35(81)	23(100)
≥26 (No ED)	-	

Note: n=number; % percentage; Mean± standard deviation; USNG: unilateral sural nerve graft; BSNG: bilateral sural nerve graft; PSA: prostate-specific antigen; EF: erectile function.

Conclusions: Recognizing the limitations of a non-randomized, retrospective cohort our results concur with the recommendation of careful patient selection according to preoperative characteristics to improve success rates for EF recovery following SNG.

MP-06.06

Resident Training Laboratory, Held in Conjunction with Conference, Meaningfully Impacts Resident Technical Skills and Perceptions for Penile Implant Surgery

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Introduction and Objectives: The three-piece penile prosthesis is considered the gold standard for first or second-line treatment resistant erectile dysfunction or at the patient's preference as treatment for erectile dysfunction. Access to this treatment may be limited by the lack of availability of a prosthetic-urology trained surgeon. The Sexual Medicine Society of North America (SMSNA) provides a hands-on training course as part of the annual SMSNA Fall meeting for residents.

Methods: Twenty-nine residents completing the 2010 course, representing a broad United States geographic distribution, completed the course and a post-course multipart questionnaire. The penile prosthesis component consisted of 24 questions (the majority Likert-scaled 1-10), addressing previous training, course experience and future practice or further needs.

Results: The majority of residents were in the 4th year of residency. Cumulative exposure to 3-piece IPP was 236, 334, and 53 cases as primary surgeon, first assist, and observer respectively. Individually, 8 residents had no primary surgeon exposure, and 15/29 had 5 or less cases as first assist. 7 and 5 residents had experience with 2P and malleable devices. Self-assessed improvements in skills and procedural 'comfort' increased for 23/29 (with 5/6 high volume residents without increase reporting that exposure to new technical aspects will likely be incorporated into their surgical practice). Decision-making and trouble shooting was positively impacted in over 90% of trainees. Post-residency likelihood of penile prosthetic surgery, further prosthetic training, and need for SUPS-like mentorship was also measured.

Conclusions: Data supports that single-day, hands-on training meaningfully impacts resident perception and comfort with IPP procedures, as

well as encouraging further training opportunities. Given the costs and personnel resources involved in these sessions, the measurable impact on trainees supports continued courses.

MP-06.07

Robotic-assisted versus Pure Microsurgical Vasectomy Reversal: Prospective Control Trial

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Introduction and Objectives: Microsurgical vasovasostomy is a technically demanding procedure. Our goal was to compare robotic assisted vasovasostomy (RAVV) and vasoepididymostomy (RAVE) to standard microsurgical vasovasostomy (MVV) and vasoepididymostomy (MVE).

Methods: A prospective control trial of 152 vasectomy reversal cases performed from Aug 2007 to Jan 2012 by a single fellowship trained microsurgeon. The primary end point was operative duration. The secondary endpoint was total motile sperm count at 2, 5, 9 and 12 months postoperatively. Case breakdown was as such: 64 cases bilateral RAVV, 43 cases RAVE on at least one side, 28 cases bilateral MVV, and 17 cases MVE on at least one side. Selection of approach (robotic vs. pure microscopic) was based on patient choice. Preoperative patient characteristics were similar in both groups. The same suture materials and suturing techniques (2 layer 10-0 and 9-0 nylon anastomosis for vasovasostomy; 10-0 nylon double armed longitudinal intussusception technique for vasoepididymostomy) were used in both approaches.

Results: Median clinical follow-up was 17 months (range 1 – 50 months). 96% patency was achieved in the RAVV cases and 80% in MVV (>1 million sperm/high power field). Median operative duration was significantly decreased in RAVV at 90 min (40-180) compared to MVV at 120 min (60-180), p=0.0002. RAVE at 120 min (60-180) was significantly faster than MVE at 161 min (120-240), p=0.0005. Mean postoperative total motile sperm counts were not significantly higher in RAVV/RAVE versus MVV/MVE, but the rate of postoperative sperm count recovery was significantly greater in RAVV/RAVE.

Conclusions: The use of robotic assistance in microsurgery may have potential benefit over MVV and MVE with regards to decreasing operative duration and improving the rate of recovery of postoperative total motile sperm counts. Further evaluation and longer follow-up is needed to assess its clinical potential and the true cost-benefit ratio.

MP-06.08

Cost-effectiveness of Varicocelectomy and Percutaneous Embolization in the Management of Varicocele-associated Infertility

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Introduction and Objectives: Varicoceles are a common cause of male infertility. Several approaches to varicocele correction have been described. The purpose of our study was to compare the cost-effectiveness of non-microsurgical varicocelectomy (NMV), microsurgical varicocelectomy (MV) and percutaneous embolization (PE) in the management of varicocele-associated infertility.

