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This newsletter is quarterly and contains abstracts from medical journals published between September and December 2007 (abstracts presented at scientific meetings may also be included). Please direct any comments regarding this newsletter to chris@nva.org.

Vulvodynia / Pain

Multilevel local anesthetic nerve blockade for the treatment of vulvar vestibulitis syndrome.
Rapkin AJ, McDonald JS, Morgan, M
Am J Obstet Gynecol.2007 Oct 11; [Epub ahead of print]

OBJECTIVE: Vulvar vestibulitis syndrome is a major cause of dyspareunia. This pilot study was designed to evaluate a novel treatment approach. STUDY DESIGN: This is a prospective study of 27 women with vulvar vestibulitis. The protocol included 5 treatment sessions with caudal epidural, pudendal nerve block, and vestibular infiltration of local anesthetic agents. RESULTS: There were significant improvements in vestibular pain as determined by the vulvalgesiometer, McGill pain questionnaire, self-report, and the Female Sexual Functioning Inventory. CONCLUSION: Serial multilevel nerve blocks administered for the treatment of vulvar vestibulitis is a conceptually neurophysiologically based modality that may be effective and merits a placebo-controlled study.

Improvement in vulvar vestibulitis with montelukast.
Kamdar N, Fisher L, MacNeill C
J Reprod Med. 2007 Oct;52(10):912-6.

OBJECTIVE: To determine if montelukast treatment improves symptoms in patients with vulvar vestibulitis. STUDY DESIGN: We administered montelukast to a series of patients with vestibulitis seen at the Pennsylvania State University Vulvodynia Clinic over a period of 2.5 years. We reviewed outcomes using a scoring scheme to quantify signs and symptoms, before and after treatment, in 29 montelukast-treated subjects and 18 subjects in a comparison group treated with standard therapies. RESULTS: Subjects treated with montelukast showed an average of 52% in improvement in symptoms as compared to a 15% improvement in the controls ($p < 0.0001$). CONCLUSION: Montelukast is a viable treatment option for women with vulvar vestibulitis. This finding implies that leukotrienes have a role in the pathophysiology of vulvar vestibulitis.

Surgery combined with muscle therapy for dyspareunia from vulvar vestibulitis: an observational study.
Goetsch MF
J Reprod Med.2007 Jul;52(7):597-603.

OBJECTIVE: To explore the dual importance of treating vestibule allodynia and pelvic floor myalgia in correcting dyspareunia associated with severe vulvar vestibulitis. STUDY DESIGN: In this observational study, 111 women were treated by modified superficial vestibulectomy and were evaluated for referral to

physical therapists for pelvic floor myalgia. They were followed with interval repeat examinations. Later cohort assessment was by patient questionnaire surveys. Data from pelvic floor muscle examinations and physical therapy referrals were added by retrospective chart review. Primary outcomes were swab touch sensitivity and dyspareunia. RESULTS: Eighty-five percent of subjects ultimately had nontender vestibule examinations postoperatively. Fewer, numbering 64%, reported resolution of dyspareunia, 24% had less dyspareunia, 9% were no better, and 3% reported they were worse. Fifty percent of those with continued dyspareunia had no remaining vestibulitis, but had tight or tender pelvic muscles. Failure of surgery and physical therapy to correct dyspareunia related significantly to length of symptoms before therapy ($p = 0.02$). Follow-up averaged 3.7 years, with a range of 0.25-14. CONCLUSION: Superficial surgery can correct vulvar vestibulitis, but without treatment for pelvic floor myalgia, women may continue to have dyspareunia. Physical therapy is an important adjunct to achieve comfort.

Novel bioadhesive patch-type system for photodynamic vulvodynia therapy after delivery of 5-aminolevulinic acid: preliminary evaluation.
Zawislak AA, McCarron PA, McCluggage WG, Donnelly RF, Price JH, McClelland HR, Woolfson AD
J Reprod Med.2007 Jul;52(7):645-53.

