

CASE REPORT

Acupuncture as a pain-relieving modality for provoked vestibulodynia

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Abstract

This case report describes the use of acupuncture as an adjunct to physiotherapy treatment for provoked vestibulodynia in a 30-year-old woman. The physiological effects of acupuncture and the relevance of these to the case are discussed. Five sessions of acupuncture were completed with the aim of decreasing the subject's pain and improving her quality of life. The other physiotherapy interventions used included muscle re-education, general relaxation and manual myofascial trigger point release. The National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) and a simple Likert scale rating the amount of trouble associated with the patient's problem were used to measure the effectiveness of the clinical interventions. Improvements in NIH-CPSI scores were observed in all domains.

Keywords: acupuncture, physiotherapy, provoked vestibulodynia, vulval pain, vulvodynia.

Introduction

The present case report documents the treatment of a 30-year-old woman who was referred to a private physiotherapy practice by a gynaecology consultant. This vulval specialist had diagnosed provoked vestibulodynia (PVD). At the time of the referral, no physiotherapy treatment or acupuncture had been received.

Chronic vulval pain is a common condition, and in some populations, it affects 7–16% of women (Harlow *et al.* 2014). The terminology used to describe vulval pain condition is inconsistent. Vulvodynia is a common umbrella term, but this should be reserved for pain without a known cause (Bornstein *et al.* 2016) because it describes a symptom rather than a diagnosis (Prendergast 2015). Provoked vestibulodynia is a chronic, persistent pain syndrome that is characterized by severe pain, burning, stinging, and rawness or irritation of the vulva with touch or attempted vaginal penetration. Pain is particularly acute at the vulval vestibule, and often associated with sexual intercourse (Bergeron *et al.* 1997). Provoked vestibulodynia has a detrimental effect on quality of life and relationships, with fear avoidance behaviour being commonplace (Masheb *et al.* 2002; Desrochers *et al.* 2009).

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Although PVD is the most common subtype of chronic vulval pain (Morin *et al.* 2021), its aetiology is unknown and the condition is given little attention in the literature (Nunns 2000). However, there is now evidence that pelvic floor muscle (PFM) dysfunction (hypertonicity) plays an important role in the pathophysiology of PVD (Reissing *et al.* 2005; Morin *et al.* 2016).

The most effective treatment for PVD is thought to be multidimensional and multidisciplinary. It should include medical management, PFM physiotherapy, psychological support and self-help (Bergeron *et al.* 2010). Small-scale studies have shown physiotherapy to be effective in the treatment of vulval pain (Glazer *et al.* 1995; Bergeron *et al.* 2001; Bergeron *et al.* 2002; Forth *et al.* 2009; Goldfinger *et al.* 2009). Further support was recently provided by a larger-scale randomized controlled trial (Morin *et al.* 2021).

Case report

Initial assessment

At the time of presentation, the subject had suffered from PVD for 3 years. Her vulval pain had begun during a stressful period in her life when she had experienced significant work-related stress, the emotional distress caused by a pregnancy termination and repeated vaginal infections (i.e. *Candida albicans*). On vaginal

examination, the subject was found to have significant PFM hypertonicity, which resulted in a high resting tone, reduced range of movement (ROM) and poor ability to relax the PFMs. This combination of nociceptive and emotional pain, and local inflammation may have provoked the development of the protective hypertonicity observed in her PFMs. Over time, this may have caused chronic shortening of the PFMs and the resultant active myofascial trigger points (MTPs). Significant hypersensitivity and allodynia at the vulval vestibule were noted on examination, suggesting some central sensitization. Full details of the subjective and objective assessments can be seen in Appendix 1 below.

Clinical reasoning supporting the use of acupuncture

Acupuncture is recognized as a safe and effective means of treating chronic pain in general (Hopton & MacPherson 2010), and PVD in particular (Danielsson *et al.* 2001; Curran *et al.* 2010; Herrera 2014; Yang 2015). Needling is central to the traditional Chinese medicine (TCM) approach to health and well-being, and has been used for thousands of years. It is thought that the body has a system of channels (i.e. meridians) and organs through which energy (Qi) and blood flow. Disruptions to and imbalances in this flow of energy are believed to lead to disease and poor health, but can be treated by stimulating particular acupuncture points.

