

ACUPUNCTURE AND ENDOMETRIOSIS

About endometriosis

Endometriosis is a chronic condition characterised by growth of endometrial tissue in sites other than the uterus, most commonly in the pelvic cavity, but also in other parts of the body (RCOG 2006). This ectopic tissue responds to the hormonal changes of the menstrual cycle, with subsequent bleeding, inflammation, and pain. If the ovaries are affected, endometriotic ovarian cysts may develop (Bulun 009). Although the condition may be asymptomatic, common symptoms include dysmenorrhoea, dyspareunia, non-cyclical pelvic and abdominal pain, and subfertility (RCOG 2006). When endometriosis remains untreated, the disease progresses in around a third of women, but seems either to resolve or does not progress in the rest (DTB 1999). The prevalence is estimated to vary from 2–22% of women and, in women with dysmenorrhoea, the incidence of endometriosis is 40–60% (Johnson 2007).

The cause of endometriosis is not known, but several factors are thought to be involved in its development. These include retrograde menstruation; embryonic cells giving rise to deposits in distant sites around the body; an abnormal quantity or quality of endometrial cells; failure of immunological mechanisms; angiogenesis; and the production of antibodies against endometrial cells (Gazvani 2002, Rock 1992, Seli 2003, Kyama 2003, Oral 1996).

Pain due to endometriosis can be functional, neuropathic, due to inflammation, or result from a combination of these. It may be evoked by a low intensity, normally innocuous stimulus (allodynia), it may be an exaggerated and prolonged response to a noxious stimulus (hyperalgesia), or it may be spontaneous in the absence of any apparent peripheral stimulus (Lundeberg 2008). In addition, oestrogens and prostaglandins probably play key modulatory roles in endometriosis and the pain it causes (Lundeberg 2008). Consequently, current medical treatments for the condition include drugs such as NSAIDs, combined oral contraceptives, progestogens, androgenic agents and gonadotrophin releasing hormone analogues, as well as surgical excision of endometriotic lesions. However, management of pain in women with endometriosis is often inadequate.

References

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How acupuncture can help

In general, acupuncture is believed to stimulate the nervous system and cause the release of neurochemical messenger molecules. The resulting biochemical changes influence the body's homeostatic mechanisms, thus promoting physical and emotional well-being. Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress (Wu 1999).

There is preliminary evidence to support acupuncture as an effective treatment for endometriosis, with one small sham controlled trial (Wayne 2008) and a few comparative studies against Western medication (Yan 2008, Xia 2006, Sun 2006), though further research is needed to confirm this. It has been shown that acupuncture treatment may specifically be of benefit in people with endometriosis by:

- providing pain relief - by stimulating nerves located in muscles and other tissues, acupuncture leads to release of endorphins and other neurohumoral factors, and changes the processing of pain in the brain and spinal cord (Zhao 2008, Han 2004, Zijlstra 2003, Pomeranz 1987).
- reducing inflammation - by promoting release of vascular and immunomodulatory factors Kavoussi 2007, Zijlstra 2003).
- regulating levels of prostaglandins (Jin 2009)
- combining acupuncture with Chinese herbal medicine for endometriosis has been shown in animal studies to down-regulate the abnormal increase of matrix metalloproteinase-2 (MMP-2) levels that is associated with ectopic activity of endometrial cells. The treated rats had reduced areas of ectopic tissue (Chen 2008). MMP-2 is required for the anchoring of the placenta to the uterine wall in pregnancy but over-production can lead to endometriosis.

About traditional acupuncture

Acupuncture is a tried and tested system of traditional medicine, which has been used in China and other eastern cultures for thousands of years to restore, promote and maintain good health. Its benefits are now widely acknowledged all over the world and in the past decade traditional acupuncture has begun to feature more prominently in mainstream healthcare in the UK. In conjunction with needling, the practitioner may use techniques such as moxibustion, cupping, massage or electro-acupuncture. They may also suggest dietary or lifestyle changes.

Traditional acupuncture takes a holistic approach to health and regards illness as a sign that the body is out of balance. The exact pattern and degree of imbalance is unique to each individual. The traditional acupuncturist's skill lies in identifying the precise nature of the underlying disharmony and selecting the most effective treatment. The choice of acupuncture points will be specific to each patient's needs. Traditional acupuncture can also be used as a preventive measure to strengthen the constitution and promote general well-being.