OBJECTIVE: To assess the applicability of photodynamic therapy (PDT) in the management of vulvodynia whereby a novel, patch-type system, loaded with 5-aminolevulinic acid (ALA), was used to administer PDT to vulvar regions displaying the characteristics of vulvodynia. STUDY DESIGN: Eleven patients underwent PDT using a bioadhesive patch to deliver ALA over 4 hours. A nonlaser light source delivered 100 J cm(-2) to the target area using red light of 630 nm. Fluorescence of protoporphyrin IX was observed under ultraviolet light illumination, with no significant difference found between that produced after the first and second applications of the patch. RESULTS: There was a significant reduction ($p= 0.0077$) in overall symptoms after completion of treatment. No significant alleviation ($p = 0.1088$) in pain during intercourse was observed following treatment. Eight patients experienced a symptomatic response, while 3 exhibited no improvements in symptoms. No adverse reactions or worsening of reported symptoms was reported. CONCLUSION: The results suggest that PDT is of value in the management of vulvodynia, most probably as a viable option to conventional approaches. Further studies involving larger numbers of patients are required to confirm the efficacy of PDT in the management of vulvodynia.

The vulvalgesiometer as a device to measure genital pressure-pain threshold.
Pukall CF, Young RA, Roberts MJ, Sutton KS, Smith KB
Physiol. Meas. 28 (2007) 1543–1550

The construction and application of the vulvalgesiometer are described. This manually-applied device allows for the quantifiable measurement of pressure-pain thresholds in the external female genital region. A set of five vulvalgesiometers exerting pressures from 3 to 950 g was used in two studies. The goal of the first study was to examine the ability of the vulvalgesiometers to discriminate between women with and without provoked vestibulodynia (PVD). In a matched sample of affected and non-affected women, women with PVD exhibited significantly lower vestibular pressure-pain thresholds as compared to control women. As well, approximately half the sample of women with PVD described the sensation elicited at pressure-pain threshold as similar to the pain experienced during sexual intercourse. The goal of the second study was to investigate the inter-rater reliability of the vulvalgesiometers. In this separate sample of women with and without PVD, each participant was tested for pressure-pain threshold by two different investigators at different times. Results demonstrated high levels of inter-rater reliability, indicating that the vulvalgesiometers can be consistently used by different investigators. Further, results indicated significant negative correlations between pressure pain thresholds and pain intensity ratings recorded during the cotton-swab test, suggesting that the lower the threshold, the higher the pain ratings during vestibular palpation. The vulvalgesiometers can be utilized for several purposes, including treatment outcome studies and measuring the degree of PVD severity.

Vulvodynia: new thoughts on a devastating condition.
Gunter J
Obstet Gynecol Surv. 2007 Dec;62(12):812-9.

Vulvodynia affects 3% to 15% of women; many suffer through years of misdiagnosis and for those who receive care cures are uncommon. Little is known about the etiology and a wide range of therapeutic options are available. With treatment approximately 50% of women will report sustained improvement in pain scores of 50% or more, however, reasons for varied response rates are yet unknown. This article will explore 3 factors that may contribute to inconsistent results with therapy; the hypothesis that vulvodynia is a systemic disorder; the idea that failure to address the psychological or emotional aspect or chronic pain may affect outcome; and the concept that chronic vulvar pain, like headache, is not a single condition but is a diverse group of disorders that produce the same symptom. Target Audience: Obstetricians & Gynecologists, Family Physicians Learning Objectives: After completion of this article, the reader should be able to state that vulvodynia is a complex disorder, explain that no one treatment is superior, relate that pathophysiology is important, and recall that psychological aspects of chronic pain must be appreciated.

Provoked vestibulodynia.
Pukall CF, Smith KB, Chamberlain SM
Women's Health. 2007; 3(5):583-92.

Vulvodynia, or chronic vulvar pain, is a common but poorly understood condition. Affected women report negative impacts in terms of sexual functioning, relationship adjustment, psychological well-being and overall quality of life. Although the etiology of vulvodynia is not well understood, it appears as if different levels of pathophysiology are implicated. Accordingly, therapeutic options are targeted at a variety of mechanisms. Unfortunately, few randomized, controlled trials exist, and few combination therapies have been examined; however, the quality and breadth of the treatment literature is improving. Further studies are needed to more fully investigate the mechanisms involved in the development and maintenance of vulvodynia, and more research in the area of treatment outcome is needed.