Historically, it has been difficult to align TCM beliefs with the Western biomedical model of health, but in the past 30 years, parallels have been revealed. Developments in the understanding of pain mechanisms, and the influence of acupuncture in modifying these via the pain gate and the release of endogenous opioids have been central to this (Andersson & Lundeberg 1995). Research suggests that many TCM meridians align with the connective tissue planes widely used to treat musculoskeletal problems in Western medicine (Langevin & Yandow 2002). There is now sufficient evidence to conclude that acupuncture has effects at the local tissue level, and both segmentally and supraspinally within the central nervous system (Lundeberg 1999).

Locally, the insertion of an acupuncture needle causes a pro-inflammatory response by increasing blood flow and stimulating an axonal reflex. Chemicals such as histamine, substance P, bradykinins and calcitonin gene-related peptide are released, and propagate the healing response (Cagnie *et al.* 2013). There is a more-significant

increase in blood flow in the muscle and skin where an acupuncture needle is sited if De Qi (a sensation of heaviness and aching around the needle) is achieved (Bradnam 2011). This is thought to be fundamental to the success of any treatment involving acupuncture (Bradnam-Roberts 2010).

Segmentally, placement of needles within relevant dermatomes has a pain-gate effect by blocking synaptic transmission, leading to descending noxious inhibition (Bradnam 2011). Stimulation of A and C nerve fibres also leads to the release of endogenous opioids at the dorsal horn, which reduce the level of perceived pain. Segmental effects are most significant when the needle is located close to the affected body part or within the same dermatome. In acute injuries, it may not be appropriate to needle locally, but the same effect can be obtained by placing needles contralaterally in the same dermatome. The spinal or Bladder meridian points can also be used to treat nociceptive pain in the corresponding spinal segment (Bradnam-Roberts 2010).

Supraspinally, acupuncture causes the release of pain-relieving hormones and neuropeptides (e.g. serotonin, oxytocin and endorphins), which inhibit the dorsal horn and limbic centre. This can lead to enhanced well-being, aid bonding and suppress the memory of pain (through the limbic centre). These effects are especially useful in chronic pain management, particularly with central sensitization, and where a person has altered beliefs and behaviours as a result of his or her pain. Chronic pain sufferers have abnormal adrenaline and cortisol levels, and often report poor sleep (Butler & Moseley 2013). Acupuncture has been shown to stimulate melatonin release, aiding sleep. It may also reduce anxiety and increase relaxation by influencing the sympathetic and parasympathetic nervous systems (Bradnam-Roberts 2010).

Acupuncture can also be used to treat the MTPs often seen in chronic pain conditions directly (Gerwin 2002). Myofascial trigger points are commonly thought to develop as a result of microtrauma caused by poor postural habit and repetitive injury. These may be palpable as a hyperirritable area within a taut band of skeletal muscle, and cause local or referred pain in identified patterns (Simons *et al.* 1999). Microtrauma causes excessive acetylcholine release in the motor endplates of muscles (Gerwin *et al.* 2004). Acupuncture disrupts this by increasing blood flow and applying local stretch to the affected muscle fibres (Rouse 2010). It would not be

appropriate for a novice acupuncturist to attempt MTP release of the PFMs, and this is not believed to be a common physiotherapy practice, although it can be effectively used to release the more superficial pelvic floor (Dommerholt & Adler 2012).

A robust and effective clinical reasoning method is required in order to determine the appropriateness of the use of acupuncture, and the desired treatment effects. A modification of the “layering method” was proposed by Bradnam (2011) for physiotherapists. Layering consists of a systematic, evidence-based approach to clinical decision-making for Western acupuncture. Acupuncture points are selected based on a traditional musculoskeletal diagnosis rather than a TCM one, and target the source of the problem or pain mechanism. The modified layering approach also takes into account the patient’s emotional status, and involves the mind–body relationship via the autonomic, endocrine and immune systems.

