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WOMEN'S HEALTH & HERBAL MEDICINE

A REVIEW OF HERBAL TREATMENT STRATEGIES IN THE MANAGEMENT OF ENDOMETRIOSIS IN WOMEN

ABSTRACT

The complex and progressive manifestations of endometriosis is characterised by acute episodes that can result in severe lower abdominal pain, menstrual irregularities and possible infertility. Management has largely been hampered by the difficulties faced in diagnosis in as much as determining pathogenesis. Definitive diagnosis can only really be made through laparoscopy and in this respect, it is imperative that herbalists must establish a competent referral system and effective communication with patient GPs in suspected cases of endometriosis. Prompt action is also required in order to prevent any delays in diagnosis with an inevitable consequence of infertility.

From the outset, it is evident that a symptomatic treatment strategy is warranted, purely to lessen morbidity, but also to prevent any complications that may arise through poor management of the clinical presentation. Radical aspects of orthodox management causes considerable distress, particularly when total removal of the reproductive organs renders it impossible for the patient to conceive. This is an important consideration and the psychological wellbeing must have equal emphasis in patient care. Nevertheless, in some cases, herbal treatments have a greater appeal over drug therapy not only in addressing pain and inflammation, but also in presenting with minimal side effects, if at all any. Moreover, the holistic perspective of addressing underlying mechanisms may prevent complications through adhesions either locally or at distant sites and resulting in a more serious multisystem involvement.

There is no cure at present for endometriosis and in the absence of clear signs for an obvious or immediate diagnosis at the early stages, there is a heavy reliance on orthodox methods of investigation to confirm its presence. Therefore, establishing closer alliances between orthodox practitioners and herbalists is essential in the management of all chronic conditions, not only to formulate treatment strategies and objectives, but more critically, to ensure the increased frequency of successful outcomes.

INTRODUCTION

Definition

Endometriosis is one of the commonest benign gynaecological conditions in which tissue that would normally grow only in the **endometrium** (the lining of the uterus), is found elsewhere in the abdominal and pelvic cavities. Endometrial tissue growing outside the uterus invariably adheres to organs such as ovaries, bladder and rectum. The cells then bleed each month corresponding to the cyclic secretion of oestrogen and progesterone causing inflammation and the formation of painful cysts. Similarly, fragments of normal endometrial tissue flow through the Fallopian tubes and escape into the abdominal cavity. Subsequent rupture of cysts and the resultant inflammatory process often leads to the formation of multiple **adhesions** (Mills & Bone, 2000). Adhesions may be described as bands of abnormal fibrous tissue that bind together internal organs which are not usually connected. In more severe cases, endometrial tissue can migrate to other parts of the body and this presents a complicated clinical picture, particularly if there is a multisystem involvement. However, common sites appear to be the ovaries, Fallopian tubes, the ligaments supporting the uterus itself, the pelvic peritoneum, the bladder, the pouch of Douglas (the area between the uterus and bowel) and the bowel itself (Rogers, 1995).

Epidemiology

Endometriosis is a complex and debilitating disease that can affect any woman. It is a chronic and progressive condition characterised by acute episodes. Parity of data relating to its prevalence in the population has been difficult to establish simply because in many instances, it is only discovered during investigative or exploratory surgery (ie. laparoscopy) when the patient presents with infertility or obscure abdominal pain (Llewellyn-Jones, 2001). Some charitable organisations estimate that 1.5 to 2 million women in Britain have endometriosis (The National Endometriosis Society, 2001) and that 10-15% of women presenting with gynaecological symptoms have this disease (Campbell & Monga, 2000). A probable estimate is between 1 and 7% of women in their reproductive years being more common amongst women who are infertile or who delay childbearing until after the age of 30 years (Llewellyn-Jones, 2001).

One of the difficulties in determining the incidence is due, in part, to the criteria for diagnosis. Before the advent of laparoscopy, the basis for accurate diagnosis rested largely on the symptoms and the subtle but non-specific clinical signs, or findings at laparotomy (Odukoya & Cooke, 1998). On balance however, it is fair to state that the prevalence of endometriosis among women aged 15-45 years is approximately 10% (Barbieri, 1990). Moreover, determining whether the association between pelvic pain and endometriosis is genuine appears crucial, given how commonly endometriosis can be found at laparoscopy and given the poor correlation between the severity of a woman's symptoms and the extent of the condition (McPherson & Waller, 1997). Fundamentally, an accurate differential diagnosis will determine the basis of a treatment strategy (whether orthodox or herbal), that addresses all aspects of the clinical presentation but critically ensures competent management that aims for a very good prognosis.