Vulvar vestibulitis syndrome and estrogen dose of oral contraceptive pills.
Greenstein A, Ben-Aroya Z, Fass O, Militscher I, Roslik Y, Chen J, Abramov L
J Sex Med. 2007 Nov;4(6):1679-83.

Introduction. Vulvar vestibulitis syndrome (VVS) is a diverse, multifactorial phenomenon. Its precise etiology is unknown. Aim. To define the association between oral contraceptive (OC) estrogen dosage and VVS. Methods. Women diagnosed as having VVS participated in the study. Main Outcome Measures. Data on type and usage of oral contraceptive pills (OC) were obtained by a questionnaire, and they were compared for the data on OC usage in the general population. Results. Available commercial data on Israeli women taking OC showed that 51% of them use low-dose estrogen (</=20 microg) OC and 49% use higher-dose estrogen (30-35 microg) OC. Of the 132 women in the study, 86 (65%) used OC: 68 (79%) used low-dose estrogen OC ($P < 0.002$ compared to the general population), while only 18 (21%) used high-dose estrogen OC ($P < 0.002$ compared to the general population). Conclusion. Significantly more patients who are treated in our clinic for VVS use low-dose estrogen than those who use high-dose estrogen OC.

Painful bladder syndrome/interstitial cystitis and vulvodynia: a clinical correlation.
Peters K, Girdler B, Carrico D, Ibrahim I, Diokno A
Int Urogynecol J Pelvic Floor Dysfunct. 2007 Nov 24; [Epub ahead of print]

Vulvodynia affects 25% of women with painful bladder syndrome/interstitial cystitis (PBS/IC). The objective of our study was to clinically evaluate the association of PBS/IC and vulvodynia and possible contributing factors. To our knowledge, this has not been reported. Seventy women with PBS/IC were

evaluated from December 2005 to December 2006 with a comprehensive history and exam. Two groups were formed-those with vulvodynia and those without vulvodynia for comparison. Of the women, 51.4% had vulvodynia and 48.6% did not have vulvodynia using our operative definition. Average levator pain levels were significantly greater in those with vulvodynia. There was no significant difference in the total number of lifetime pelvic surgeries, history of sexually transmitted infections (STIs), vaginitis, or abuse history between groups. The correlation of vulvodynia and PBS/IC may have been underestimated. Research needs to explore the link between precipitating factors, symptoms, and effective treatment options for PBS/IC and vulvodynia.

"If sex hurts, am I still a woman?" The subjective experience of vulvodynia in hetero-sexual women.
Ayling K, Ussher JM
Arch Sex Behav. 2007 Sep 18; [Epub ahead of print]

Vulvodynia has recently been recognized as a significant health problem among women, with a considerable proportion experiencing psychological distress and sexual dysfunction for many years. This study used a material-discursive framework and a qualitative methodology to investigate women's subjective experience of vulvodynia within the context of a hetero-sexual relationship, and their negotiation of coitus, commonly associated with vulvar pain. Seven women, who had experienced vulvodynia between 2 and 10 years, took part in in-depth interviews. Thematic decomposition drawing on a Foucauldian framework for interpretation identified that six of the seven women took up subject positions of "inadequate woman" and "inadequate partner," positioning themselves as failures for experiencing pain during coitus, which they interpreted as affecting their ability to satisfy their partners sexually, resulting in feelings of shame, guilt, and a decreased desire for sexual contact. This was interpreted in relation to dominant discourses of femininity and hetero-sexuality, which conflate a woman's sexuality with her need to be romantically attached to a man, position men as having a driven need for sex, and uphold coitus as the organizing feature of hetero-sex. Only one woman positioned herself as an "adequate woman/partner," associated with having renegotiated the coital imperative and the male sex drive discourse within her relationship. These positions, along with women's agentic attempts to resist them, were discussed in relation to their impact on hetero-sexual women's negotiation of vulvodynia. Implications for future research and vulvodynia treatment regimes are also raised.

Clinical characteristics and psychopathological profile of patients with vulvodynia: an observational and descriptive study.
Tribo MJ, Andion O, Ros S, Gilaberte M, Gallardo F, Toll A, Ferran M, Bulbena A, Pujol RM, Banos JE
Dermatology. 2008;216(1):24-30.