The present subject had chronic nociceptive pain that had an element of central sensitization and hypersensitivity. There was also a local inflammatory component to the tissue presentation. She also reported that she was suffering from stress and anxiety, with significant emotional distress as a result of (and possibly a trigger for) her symptoms.

Treatment protocol and physiological reasoning

Full details of the treatment administered are given in Table 1.

A trial of acupuncture was added to the present subject’s initial assessment because she had travelled over 240 km to attend her appointment. During this session, the Liver (LIV) 3 and Large Intestine (LI) 4 acupoints were used bilaterally. Known as the Four Gates, these have strong analgesic effects, and are effective in the treatment of centrally sensitized pain (Bradnam-Roberts 2010). Spleen (SP) 6 was also selected since PVD is believed to be the result of deficiency and stagnation in this meridian (Curran *et al.* 2010). The Spleen meridian crosses the genitals, and SP6 is thought to be a key acupoint for treating gynaecological issues, eliminating stagnation, and tonifying Qi and blood (Hecker *et al.* 2008). After De Qi was achieved, the needles were left *in situ* for 10 min. In addition, and in line with usual practice, the subject was given advice and education about PFM awareness and relaxation, and general relaxation techniques (i.e. the Laura Mitchell Method and the Headspace mindfulness app). She was asked to practise these on

a daily basis. The outcome measures completed at this appointment were the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) and a Likert scale. The NIH-CPSI is commonly employed in clinical practice, and has been validated for use with male patients (Litwin *et al.* 1999). The original questionnaire has been modified for use with female patients (Marszalek *et al.* 2009), and was completed by the subject. In addition, a simple Likert scale was completed in order to rate the amount of bother associated with her problem.

The second treatment took place a week later. The subject reported that she had experienced an increased feeling of well-being after her first session. However, there had been no reduction in her vulval symptoms. She had begun the PFM awareness and relaxation exercise regime, and was using the general relaxation techniques and the Headspace app. For this acupuncture session, LIV3, LI4, SP6 and SP9 were selected and used bilaterally. Spleen 9 was added because it is thought to reduce genital spasm, and this point also eliminates the damp and heat associated with PVD (Hecker *et al.* 2008). The treatment lasted for 25 min, and De Qi was achieved again.

Session 3 was arranged for the following week. Once again, the subject reported an increased sense of well-being and minimal awareness of her symptoms. As per the previous session, LIV3, LI4, SP6 and SP9 were needled for 30 min. Because the subject had described her vulval skin as inflamed and angry, SP10 was added since it has an anti-inflammatory effect (Hecker *et al.* 2008).

The fourth treatment took place 2 weeks later, and mostly repeated the previous session. The subject reported that she was coping much better with work after a period that had been difficult both physically and mentally. The Shenmen auricular acupoint was added bilaterally and stimulated with a poppy seed. This was left *in situ* so that it could be used by the patient herself in order to prolong the effect of the Four Gates. Shenmen is thought to calm the mind, ease pain and have an anti-inflammatory effect, all of which were appropriate treatment aims in this case.

By session 5, the subject’s symptoms had abated enough to attempt manual MTP release of the PFMs. Active MTPs were located bilaterally within the iliococcygeus, ischiococcygeus, pubococcygeus and deep transverse perineal muscles. These were deactivated manually. Subjectively, less pain was associated with these MTPs than at the initial assessment. There was

Table 1. Treatment protocol: (HEP) home exercise programme; (MTPs) myofascial trigger points; (PFMs) pelvic floor muscles; (LIV) Liver; (LI) Large Intestine; (SP) Spleen; (BL) Bladder; (NIH-CPSI) National Institutes of Health Chronic Prostatitis Symptom Index; and (QoL) quality of life