TABLE 1 : Orthodox diagnostic methods for detecting and confirming endometriosis*(Adapted from Campbell & Monga, 2000)*

<p>Invasive</p> <ul style="list-style-type: none"> • Laparoscopy 	<p>Pelvic endoscopy using solid, metal telescope incorporating fibre optic illumination. Inserted into abdomen by small incision with a 2nd probe connected to a closed-circuit TV monitor that enables exploration & occlusion through injection of a dye</p>
<p>Non-invasive</p> <ul style="list-style-type: none"> • Ca₁₂₅ levels 	<p>Raised levels of this glycoprotein expressed by some epithelial cells of coelomic origin. Also noted in patients with ovarian epithelial carcinoma</p>
<ul style="list-style-type: none"> • Ultrasound 	<p>Of limited value in endometriosis being a particularly useful indicator when ovarian cysts are present</p>
<ul style="list-style-type: none"> • Magnetic Resonance Imaging (MRI) 	<p>Offers significant gains in endometriosis especially where there are ovarian cysts or invasion of surrounding organs (bowel, bladder, rectovaginal septum)</p>

Since the extent of endometriosis is described anecdotally in each case, the American Fertility Society (1985) has employed a staging protocol in an attempt to correlate fertility potential with a quantified stage of endometriosis. The stages, ranging from minimum to severe is based on the allocation of points depending on sites and extent of disease (American Fertility Society, 1985).

Clinical Features

Diagnosis of endometriosis based solely on signs and symptoms, presents one of the most challenging tests for the physician, simply because the disease does not always present with a classic set of symptoms, being extremely variable in most cases and in some instances, asymptomatic. The resultant delay in diagnosis can present with a worsening sequelae and a gradual yet considerable pathology (Studd, 1998).

Despite the lack of information in some cases, numerous symptoms are attributed to endometriosis. The most common is pelvic pain which usually starts 1 or 2 days before and lasts throughout a period. Many women also complain of concomitant rectal pressure, pain on defaecation and low backache which radiates to the anterior thigh. Deep dyspareunia is common due to involvement of the rectovaginal septum (Kennedy, 1999). The clinical features of endometriosis are often non-specific being associated with other pelvic conditions. The symptoms may appear bizarre from a medical viewpoint due to the varying locations of the disease that do not correlate with the extent of the lesions in many cases (Llewellyn-Jones, 2001). However, a comprehensive and accurate understanding of the disease and its many manifestations reveals significant pathological detail that corresponds quite clearly to the clinical presentation. In essence, the main symptoms prior to any complications usually include pelvic pain, menstrual irregularities, dyspareunia and infertility.

Differential Diagnosis

The differential diagnosis of chronic pelvic pain appears paramount from the herbalist's perspective particularly as routine investigations or exploratory surgical procedures such as laparoscopy are not at their disposal. However, in as much as laparoscopy offers a definitive diagnosis of endometriosis, much is to be gained from physical findings and clinical symptoms. This is especially true if a thorough case history reveals other possibilities which the herbal practitioner must competently rule out. In short, chronic pelvic infection closely resembles pelvic endometriosis, with dysmenorrhoea, menorrhagia, sterility and dyspareunia being identical, but the history and laparoscopy findings are different and pelvic inflammatory disease (PID) is rarely cyclical. Fibroids of the uterus are often associated with endometriosis and the differential diagnosis may prove difficult (Chamberlain & Hamilton-Fairley, 1999). Although no one symptom is pathognomic of endometriosis, one symptom is highly predictive; that of spasmodic dysmenorrhoea, particularly if severe enough to warrant time off work and if unresponsive to the usual analgesics (Campbell & Monga, 2000). If this symptom is also associated with pain on postmenstrual days, pelvic pain throughout the cycle or deep dyspareunia, endometriosis is strongly implicated. Suspicions should be further heightened if there is occurrence of abnormal cyclical bleeding at the time of menstruation from the rectum, bladder or umbilicus, all of which are virtually pathognomic of its presence ((Slade et al, 1993).

Physical Findings

Endometriosis presents with a wide variety of signs ranging from the presence of a small, exquisitely tender nodule in the pouch of Douglas, or on the uterosacral ligaments to a huge, relatively non-tender, cystic abdominal mass. The uterus may be fixed, tender and retroverted with adnexal masses due to ovarian endometriosis being palpable. Speculum examination may reveal a bluish nodule on the cervix or the posterior vaginal wall. Alternatively, the examination may be entirely normal (Kennedy, 1999). However, a specific diagnosis requires visualisation and in uncertain cases, biopsy of lesions either at laparoscopy or laparotomy is necessary (Campbell & Monga, 2000). The herbal practitioner's approach to diagnosis in cases of suspect endometriosis is to ensure an effective referral system and owing to the potential severity of complications that may arise, an early definitive diagnosis is strongly indicated.