Background: Vulvodynia is a fairly common dermatological symptom that often interferes with the personal, social and working activities of affected women and results in a significant loss of their quality of life. It is a persistent and tedious clinical disorder which is often resistant to conventional treatments. Objectives: The aim of this study is to evaluate the main clinical signs, associated psychopathological disorders and outcome after antidepressant treatment of patients with vulvodynia. Methods: Eighty patients were included. Clinical characteristics and psychopathological profiles were determined by appropriate instruments. The improvement of clinical symptoms after combined antidepressant drug therapy was also evaluated. Results: Pain (70%), burning (63.7%), dyspareunia (57.5%) and stinging (56.2%) were the most commonly reported symptoms. Most patients (56.5%) showed anxiety, and 52.2% of them were reported as having a depression disorder. When evaluated by psychometric tools, 81.4% of patients scored >150 on the Life Event Scale, which means a risk >50% of suffering an illness in the near future, and patients' scores in the Dermatology Life Quality Index showed higher values than the mean of the Spanish validation group. After 6 months of combined treatment with escitalopram (10-20 mg/day), perfenazine (2-4 mg/day) and amytriptiline (10 mg/day), a complete remission of the clinical symptoms was achieved in 41% of patients. In contrast, only 12% of patients who did not follow drug treatment reported a complete resolution of the clinical symptoms. Conclusions: Our results seem to confirm that vulvodynia is associated with psychiatric co-morbidity such as stress and depression. The study highlights

that the psychiatric treatment may be a useful option to improve clinical symptoms. Whether these patients should be evaluated for depression or be referred to a psychiatrist, remains to be investigated.

Vulvovaginal chronic graft-versus-host disease with allogeneic hematopoietic stem cell transplantation.
Stratton P, Turner ML, Childs R, Barrett J, Bishop M, Wayne AS, Pavletic S
Obstet Gynecol. 2007 Nov;110(5):1041-9.

OBJECTIVE: To describe the diagnosis and management of female genital chronic graft-versus-host (GVH) disease, a complication of hematopoietic stem cell transplantation. METHODS: From 1999 to 2006, 33 women with vulvar symptoms or undergoing systematic evaluation for chronic GVH disease were referred 267 (median, range 29-6,117) days after transplantation for gynecologic evaluation. Pertinent histories, laboratory tests, and skin and genital area-directed examinations were performed. Vulvar disease was treated with superpotent topical glucocorticoids and topical estrogen. Sexually active, menopausal women used vaginal dilators, topical glucocorticoids and estrogen, and estrogen vaginal rings for vaginal synechiae. RESULTS: At presentation, most patients complained of vulvar pain during urination and pain that prevented sexual intercourse. Twenty-nine of 33 presenting with vulvovaginal chronic GVH disease had vulvar erythema, with additional signs including vulvar vestibulitis syndrome (n=9), vulvar erosions (n=12), vulvar scarring (n=2), and vaginal scarring (n=6); over time, eight additional patients developed vaginal scarring. Topical glucocorticoids improved vulvar symptoms, and estrogen decreased vulvar mucosal friability. Eleven of 12 patients, who wanted to resume having intercourse, responded to nonsurgical treatment for vaginal synechiae. CONCLUSION: A combination of topical superpotent glucocorticoids and estrogen was effective in the treatment of vulvovaginal chronic GVH disease. In those with vaginal scarring, use of a vaginal dilator and estrogen ring was helpful. Early identification and treatment of vulvovaginal chronic GVH disease ameliorates vulvar pain by healing eroded vulvar mucosa and may prevent the need for surgery for hematocolpos. LEVEL OF EVIDENCE: III.

Neurosurgical treatment of perineal neuralgias.
Robert R, Labat JJ, Riant T, Khalfallah M, Hamel O
Adv Tech Stand Neurosurg. 2007;32:41-59

Perineal pain is the basis of presentation to different specialties. This pain is still rather unknown and leads the different teams to inappropriate treatments which may fail. For more than twenty years, we have seen these patients in a multidisciplinary consultation. Our anatomical works have provided a detailed knowledge of the nervous supply of the perineum which allowed us to propose the description of an entrapment syndrome of the pudendal nerve. Other disturbances of different origins were highlighted helping colleagues to a better analysis of this enigmatic painful syndrome. Cadaveric studies have been done to guide treatments by blocks and surgery if necessary according to well defined criteria. A randomized prospective study validated the surgery. The retrospective study concluded that two thirds of the patients improved after treatment. New anatomical concepts are leading us to enlarge the field of this type of surgery, with the hope of improving the success rate.