Aims and rationale	Acupuncture points (duration)	Other modalities	Response
<p><i>Session 1</i> Confirm the patient is appropriate and consents to acupuncture use; explain the usual treatment plan, and the relevance of and rationale for the addition of acupuncture; ensure the patient is aware of the importance of the HEP and the benefits of general relaxation</p>	<p>Bilateral LIV3 and LI4 for a strong analgesic effect; bilateral SP6, a key gynaecological point that eliminates stagnation, tonifies Qi and blood (10 min)</p>	<p>Explanation of the findings of the assessment and the anatomy and function of the PFMs; HEP; awareness and relaxation of the PFMs; general relaxation techniques and the relevance of these to the problem</p>	<p>Completion of outcome measures: (NIH-CPSI) pain = 8/23, urinary = 3/10, QoL = 12/12; (Likert scale) bother = 10/10 Consent for acupuncture obtained; De Qi achieved; subject tolerated needles well</p>
<p><i>Session 2</i> Use the Four Gates for a strong analgesic effect (supraspinal for central sensitization); Spleen meridian effects</p>	<p>Bilateral LIV3 and LI4 as above; bilateral SP6; addition of bilateral SP9 to reduce heat and damp, and genital spasm (25 min)</p>	<p>Reiteration of the importance of the HEP, awareness and relaxation of the PFMs, and general relaxation/mindfulness</p>	<p>Consent for acupuncture obtained; De Qi achieved; subject tolerated needles well; increased sense of well-being</p>
<p><i>Session 3</i> Use the Four Gates for a strong analgesic effect (supraspinal for central sensitization); Spleen meridian effects</p>	<p>Bilateral LIV3 and LI4 as above; bilateral SP6 and SP9 as above; addition of SP10 for its anti-inflammatory effect and benefits to the skin (30 min)</p>	<p>Reiteration of the above</p>	<p>Consent for acupuncture obtained; De Qi achieved; subject tolerated needles well; increased sense of well-being</p>
<p><i>Session 4</i> Use the Four Gates for a strong analgesic effect (supraspinal for central sensitization); Spleen meridian effects; Shenmen points to enable a continuation of the supraspinal effect</p>	<p>Bilateral LIV3 and LI4 as above; bilateral SP6 and SP9 as above; SP10 as above (30 min); Shenmen points for home use</p>	<p>Reiteration of importance of the above</p>	<p>Consent for acupuncture obtained; De Qi achieved; subject tolerated needles well; increased sense of well-being</p>
<p><i>Session 5</i> Use Bladder points for a segmental effect to influence the pudendal nerve, and continue with Spleen meridian effects; manual release of the MTPs to begin to lengthen the PFMs and reduce hypertonicity; Shenmen points to enable a continuation of the supraspinal effect</p>	<p>Bilateral BL28 for its segmental effect at S2 (the pudendal nerve), BL20, a key spleen point; SP6 as above (20 min); Shenmen points for home use</p>	<p>Manual bilateral release of the MTPs in the iliococcygeus, ischiococcygeus, pubococcygeus and deep transverse perineal muscles; continue HEP</p>	<p>Consent for acupuncture obtained; De Qi achieved; subject tolerated needles well Outcomes: (NIH-CPSI) pain = 6/23, urinary = 1/10, QoL = 7/12; (Likert scale) bother = 10/10</p>

no burning or pain at the vulval vestibule on entry. Objectively, PFM hypertonicity had reduced, and the function and ROM of these muscles had improved. Bladder (BL) 28 was needled bilaterally because it corresponds segmentally to the S2 nerve root and the pudendal nerve. Bladder 20 was also needled bilaterally because it is a key acupoint in the treatment of disorders such as PVD that are related to the Spleen meridian, and corresponds to the sympathetic innervation of the spleen at T11. Spleen 6 was also employed bilaterally. These needles were left *in situ* for 20 min and De Qi was achieved. The Shenmen auricular points were also replaced.

The outcome measures were repeated at this point.