For medical purposes, endometriosis is categorised into endometriosis interna or **adenomyosis** (where the tissue is located in uterine muscle) and into endometriosis externa, when the condition occurs in other sites. These sites include the ovaries, the utero-sacral ligaments, the rectovaginal septum, the pelvic peritoneum, the lower genital tract, the umbilicus, laparotomy scars, bowel, bladder and lymph nodes (Willocks & Neilson, 1991). However, some of the literature contradicts this view and state that adenomyosis is incorrectly termed internal endometriosis. It is increasingly suggested that it be regarded as a separate pathological and epidemiological entity. Therefore, for the purposes of this assignment, emphasis will solely be on endometriosis proper.

TABLE 2 : Summary clinical features exhibited in endometriosis

(Adapted from Odukoya & Cooke, 1998)

Common Symptoms	<ul style="list-style-type: none">• Pelvic pain• Dysmennorhoea• Dyspareunia
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	<ul style="list-style-type: none"> • Infertility • Dyschesia
Less Common Symptoms	<ul style="list-style-type: none"> • Haematuria • Rectal bleeding • Urgency • Haemoptysis • Cutaneous nodules • Hyperprolactinaemia
Physical Findings (Signs)	<ul style="list-style-type: none"> • Pelvic tenderness & induration • Nodules in pouch of Douglas • Adnexal mass • Uterine fixity • Nodules along utero-sacral ligament

Wider Implications of Endometriosis

Despite the lack of confirmed statistics for incidence of endometriosis, many orthodox and complementary therapy practitioners treating patients as well as self-help groups, charities and organisations agree that this condition is one that warrants significant attention and assistance. Examining the wider implications of endometriosis reveals the true extent to which patients' lives are disrupted, and in most cases, limited. Current estimates of prevalence are alarming and a considerable workforce in Britain is comprised of women; significant time off work due to sickness impacts not only on the patient, but also the employer. Addressing the needs of sufferers and providing support is a priority in as much as the therapeutic management, being particularly critical where there is considerable morbidity. The influences of endometriosis on a patient's life can be dramatic affecting their social and family life, professional life in addition to their psychological well-being. Coping with possible infertility is another issue that must be considered as part of the management programme and it may be the case where alternative strategies such as counselling or psychotherapy in addressing this aspect of the condition is required. Patients may greatly benefit from this type of treatments particularly in coming to terms with not being able to have children.

The global perspective is complex, particularly when there is a paucity of data relating to epidemiology and making direct comparisons of clinical presentations proves virtually impossible. This is not surprising considering the lack of medical resources in some poorer countries and the difficulty in making a definitive diagnosis. However, cases not being documented does not preclude its existence; even in the US where women have arguably greater access to laparoscopy, 27% of women with endometriosis in a retrospective study had been symptomatic for at least 6 years before a diagnosis was finally made (McPherson & Waller, 1997). Not surprisingly, many women believe that a delayed diagnosis leads to increased personal suffering, more prolonged ill health and a disease state that is more difficult to treat.

The aims and objectives of this assignment are primarily to examine the underlying causes of endometriosis enabling a review of herbal therapeutic approaches to management that is not entirely symptomatic, but also embraces a holistic philosophy to diagnosis and treatment. Moreover, a critical assessment of viable choices that are available to the patient aims to address all aspects of therapeutic management that moves away from radical, invasive or drug-based treatments that are routinely offered and much favoured under orthodox medical provision.

Aetiology and Pathogenesis

There are a wide variety of suggestions in documented literature, some of which are supported by circumstantial evidence, on the origin of endometriosis. Currently, no one theory explains all cases. The most widely held theory is that of Sampson (1927) who proposed that the cause is implantation of endometrial cells transported to the pelvic cavity by retrograde menstruation. Endometrial cells are also found in blood vessels and lymphocytes, and they may embolise to distant sites. Other theories are of coelomic metaplasia (Meyer, 1919) and transformation of embryonic cells is still maintained. Table 3 summarises the current theories which are supported by clinical evidence, though no single theory can explain the location of endometriotic deposits in all the sites reported, and the precise aetiology remains unknown.