Diagnostic criteria for pudendal neuralgia by pudendal nerve entrapment (Nantes criteria).
Labat JJ, Riant T, Robert R, Amarenco G, Lefaucheur JP, Rigaud J
Neurourol Urodyn. 2007 Sep 7; [Epub ahead of print]

AIMS: The diagnosis of pudendal neuralgia by pudendal nerve entrapment syndrome is essentially clinical. There are no pathognomonic criteria, but various clinical features can be suggestive of the diagnosis. We defined criteria that can help to the diagnosis. MATERIALS AND METHODS: A working party has validated a set of simple diagnostic criteria (Nantes criteria). RESULTS: The five essentials diagnostic criteria are: (1) Pain in the anatomical territory of the pudendal nerve. (2) Worsened by sitting. (3) The patient is not woken at night by the pain. (4) No objective sensory loss on clinical examination. (5)

Positive anesthetic pudendal nerve block. Other clinical criteria can provide additional arguments in favor of the diagnosis of pudendal neuralgia. Exclusion criteria are also proposed: purely coccygeal, gluteal, or hypogastric pain, exclusively paroxysmal pain, exclusive pruritus, presence of imaging abnormalities able to explain the symptoms. CONCLUSION: The diagnosis of pudendal neuralgia by pudendal nerve entrapment syndrome is essentially clinical. There are no specific clinical signs or complementary test results of this disease. However, a combination of criteria can be suggestive of the diagnosis.

A prospective, single-blind, randomized crossover trial of sacral vs pudendal nerve stimulation for interstitial cystitis.
Peters KM, Feber KM, Bennett RC
BJU Int. 2007 Oct;100(4):835-9

OBJECTIVE: To compare sacral nerve stimulation (SNS) with pudendal nerve stimulation (PNS) for interstitial cystitis (IC). PATIENTS AND METHODS: Twenty-two patients with well-documented, refractory IC had a tined lead placed at S3 and a second electrode implanted at the pudendal nerve via a posterior approach. In a blinded, randomized design, each lead was tested for 7 days. The best lead was implanted to a pulse generator and patients were followed at 1, 3 and 6 months. RESULTS: The time required to place a sacral lead was 27.4 min, and a pudendal lead 19.6 min (P = 0.039). Of the 22 patients, 17 (77%) responded and had a permanent implant placed. PNS was chosen as the better lead in 77% and SNS in 24%. The order in which the lead was stimulated had no effect on the final lead implanted and there was no 'carry-over' effect. The overall reduction in symptoms was 59% for PNS and 44% for SNS (P = 0.05). At 6 months after implantation, voids improved by 41% (PNS) and 33% (SNS), and mean voided volume increased 95% and 21%, respectively; validated IC questionnaires improved markedly and complications were minimal. CONCLUSIONS: This is the first 'blinded' study of SNS vs PNS for IC. A pudendal lead was implanted successfully in all patients, and most chose PNS as better than SNS; the improvement was sustained over time.

Vulvar Dermatoses

Guidelines for the follow-up of women with vulvar lichen sclerosus in specialist clinics.
Jones RW, Scurry J, Neill S, Maclean AB
Am J Obstet Gynecol. 2007 Sep 29; [Epub ahead of print]

It is recommended that women with vulvar lichen sclerosus be followed in specialist clinics where difficulty exists with symptom control or where there is clinical evidence of localized skin thickening. Follow-up is also recommended for women who have previously been treated for squamous cell carcinoma of the vulva (arising in lichen sclerosus or vulvar intraepithelial neoplasia) or where the pathologist expresses concern and is unable to make a definitive diagnosis of differentiated vulvar intraepithelial neoplasia.

Unique dermatologic aspects of the postmenopausal vulva.
Summers PR, Hunn J
Clin Obstet Gynecol. 2007 Sep;50(3):745-51.