Outcome measures

The present case study demonstrated that five sessions of acupuncture were an effective adjunct to physiotherapy for PVD. Prior to treatment, the scores for chronic pelvic pain syndrome on the domains of the NIH-CPSI were: 8/23 for pain; 3/10 for urinary symptoms; and 12/12 for quality of life impact (total score = 23/45). Following treatment, these had all decreased to 6/23, 1/10 and 7/12, respectively (total score = 14/45). Lower NIH-CPSI scores indicate fewer symptoms, and there was an overall reduction in the total score of 9. In men with chronic prostatitis, a reduction in the total score of 6 or more is thought to represent a clinically significant treatment response (Propert *et al.* 2006). The Likert scale “bother” rating for the subject remained unchanged (10/10), although she subjectively reported feeling less stressed and wired, sleeping better, having more energy, and an overall increase in her general sense of well-being. She also reported a return of normal vaginal discharge, and the cessation of a dermatological issue that had affected her forehead.

Discussion

Few studies have specifically analysed the effectiveness of acupuncture treatment for PVD (Danielsson *et al.* 2001). Two of the most recently published small-scale studies (Curran *et al.* 2010; Schlaeger *et al.* 2015) are discussed below.

Curran *et al.* (2010) explored the effect sizes and feasibility of acupuncture for PVD. Eight women (mean age = 30 years) were recruited to this pilot study and received 10 acupuncture treatments that were administered by experienced

practitioners. Needle placement was individualized and based on a TCM diagnosis. The aim was to move blood and Qi, and therefore, decrease pain. Curran *et al.* (2010) used self-reported pain measures, a pain catastrophizing scale, a pain vigilance and awareness questionnaire, and the Female Sexual Function Index (FSFI). Records were qualitatively assessed in order to identify themes. Outcome measures were employed before treatment, and after sessions 5 and 10. The researchers used a repeated measures multivariate analysis of variance to analyse the findings, and collected normative data to ensure that the participants represented a clinically significant sample. Statistically significant reductions in helplessness and pain with manual stimulation were demonstrated. Clinically relevant improvements in the participants' ability to have sexual intercourse, increases in their feelings of sexual desire and perceptions of self-help, reductions in pain and an improved sense of well-being were also found. Curran *et al.* (2010) concluded that the results were positive in terms of both the effect sizes and their analysis of the qualitative data. A larger controlled trial was recommended. The small sample size, the lack of stringent inclusion or exclusion criteria, the lack of generalizability or treatment protocol, and the absence of a control group or any comparison were all limitations. However, this pilot study of an individualized TCM approach to the treatment of PVD did use numerous credible outcome measures, and the analysis of the data was sound.

Another small-scale pilot study by Schlaeger *et al.* (2015) included 36 women with vulvodynia (mean age = 35 years). The participants were randomly assigned to either a waiting list control or an acupuncture treatment group. The authors investigated whether a standardized acupuncture treatment protocol was feasible and effective in the treatment of all subtypes of vulvodynia, including PVD. This study also used the validated FSFI as a measure of sexual function (Rosen *et al.* 2000), and the reliable short-form McGill Pain Questionnaire (Perry *et al.* 1988). The same acupuncturist administered treatment twice a week for 5 weeks. Schlaeger *et al.* (2015) had tighter exclusion criteria, but only self-reporting was used. Participants were not blinded to their study group, and the control subjects received no placebo or sham acupuncture. The treatment protocol was clearly defined. There were no significant differences in the demographics of the two groups. No subjects were lost to follow-up. The

outcome measures were reported after 10 sessions. Analysis of the data using *t*-tests showed significant reductions in vulval pain and dyspareunia, and significant improvements in the overall FSFI score. This was a clearly documented pilot study with promising results. Schlaeger *et al.* (2015) concluded that their acupuncture protocol was feasible, and seemingly effective in reducing pain and improving some aspects of sexual function in the sample studied. These authors made many suggestions regarding further studies, including the need for larger numbers of participants, stratifying them by vulvodynia subtypes and double-blinding.