Methods: A Markov decision analysis model was developed to estimate the costs and pregnancy rates associated with each treatment strategy. Recurrences following NMV and MV were re-treated with PE while recurrences following PE could be re-treated with either repeat PE, NMV or MV, resulting in five treatment strategies (Fig. 1). Pregnancy rates and recurrence rates for each procedure were estimated from the literature. Base costs of each procedure were obtained from institutional data and the Ontario Case Costing Initiative. Surgeon and anesthesia fees were derived from the Ontario Health Insurance Plan schedule of benefits. Univariate and probabilistic sensitivity analyses were performed to determine the effects of different parameters on the outcome of our model.

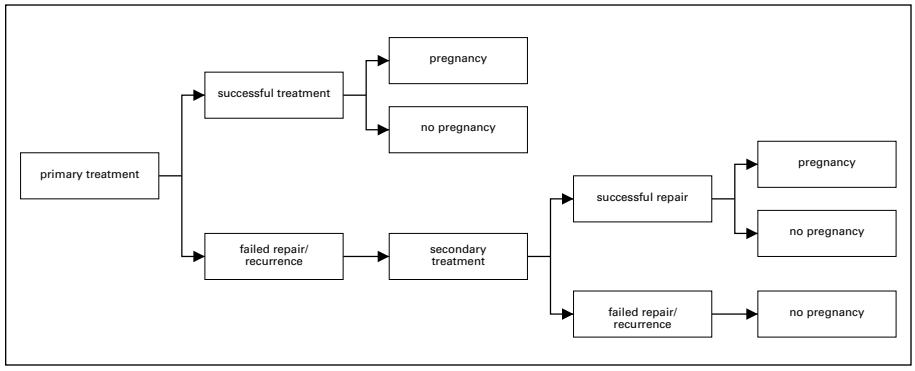

Fig. 1. MP-06.08.

Results: Primary treatment with MV was the most cost-effective strategy at $5402 Canadian dollars (CAD) per single pregnancy. Though primary treatment with NMV was the least costly approach, it yielded the fewest pregnancies. Primary treatment with PE was the least cost-effective strategy, at approximately $7300 CAD per single pregnancy. Probabilistic sensitivity analysis reinforced MV as the most cost-effective strategy at a willingness-to-pay threshold above $4100 CAD per pregnancy.

Conclusions: Microsurgical varicocelectomy is the preferred primary treatment strategy of varicocele-associated infertility, yielding the most pregnancies at an acceptable incremental cost. Primary treatment with percutaneous embolization is the least cost-effective approach and its use should be reserved for surgical failures.

MP-06.09

Use of Clomiphene Citrate for Male Idiopathic Infertility: Interim Analysis of a Prospective Study

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Introduction and Objectives: Clomiphene citrate (CC) is an estrogen receptor blocker used in the infertile male population. The theorized mechanism of action of CC is to augment follicle stimulating hormone (FSH) and luteinizing hormone (LH) which act in the testicle to increase sperm and testosterone production, respectively. The objective of this study is to determine the effect of CC administration on serum gonadotropins, testosterone and estradiol as well as semen parameters.

Methods: This interim analysis of a prospective study included males with idiopathic infertility. Twenty men were started on oral CC supplementation at a dose of 25 mg daily. Baseline serum FSH, LH, testosterone, estradiol, prolactin and semen analysis were analyzed. Repeat serum and semen analysis were collected at approximately 4 and 12 weeks after starting CC administration, respectively.

Results: All 20 men had repeat hormone levels performed, while 16 had repeat semen analysis available. The mean (SD) FSH increased from 4.8 (2.7) to 11.2 (7.9) IU/L (p=0.0003) with mean LH rising from 6.1 (5.3) to 10.1 (7.6) IU/L (p=0.0003). Mean (SD) testosterone levels increased from 10.8 (3.9) to 20.0 (9.7) nmol/L (p=0.00005) while estradiol increased from 106.7 (45.0) to 204.6 (112.2) pmol/L (p=0.002). Mean (SD) total sperm counts increased from 30.6 (33.1) to 58.4 (48.2) x 10^6 sperm (p=0.03). Semen volume, morphology, motility and serum prolactin were not significantly affected. Sperm counts were improved in 14 patients (88%) after CC treatment, and no patients became azoospermic. No apparent deleterious effects of CC were noted during follow-up.

Conclusions: Clomiphene citrate appears to represent a safe and effective method to raise serum testosterone, gonadotropins and sperm counts in males with idiopathic infertility, although estradiol levels were also increased. Longer-term supplementation with CC would therefore require close patient monitoring.