TABLE 3 : Summary of current aetiological theories that explain the pathologies of ectopic endometriosis
(Adapted from Campbell & Monga, 2000)

THEORY	COMMENT
Menstrual regurgitation & implantation	Endometriosis resulting from retrograde menstrual regurgitation of viable endometrial glands & tissues within menstrual fluid & subsequent implantation on the peritoneal surface. Experimental endometriosis can be induced in animals by placing menstrual fluid or endometrial tissue in the peritoneal cavity. Also commonly found in women with associated abnormalities of the genital tract, causing obstruction to vaginal outflow of menstrual fluid, lending credence to this theory
Transformation of coelomic epithelium	Cells lining the Mullerian duct, the peritoneal cells and cells of the ovary undergo de-differentiation by reverting back to their primitive origin and transforming into endometrial cells. May be due to hormonal stimuli of ovarian origin possibly by unidentified chemical substances liberated from uterine endometrium or produced from inflammatory irritation.
Genetic & immunological factors	Genetic or immune influence may increase susceptibility; increased incidence in 1 st degree relatives of patients with endometriosis. Racial differences reveal an increased incidence amongst oriental women and a low prevalence in patients of Afro-Caribbean origin.
Vascular & lymphatic spread	Vascular & lymphatic embolisation to distant sites have been demonstrated and explain the rare findings of endometriosis in sites outside the peritoneal cavity. This will explain foci in joints, skin, kidney and lung.

Modern advocates of Sampson's theory have had to explain why the disease is not more common given that retrograde menstruation occurs in so many women (Lui & Hitchcock, 1986) and as commonly in women with endometriosis as in those with a normal pelvis (Bartosik et al., 1986). A possible explanation could be that endometriosis only develops if the amount of retrograde flow exceeds the immune system's capacity to eliminate the menstrual debris caused by excessive regurgitation from heavy periods or outflow obstruction (Kennedy, 1999). The clinical evidence certainly suggests that short menstrual cycles and heavy, prolonged menstrual loss are risk factors and that the disease is common in women with patent Fallopian tubes and outflow obstruction (ie. congenital atresia of the cervix). Another cause is a deficient immune system, specifically a cell-mediated immunodeficiency, probably genetically transmitted thus preventing lysis of menstrual debris and endometrial cells in the peritoneal cavity (Steele et al., 1984).

Diagnosis and Investigations

Though the herbalist will rely heavily on physical findings, presenting symptoms and information gathered following initial case-history taking, the orthodox practitioner can call upon various diagnostic tools and investigative procedures to assist in the differential diagnosis (xref. Table 1). This further emphasises the importance of establishing an effective and efficient referral system, particularly when the criteria for diagnosis in cases of endometriosis is not as definitive as other diseases.

Non-invasive techniques may involve measuring levels of Ca₁₂₅; a glycoprotein expressed by some epithelial cells of coelomic origin. Serum concentrations are known to be elevated in severe endometriosis though not to comparable levels as seen in patients with ovarian cancer (Stirrat, 1997). Ultrasound is of limited diagnostic value in endometriosis but is particularly helpful in the detection of ovarian cysts. MRI (magnetic resonance imaging) is more beneficial in detecting invasion of surrounding organs such as the bowel, bladder or rectovaginal septum (Llewellyn-Jones, 2001). However, in almost all cases, laparoscopy remains the gold standard means of diagnosing endometriosis (Campbell & Monga, 2000). Its role is vital, providing direct visualisation of endometriotic lesions, enabling possible biopsy of suspected areas and staging the disease. Additionally it allows concurrent therapy to be conducted (eg. cauterly or laser treatment) at the time of laparoscopy though this is only in selected cases (Hacker & Moore, 1998).

Predisposing and Sustaining Factors

There appear to be a number of problems in establishing predisposing and sustaining factors in endometriosis owing to the difficulties faced in gathering incontrovertible and compelling evidence of pathogenesis that conforms to scientific protocol. The combination of endometrial transplantation and immunological dysregulation may explain most cases but the role played by genetic and environmental factors that predispose or sustain endometriosis respectively, is currently under extensive study (Odukoya & Cooke, 1998). Other risk factors have been summarised in Table 4 (adapted from Studd, 1998).

TABLE 4 : Summary of predisposing and excitatory factors associated with the clinical presentation of endometriosis (Adapted from Studd, 1998)

Associated (Predisposing)	Unproven / Inconclusive (Excitatory or Sustaining)	Not associated
• First degree relations	• Obesity	• Age
• Second degree relations	• Smoking	• Race
• Menstrual cycle \leq 27 days	• Exercise	• Social class
• Menstrual duration \leq 7 days	• Height/Weight ratio (BMI)	• Age & duration of marriage
• Genital outflow obstruction	• Age at menarche	• Miscarriage
	• Combined contraceptive pill	• IUD
	• Uterine retroversion	

It may be the case that the subtle or minimal lesions represent the paraphysiological or self-limiting condition that probably exists in all reproductive women as a result of retrograde menstruation; the common denominator. Further, detailed studies on risk factors could assist in identifying sustaining factors responsible for disease progression in some women, thereby elucidating the natural history of endometriosis.