Conclusions and implications for practice

The present case report, and the conclusions drawn from the few research papers identified by the author, suggest that acupuncture has potential efficacy as a treatment modality for women with PVD. The benefits reported are likely to be increased when it is combined with other physiotherapy modalities (e.g. manual therapy and muscle re-education) over a longer period of treatment. However, there are many limitations to this single case study, and the results are not generalizable to a wider population.

The present author was a novice acupuncturist who lacked familiarity with the TCM framework and the progression of acupuncture treatments. There is a lack of reliable, validated outcome measures in this field, and therefore, only two were used, one unvalidated (the Likert scale) and one validated (NIH-CPSI). In addition, only five acupuncture sessions could be completed during the time available. It is expected that the treatment effects would have been more significant if further sessions had been possible: the other studies discussed (Curran *et al.* 2010; Schlaeger *et al.* 2015) involved 10 sessions of acupuncture. Additionally, the present subject travelled long distances for her appointments, meaning that twice-weekly sessions were not possible.

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References

- Andersson S. & Lundeberg T. (1995) Acupuncture—from empiricism to science: functional background to acupuncture effects in pain and disease. *Medical Hypotheses* **45** (3), 271–281.
- Bergeron S., Binik Y. M., Khalifé S. & Pagidas K. (1997) Vulvar vestibulitis syndrome: a critical review. *The Clinical Journal of Pain* **13** (1), 27–42.
- Bergeron S., Binik Y. M., Khalifé S., *et al.* (2001) A randomized comparison of group cognitive-behavioural therapy, surface electromyography biofeedback, and vestibulectomy in the treatment of dyspareunia resulting from vulvar vestibulitis. *Pain* **91** (3), 297–306.
- Bergeron S., Brown C., Lord M.-J., *et al.* (2002) Physical therapy for vulvar vestibulitis syndrome: a retrospective study. *Journal of Sex & Marital Therapy* **28** (3), 183–192.
- Bergeron S., Morin M. & Lord M.-J. (2010) Integrating pelvic floor rehabilitation and cognitive-behavioural therapy for sexual pain: what have we learned and where do we go from here? *Sexual and Relationship Therapy* **25** (3), 289–298.
- Bornstein J., Goldstein A. T., Stockdale C., *et al.* (2016) 2015 ISSVD, ISSWSH, and IPPS Consensus terminology and classification of persistent vulvar pain and vulvodynia. *The Journal of Sexual Medicine* **13** (4), 607–612.
- Bradnam-Roberts L. (2010) Clinical reasoning in Western acupuncture. In: *Acupuncture in Manual Therapy* (ed. J. Longbottom), pp. 1–20. Churchill Livingstone, Edinburgh.
- Bradnam L. V. (2011) A biopsychosocial clinical reasoning model for Western acupuncture. *Physical Therapy Reviews* **16** (2), 138–146.
- Butler D. S. & Moseley G. L. (2013) *Explain Pain*, 2nd edn. Noigroup Publications, Adelaide.
- Cagnie B., Dewitte V., Barbe T., *et al.* (2013) Physiologic effects of dry needling. *Current Pain and Headache Reports* **17**: 348. DOI: 10.1007/s11916-013-0348-5.
- Curran S., Brotto L. A., Fisher H., Knudson G. & Cohen T. (2010) The ACTIV study: acupuncture treatment in provoked vestibulodynia. *The Journal of Sexual Medicine* **7** (2), 981–995.
- Danielsson I., Sjöberg I. & Ostman C. (2001) Acupuncture for the treatment of vulvar vestibulitis: a pilot study. *Acta Obstetrica et Gynecologica Scandinavica* **80** (5), 437–441.
- Desrochers G., Bergeron S., Khalifé S., Dupuis M.-J. & Jodoin M. (2009) Fear avoidance and self-efficacy in relation to pain and sexual impairment in women with provoked vestibulodynia. *The Clinical Journal of Pain* **25** (6), 520–527.
- Dommerholt J. & Adler T. (2012) Intramuscular manual therapy: dry needling. In: *Chronic Pelvic Pain and Dysfunction: Practical Physical Medicine* (eds L. Chaitow & R. L. Jones), pp. 363–376. Churchill Livingstone, Edinburgh.
- Forth H. L., Cramp M. C. & Drechsler W. I. (2009) Does physiotherapy treatment improve the self-reported pain levels and quality of life of women with vulvodynia? A pilot study. *Journal of Obstetrics and Gynaecology* **29** (5), 423–429.
- Gerwin R. D. (2002) Myofascial and visceral pain syndromes: visceral-somatic pain presentations. *Journal of Musculoskeletal Pain* **10** (1–2), 165–175.