An increasing weight of evidence from Western scientific research (see overleaf) is demonstrating the effectiveness of acupuncture for treating a wide variety of conditions. From a biomedical viewpoint, acupuncture is believed to stimulate the nervous system, influencing the production of the body's communication substances - hormones and neurotransmitters. The resulting biochemical changes activate the body's self-regulating homeostatic systems, stimulating its natural healing abilities and promoting physical and emotional well-being.

About the British Acupuncture Council

With over 3000 members, the British Acupuncture Council (BAC) is the UK's largest professional body for traditional acupuncturists. Membership of the BAC guarantees excellence in training, safe practice and professional conduct. To find a qualified traditional acupuncturist, contact the BAC on 020 8735 0400 or visit www.acupuncture.org.uk

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The evidence

Research

Conclusion

Clinical studies

Jin YB et al. [Randomized controlled study on ear-electroacupuncture treatment of endometriosis-induced dysmenorrhea in patients]. *Zhen Ci Yan Jiu* 2009; 34(3): 188-92.

A randomised controlled trial that assessed the therapeutic effect of ear electroacupuncture on dysmenorrhoea in 80 patients with endometriosis. The women were equally allocated to an ear electroacupuncture group or a body electroacupuncture group, both given for 30 minutes, once every other day for 3 months. Dysmenorrhoea severity score was assessed and plasma prostaglandin (PGE2) and 6-Keto-PGF1alpha levels were detected by radio-immunoassay. Compared with baseline scores, dysmenorrhoea was significantly reduced during the 1st and 2nd menstrual cycle in the body acupuncture group, and during the 1st, 2nd and 3rd cycle in the ear acupuncture group. The score was also less with ear than body acupuncture in the 3rd cycle ($p < 0.05$). During onset of the 3rd cycle, plasma PGE2 levels fell in both groups ($p < 0.01$), and plasma 6-Keto-PGF1alpha levels increased ($p < 0.01$); both more so in the ear acupuncture group ($p < 0.05$). The researchers concluded that both ear and body electroacupuncture can effectively relieve endometriosis-induced dysmenorrhoea, and that the former seems to be superior to the latter in reducing pain severity, which may be closely related to their effects in reducing plasma PGE2 and raising 6-Keto-PGF1alpha level.

Wayne PM et al. Japanese-style acupuncture for endometriosis-related pelvic pain in adolescents and young women: results of a randomized sham-controlled trial. *J Pediatr Adolesc Gynecol* 2008; 21(5): 247-57.

A pilot randomised sham-controlled trial to assess feasibility and collect preliminary data on Japanese-style acupuncture for reducing chronic pelvic pain and improving health-related quality of life in adolescents with endometriosis. Eighteen young women (aged 13-22 years) with laparoscopically-diagnosed endometriosis-related chronic pelvic pain were allocated to a Japanese style of acupuncture or a sham acupuncture control. Sixteen treatments were given over 8 weeks. At 4 weeks, those in the active acupuncture group ($n = 9$) had a significantly greater reduction in pain than the control group (an average 4.8 point reduction on a 11 point scale vs. an average 1.4 point reduction, $p = 0.004$). Reduction in pain in the acupuncture group lasted for 6-months. All health-related quality of life measures showed a greater improvement with acupuncture than with control treatment, but these trends were not statistically significant. No serious adverse events were reported. The researchers concluded that preliminary findings suggest that Japanese-style acupuncture may be an effective, safe and well-tolerated adjunctive therapy for endometriosis-related pelvic pain in adolescents.

Yan H et al. [Observation on therapeutic effect of acupuncture and moxibustion on disorders of myometrial gland]. *Zhongguo Zhen Jiu* 2008; 28(8): 579-81.

A randomised controlled trial to explore the therapeutic effect of acupuncture on endometrial disorders. Sixty-six women were allocated to an acupuncture group or a medication group (danazol). Effectiveness was assessed, and changes in oestradiol levels, haemoglobin and blood platelet counts were observed. Overall, 97.0% of the acupuncture group and 72.7% of the medication group considered the treatment effective ($p < 0.05$). Also, oestradiol levels decreased, and haemoglobin and platelet

counts increased in the acupuncture group. The researchers concluded that acupuncture has obvious therapeutic effect, which is better than that of simple western medicine.

Xia T. Effect of Acupuncture and Traditional Chinese Herbal Medicine in Treating Endometriosis. *International Journal of Clinical Acupuncture* 2006; 15(3): 145-50.