Aging and estrogen deficiency compromise the skin barrier's defense mechanisms, resulting in greater microbial colonization of the skin. Susceptibility to mechanical injury and chemical irritation also increases. Menopause blunts the cell-mediated immune response to microbes and allergens. Healing after an insult is delayed. Skin disorders such as lichen sclerosus or allergic dermatitis may not be clinically obvious. A biopsy interpreted by a dermatopathologist is often helpful. Some conditions require long-term use of topical steroid ointments, and antimicrobial therapy. A compounding pharmacist may be necessary to find a base for the topical cream that does not irritate.

Infectious Disease

Postmenopausal vaginitis.
Nyirjesy P
Curr Infect Dis Rep. 2007 Nov;9(6):480-4.

The importance of vaginitis in postmenopausal women will increase as the US population ages. With the withdrawal of estrogen, the vaginal environment changes dramatically. Along with physical changes, an overall decrease in the normal Lactobacillus-dominant flora and Candida colonization occurs. Trichomoniasis, vulvovaginal candidiasis, and bacterial vaginosis still occur in menopausal women but probably less commonly than in younger women. The effects of exogenous estrogen on these conditions remain unknown. Less common conditions such as desquamative inflammatory vaginitis and lichen sclerosus gain relative importance in this population.

Oral versus intra-vaginal imidazole and triazole anti-fungal treatment of uncomplicated vulvovaginal candidiasis (thrush).
Nurbhai M, Grimshaw J, Watson M, Bond C, Mollison J, Ludbrook A
Cochrane Database Syst Rev. 2007 Oct 17;(4):CD002845

BACKGROUND: Anti-fungals are available for oral and intra-vaginal treatment of uncomplicated vulvovaginal candidiasis (thrush). OBJECTIVES: The primary objective of this review was to assess the relative effectiveness of oral versus intra-vaginal anti-fungals for the treatment of uncomplicated vulvovaginal candidiasis. The secondary objectives of the review were to assess the cost-effectiveness, safety and patient preference of oral versus intra-vaginal anti-fungals. SEARCH STRATEGY: The following sources were searched for the original review: The Cochrane Library (Issue 4, 1999), MEDLINE (January 1985 to May 2000), EMBASE (January 1980 to January 2000) and the Cochrane Sexually Transmitted Disease (STD) Group Specialised Register of Controlled Trials. The manufacturers of anti-fungals available in the UK were contacted. For the update, CENTRAL (January 2000 to August 2006), PUBMED (January 2000 to August 2006), EMBASE (January 2000 to August 2006) and the Cochrane STD Group Specialised Register were searched in August 2006. The reference lists of retrieved articles were reviewed manually. SELECTION CRITERIA: Randomised controlled trials published in any language. Trials had to compare at least one oral anti-fungal with one intra-vaginal anti-fungal. Women (aged 16 years or over) with uncomplicated vulvovaginal candidiasis. The diagnosis of vulvovaginal candidiasis to be made mycologically (i.e. a positive culture and / or microscopy for yeast). Trials were excluded if they solely involved subjects who were HIV positive, immunocompromised, pregnant, breast feeding or diabetic. The primary outcome measure was clinical cure. DATA COLLECTION AND ANALYSIS: Two reviewers screened titles and abstracts of the electronic search results and full text of potentially relevant papers. Independent duplicate abstraction was performed by two reviewers. Disagreements regarding trial inclusion or data abstraction were resolved by discussion between the reviewers. Odds ratios were pooled using the fixed effects models (except for two analyses when random effects models were used because of potentially important heterogeneity). MAIN RESULTS: Two new trials reporting three comparisons were found in the update. Nineteen trials are included in the review, reporting 22 oral versus intra-vaginal anti-fungal comparisons. No statistically significant differences were shown between oral and intra-vaginal anti-fungal treatment for clinical cure at short term (OR 0.94, 95% CI, 0.75 to 1.17) and long term (OR 1.07, 95% CI, 0.82 to 1.41) follow-up. No statistically significant differences for mycological cure were observed between oral and intra-vaginal treatment at short term (OR 1.15, 95% CI, 0.94 to 1.42). There was a statistically significant difference for long term follow-up (OR 1.29, 95% CI, 1.05 to 1.60) in favour of oral treatment, however the clinical significance of this result is uncertain. Two trials each reported one withdrawal from treatment due to an adverse reaction. Treatment preference data were poorly reported. AUTHORS' CONCLUSIONS: No statistically significant differences were observed in clinical cure rates of anti-fungals administered by the oral and intra-vaginal routes for the treatment of uncomplicated vaginal candidiasis. No definitive conclusion can be made regarding the relative safety of oral and intra-vaginal anti-fungals for uncomplicated vaginal candidiasis. The decision to prescribe or recommend the purchase of an anti-fungal for oral or intra-vaginal administration should take into consideration: safety, cost and treatment preference. Unless there is a