- Gerwin R. D., Dommerholt J. & Shah J. P. (2004) An expansion of Simons' integrated hypothesis of trigger point formation. *Current Pain and Headache Reports* **8** (6), 468–475.
- Glazer H. I., Rodke G., Swencionis C., Hertz R. & Young A.W. (1995) Treatment of vulvar vestibulitis syndrome with electromyographic biofeedback of the pelvic floor musculature. *The Journal of Reproductive Medicine* **40** (4), 283–290.
- Goldfinger C., Pukall C. F., Gentilcore-Saulnier E., McLean L. & Chamberlain S. (2009) A prospective study of pelvic floor physical therapy: pain and psychosexual outcomes in provoked vestibulodynia. *The Journal of Sexual Medicine* **6** (7), 1955–1968.
- Harlow B. L., Kunitz C. G., Nguyen R. H. N., *et al.* (2014) Prevalence of symptoms consistent with a diagnosis of vulvodynia: population-based estimates from 2 geographic regions. *American Journal of Obstetrics and Gynecology* **210** (1), 40.e1–40.e8.
- Hecker H.-U., Steveling A., Peuker E., Kastner J. & Liebchen K. (2008) *Colour Atlas of Acupuncture: Body Points – Ear Points – Trigger Points*, 2nd edn. Theime, Stuttgart.
- Herrera I. (2014) *Ending Female Pain: A Woman's Manual*, 2nd edn. Duplex Publishing, New York, NY.
- Hopton A. & MacPherson H. (2010) Acupuncture for chronic pain: more than an effective placebo? A systematic review of pooled data from meta-analyses. *Pain Practice* **10** (2), 94–102.
- Langevin H. M. & Yandow J. A. (2002) Relationship of acupuncture points and meridians to connective tissue planes. *The Anatomical Record* **269** (6), 257–265.
- Litwin M. S., McNaughton-Collins M. & Fowler F. J., Jr, *et al.* (1999) The National Institutes of Health chronic prostatitis symptom index: development and validation of a new outcome measure. *The Journal of Urology* **162** (2), 369–375.
- Lundeberg T. (1999) Effects of sensory stimulation (acupuncture) on circulatory and immune systems. In: *Acupuncture: A Scientific Appraisal* (eds E. Ernst & A. R. White), pp. 93–106. Butterworth–Heinemann, Oxford.
- Marszalek M., Wehrberger C., Temml C., *et al.* (2009) Chronic pelvic pain and lower urinary tract symptoms in both sexes: analysis of 2749 participants of an urban health screening project. *European Urology* **55** (2), 499–508.
- Masheb R. M., Brondolo E. & Kerns R. D. (2002) A multidimensional, case-control study of women with self-identified chronic vulvar pain. *Pain Medicine* **3** (3), 253–259.
- Morin M., Dumoulin C., Bergeron S., *et al.* (2016) Randomized clinical trial of multimodal physiotherapy treatment compared to overnight lidocaine ointment in women with provoked vestibulodynia: design and methods. *Contemporary Clinical Trials* **46** (January), 52–59.
- Morin M., Dumoulin C., Bergeron S., *et al.* (2021) Multimodal physical therapy versus topical lidocaine for provoked vestibulodynia: a multicenter, randomized trial. *American Journal of Obstetrics and Gynecology* **224** (2), 189.e1–189.e12.
- Nunns D. (2000) Vulval pain syndromes. *British Journal of Obstetrics and Gynaecology* **107** (10), 1185–1193.
- Perry F., Heller P. H. & Levine J. D. (1988) Differing correlations between pain measures in syndromes with or without explicable organic pathology. *Pain* **34** (2), 185–189.
- Prendergast S. (2015) *What Is Vulvodynia?* [WWW document.] URL <https://pelvicpainrehab.com/female-pelvic-pain/2854/what-is-vulvodynia-the-international-consensus-conference-on-vulvodynia-nomenclature/>
- Propert K. J., Litwin M. S., Wang Y., *et al.* (2006) Responsiveness of the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI). *Quality of Life Research* **15** (2), 299–305.
- Reissing E. D., Brown C., Lord M.-J., Binik Y. M. & Khalifé S. (2005) Pelvic floor muscle functioning in women with vulvar vestibulitis syndrome. *Journal of Psychosomatic Obstetrics and Gynaecology* **26** (2), 107–113.
- Rosen R., Brown C., Heiman J., *et al.* (2000) The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy* **26** (2), 191–208.
- Rouse S. (2010) Case study 2. In: *Acupuncture in Manual Therapy* (ed. J. Longbottom), pp. 14–17. Churchill Livingstone, Edinburgh.
- Schlaeger J. M., Xu N., Mejta C. L., Park C. G. & Wilkie D. J. (2015) Acupuncture for the treatment of vulvodynia: a randomized wait-list controlled pilot study. *The Journal of Sexual Medicine* **12** (4), 1019–1027.
- Simons D. G., Travell J. G. & Simons L. S. (1999) *Travell & Simons' Myofascial Pain and Dysfunction: The Trigger Point Manual*, Vol. 1: *Upper Half of the Body*, 2nd edn. Williams & Wilkins, Baltimore, MD.
- Yang M. (2015) *Should I Give Acupuncture a Try?* [WWW document.] URL <http://www.pelvicpainrehab.com/female-pelvic-pain/2553/give-acupuncture-try/>