A randomised controlled trial to compare the clinical effect of acupuncture and Chinese herbal medicine with danazol in the treatment of endometriosis. Seventy-eight women were randomly divided into the acupuncture plus herbs group or the western medicine control group. The overall efficacy was similar in the two groups, but the effects on lumbosacral pain, anal down-bearing, distention, irregular menstruation and infertility were significantly better in the acupuncture plus herbs group than in the danazol group ($p < 0.05$). Also, prostaglandin levels were significantly lower after treatment than before ($p < 0.05$). The researchers concluded that the combined use of acupuncture and herbs has a significant effect on endometriosis and the adverse reactions are less than with danazol.

Sun YZ, Chen HL. [Controlled study on Shu-Mu point combination for treatment of endometriosis]. *Zhongguo Zhen Jiu* 2006; 26(12): 863-5.

A randomised controlled trial to compare the therapeutic effects of acupuncture, Shu-Mu acupuncture point combination and danazol on endometriosis. Ninety women were allocated to one of the three treatment groups. Clinical symptoms and signs, tumour marker serum CA125 values and adverse effects were assessed before and after treatment. The clinical effects were similar in the three groups. However, the Shu-Mu point combination group was superior to the other two groups in terms of improvement in dysmenorrhoea, irregular menstruation, lumbago and sacrodynia ($p < 0.01$). After treatment, serum CA125 in the Shu-Mu point combination group had decreased significantly ($p < 0.01$). The researchers concluded that Shu-Mu acupuncture point combination needling method has an obvious therapeutic effect on endometriosis, with lower adverse effects than danazol.

Physiology studies on endometriosis

Chen YF et al. [Effects of acupuncture combined with medicine on expression of matrix metalloproteinase-2 in the rat of endometriosis]. *Zhongguo Zhen Jiu* 2008; 28: 675-80.

An animal study that assessed the effects of acupuncture plus drug treatment on an endometriosis model in rats. It found that the combination down-regulated the abnormal increase of matrix metalloproteinase-2 (MMP-2) levels, which inhibits the invasion of ectopic tissue into extracellular matrix, so reducing ectopic tissue.

Physiology – acupuncture in general

Zhao ZQ. Neural mechanism underlying acupuncture analgesia. *Prog Neurobiol* 2008 ;85: 355-75.

A review article that discusses the various peripheral and central nervous system components of acupuncture anaesthesia in detail.

Han JS. Acupuncture and endorphins. *Neurosci Lett* 2004; 361: 258-61.

A literature review of studies relating to the release of endorphins with acupuncture.

Zijlstra FJ et al. Anti-inflammatory actions of acupuncture. *Mediators Inflamm* 2003 ;12: 59-69.

A review article that discusses the anti-inflammatory action of, and promotion of blood circulation by, acupuncture. It suggests that acupuncture could positively affect the enrolment of the whole cascade of inflammatory mediators, which could be relevant in pain management. It also explains how insertion of acupuncture needles initially stimulates production of beta-endorphins, and

substance P, leading to further stimulation of cytokines.

Wu MT et al. Central nervous pathway for acupuncture stimulation: localization of processing with functional MR imaging of the brain-- preliminary experience. <i>Radiology</i> 1999; 212: 133-41.	An experimental study using MRI to characterise the central nervous system pathway for acupuncture stimulation, which found that acupuncture activates structures of descending antinocioceptive pathway and deactivates areas mediating pain modulation.
Pomeranz B. Scientific basis of acupuncture. In: Stux G, Pomeranz B, eds. <i>Acupuncture Textbook and Atlas</i> . Heidelberg: Springer-Verlag; 1987 :1-18.	A book that discusses how needle activation of A delta and C afferent nerve fibres in muscle sends signals to the spinal cord, where dynorphin and enkephalins are released. It explains how afferent pathways continue to the midbrain, triggering excitatory and inhibitory mediators in the cord. Ensuing release of neurotransmitters serotonin and norepinephrine leads to pain transmission being inhibited both pre- and postsynaptically in the spinothalamic tract. Finally, these signals reach hypothalamus and pituitary, triggering release of adrenocorticotrophic hormones and beta-endorphin.
Kavoussi B, Ross BE. The neuroimmune basis of anti-inflammatory acupuncture. <i>Integr Cancer Ther</i> 2007;6:251-7.	A review article that discusses anti-inflammatory actions of traditional and electro-acupuncture, suggesting that they are mediated by efferent vagus nerve activation and inflammatory macrophage deactivation.

Terms and conditions

The use of this fact sheet is for the use of British Acupuncture Council members and is subject to the strict conditions imposed by the British Acupuncture Council details of which can be found in the members area of its website www.acupuncture.org.uk