previous history of adverse reaction to one route of administration or contraindications, women who are purchasing their own treatment should be given full information about the characteristics and costs of treatment to make their own decision. If health services are paying the treatment cost, decision-makers should consider whether the higher cost of some oral anti-fungals is worth the gain in convenience, if this is the patient's preference.

Methylrosaniline chloride stained vaginal smears for the diagnosis of vulvovaginal candidiasis.
Liu XP, Fan SR
Int J Gynaecol Obstet. 2007 Nov;99(2):83-6. Epub 2007 Sep 29.

OBJECTIVE: To study the sensitivity and specificity of methylrosaniline chloride stained vaginal smears for the diagnosis of vulvovaginal candidiasis (VVC). METHOD: Between September 2005 and February 2006, 214 cases of patients with VVC and 102 cases of controls were investigated at Peking University Shenzhen Hospital. All strains were identified with the API Candida system. RESULTS: The average age of the patients was 29.87 years. The sensitivity and specificity of methylrosaniline chloride stained vaginal smears for the diagnosis of vulvovaginal candidiasis were 88.3% (189/214) and 96.1 (98/102). The sensitivity of the vaginal smears for the diagnosis of recurrent vulvovaginal candidiasis, mild vulvovaginal candidiasis and severe vulvovaginal candidiasis were 85.2% (46/54), 74.7% (71/95) and 99.2% (118/119). CONCLUSION: Methylrosaniline chloride stained vaginal smears for the diagnosis of vulvovaginal candidiasis are reliable and inexpensive.

Symptomatic candidiasis: Using self sampled vaginal smears to establish the presence of Candida, lactobacilli, and Gardnerella vaginalis.
Engberts MK, Boon ME, van Haaften M, Heintz AP
Diagn Cytopathol. 2007 Oct;35(10):635-9.

In a prospective cohort study, 10 symptomatic women with recurrent vulvovaginal candidiasis were taught how to prepare vaginal smears of their own vaginal fluids on days 7, 14, 21, and 28. The 40 smears were stained with the PAS-method and examined by three different cytopathologists for presence of Candida. Thereafter, the smears were restained with Giemsa-stain to determine presence of lactobacilli, Gardnerella vaginalis ("clue cells") and neutrophils. All three cytopathologists unequivocally established Candida blastospores and (pseudo)hyphae in 27 out of the 40 PAS-stained vaginal smears, whereas in the remaining 13 smears Candida was not found. All 10 patients had Candida in their smears during the second half of their menstrual cycle. Self sampled smears prove to be reliable for establishing the presence of Candida in symptomatic patients with candidiasis. Candida is associated with a lactobacillus-predominated vaginal flora, but with the absence of Gardnerella vaginalis. Further studies may be directed towards the interaction between the various members of the vaginal flora. This study should open molecular methodology for determining the possible interactions of lactobacilli and Candida.

Perceived stress in women with recurrent vulvovaginal candidiasis.
Ehrstrom S, Kornfeld D, Rylander E
J Psychosom Obstet Gynaecol. 2007 Sep;28(3):169-76.

OBJECTIVE: Recurrent vulvovaginal candidiasis (RVVC) has become very common. The aim of this study was to evaluate if women with RVVC perceive more signs of chronic stress than healthy control subjects. STUDY DESIGN: Thirty-three women with RVVC and 28 healthy control subjects completed a questionnaire about perceived stress at work and in private life, and a health questionnaire. A comparison of the results was performed with the one-way ANOVA test. RESULTS: More women with RVVC than control subjects reported signs of burnout ($p < 0.001$), emotional symptoms of stress ($p < 0.005$), impaired balance between work and leisure time ($p = 0.01$), bodily symptoms of stress ($p < 0.05$), worrying factors at work ($p < 0.05$), and presented type D-personality ($p < 0.05$). CONCLUSIONS: The results of this pilot study showed higher degree of perceived stress in women with RVVC compared with

healthy controls. These results are in line with our earlier findings of blunted morning rise cortisol and lower mean levels of cortisol in women with RVVC compared with healthy controls.