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the postgraduate acupuncture foundation course at the University of Hertfordshire. She is a recognized Mummy MOT practitioner, and in 2019, she became an accredited Australian Physiotherapy and Pilates Institute rehabilitation Pilates matwork instructor.

Appendix 1

Subjective assessment

Presenting condition. The present subject had suffered from localized vulval discomfort and pain with intercourse for almost 3 years, and had made no attempt at having sex for 2 years

History of presenting condition. The problem had possibly been triggered by: the termination of an unplanned pregnancy early on in her relationship with her partner; emotional distress; work stress; and recurring vaginal candidiasis infections. She had previously been diagnosed with the symptoms of vulvodynia by a different gynaecologist to the one who referred her, but she was not offered any treatment.

Aggravating factors. Any touch or entry immediately provoked pain, and using tampons or wearing tight jeans were also uncomfortable.

Easing factors. Her pain was alleviated by avoiding the aggravating factors mentioned above.

Past medical history. She had undergone cervical loop diathermy in 2011 following grade 1 cervical intra-epithelial neoplasia. The early termination of a pregnancy had taken place in 2014. In 2016, viral hepatitis had triggered glandular fever. She also suffered from anxiety.

Drug history. She occasionally used beta-blockers and topical Betnovate, a steroid that she applied to her vulval region.

Social history. She works full time for a cancer charity, has a long-term boyfriend and a supportive family. In terms of exercise, she previously walked her dog daily, but this was currently an irregular activity following her bout of glandular fever earlier in 2016.

Objective assessment

The subject presented with allodynia/hypersensitivity at the vulval vestibule, and reported a feeling of heat/burning. Her PFMs exhibited hypertonicity (left > right), and she had poor muscular control and relaxation. Active MTPs were located bilaterally within the iliococcygeus, ischiococcygeus, pubococcygeus and deep transverse perineal muscles. There were no MTPs in her superficial PFMs. She had poor endurance, and a scored only 2/5 on the Modified Oxford Scale.