Anticandidal immunity and vaginitis: novel opportunities for immune intervention.
Cassone A, De Bernardis F, Santoni G
Infect Immun. 2007 Oct;75(10):4675-86. Epub 2007 Jun 11

[No abstract listed.]

Basic Science

Time course of neuroanatomical and functional recovery after bilateral pudendal nerve injury in female rats.
Damaser MS, Samplaski MK, Parikh M, Lin DL, Rao S, Kerns JM
Am J Physiol Renal Physiol. 2007 Nov;293(5):F1614-21. Epub 2007 Aug 29

The pudendal nerve innervates the external urethral sphincter (EUS) and is among the tissues injured during childbirth, which may lead to symptoms of stress urinary incontinence (SUI). To understand the mechanisms of injury and repair, urethral leak-point pressure (LPP) was measured 4 days, 2 wk, or 6 wk after bilateral pudendal nerve crush. Morphometric changes in the distal nerve and EUS were examined by light and electron microscopy. To determine whether recovery resulted from pudendal neuroregeneration, LPP was measured before and after pudendal nerve transection 2 wk after nerve crush. LPP was significantly decreased 4 days after pudendal nerve crush compared with sham-injured animals as well as 2 or 6 wk after nerve crush. LPP was not significantly different 2 or 6 wk after nerve crush compared with sham-injured animals, suggesting that urethral function had returned to normal. Four days after pudendal nerve crush, the EUS branch of the pudendal nerve distal to the injury site showed evidence of nerve degeneration and the EUS appeared disrupted. Two weeks after nerve crush, the distal nerve and EUS both showed evidence of both nerve degeneration and recovery. Two weeks after nerve crush, LPP was significantly decreased after nerve transection. Six weeks after nerve injury, evidence of neuroregeneration was observed in the pudendal nerve and the EUS. This study has demonstrated that functional recovery and neuroregeneration are significant 2 wk after nerve crush, although by anatomical assessment, recovery appears incomplete, suggesting that 2 wk represents an early time point of initial neuroregeneration.

Intra-abdominal laparoscopic pudendal canal decompression - A feasibility study.
Loukas M, Jr RG, Tubbs RS, Wartmann C, Colborn GL
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BACKGROUND: Pudendal canal syndrome (PCS) is induced by the compression or the stretching of the pudendal nerve within Alcock's canal. METHODS: Considering the difficulty and possible complications involved in exposing the pudendal canal and nerve by either transperineal, transgluteal or transischiorectal approaches, an intra-abdominal laparoscopic pudendal canal decompression (ILPCD) was employed. For this technique, 30 male adult human cadavers were examined. RESULTS: Measurements revealed an adequate working space in 16 (80%) of the 20 cadavers, while in four specimens the ischiococcygeus muscle was too large to be mobilized sufficiently. The mean working space was 24 mm with a range of 18 to 31 mm. It was considered that a working space of less than 20 mm would not be sufficient for manipulation of the instruments. With regards to pudendal nerve compression, it was observed that 7 (35%) of the 20 cadavers exhibited anatomic signs of PCS. In five (25%) specimens, the compression was observed between the sacrospinous and sacrotuberous ligaments, while the other two (10%) exhibited a broader compression, by the falciform portion of the sacrotuberous ligament. Under the guidance of a laparoscope, the peritoneum was cut laterally to the

bladder, and fascia pelvis was identified. The latter was split and the internal iliac vein was traced to the opening of the pudendal canal allowing clear visualization of its contents. Subsequently, either the sacrospinous or sacrotuberous ligament was cut. CONCLUSIONS: Considering that none of the surgical procedures currently used are known to completely improve all the symptoms of PCS, ILPCD could theoretically reduce stretching of the pudendal nerve.