General Aims and Objectives of a Treatment Plan

It is to be acknowledged that any treatment plan, whether orthodox or herbal has to consider a plethora of factors from the physical to the psychological. It is accepted in both types of strategies that treatment is essentially one of management, particularly the chronic state combined with an effective treatment for acute episodes. Whilst there is no standard formula for treatment, nor indeed a cure, it is important to tailor the treatment for the individual according to age, symptoms, extent of disease and the desire to have children in the future.

With this in mind, the following aims and objectives relate to both orthodox and herbal approaches, though it has to be agreed that methods adopted are vastly opposing in philosophy and practice. Surgical intervention in particular, could be minimally invasive by laparoscopic methods or entirely radical (xref. Table 5 below). A basic comparison of both forms of treatment reveal shared goals that involve the relief of symptoms through removing or inducing resolution of implants and limiting progression of the disease. Moreover, both strategies include approaches that delay recurrence and restore fertility where necessary. Table 5 classifies the orthodox treatment options in the management of endometriosis.

TABLE 5 : orthodox treatment classification of endometriosis
(Adapted from Odukoya & Cooke, 1998)

MEDICAL	SURGICAL	SYMPTOMATIC
<ul style="list-style-type: none"> • Combined oral & contraceptive pill 	<ul style="list-style-type: none"> • Diathermy 	<ul style="list-style-type: none"> • Prostaglandin inhibitors
<ul style="list-style-type: none"> • Progestogens 	<ul style="list-style-type: none"> • Laser vaporisation 	<ul style="list-style-type: none"> • Assisted conception
<ul style="list-style-type: none"> • Danazol 	<ul style="list-style-type: none"> • Excision 	<ul style="list-style-type: none"> • Psychotherapy
<ul style="list-style-type: none"> • Gestrione 	<ul style="list-style-type: none"> • Ovarian cystostomy 	
<ul style="list-style-type: none"> • GnRH-a 	<ul style="list-style-type: none"> • Presacral neurectomy 	
<ul style="list-style-type: none"> • GnRH-a with 'add-back' therapy 	<ul style="list-style-type: none"> • Total abdominal hysterectomy & ovarian removal (bilateral salpingo-oophorectomy) 	

Rationale for orthodox management of endometriosis is cited in some detail in Llewellyn-Jones, 2001. This serves as a useful model upon which to base herbal approaches to treatment and management, particularly if the condition at hand is unresponsive to drugs and is viewing surgical intervention as the only alternative.

Optimistically, recent studies on the effect of an interferon α -2b; an immune cytokine, can offer fresh hope to those who prefer drug-based therapies but find current medication incompatible. Laparoscopic intraperitoneal injection of human interferon α -2b in women with variable stages of endometriosis resulted in an exacerbation of symptoms and a reduction in the staging of the disease (Mohamed Ali, 2000). Further, an *in vitro* study demonstrated that interferon α -2b inhibits the growth and DNA synthesis of endometrioma cell lines (Badawy et al., 2001). This has been a valuable advance in the treatment possibilities for endometriosis and holds great promise for future clinical trials.

Herbal Treatment Plan – Aims and Objectives

Acute episodes of the chronic condition warrants a symptomatic approach that addresses all aspects of the clinical presentation. Attempts must be made to identify excitatory and sustaining factors, particularly in the chronic state where underlying causes involving a nervous component, stress or anxiety can be addressed effectively through herbal treatments. In as much as establishing an effective and efficient referral system is necessary ensuring an early definitive diagnosis through investigative laparoscopy, suspect obstructions in the genital tract or complications of abdominal or pelvic congestion that dictate the need for orthodox intervention must be dealt with via the same operational channels. Where lifestyle modifications are necessary (eg. giving up smoking) and where a strong association has been established between the risk factor, onset or exacerbation of endometriosis (xref. Table 4), the patient must receive significant support and encouragement as part of the treatment plan. Significantly, in some cases, addressing any complications that arise from adhesions, particularly if there is multisystem involvement is crucial. An initial systematic approach may give rise to measures that eradicate underlying causes that sustain the condition or excite an acute episode. A major consideration is to address all issues surrounding the possibility of infertility and the implications it presents to the patient.

An essential part of a herbalist treatment plan should include considerations of the wider implications for the patient in respect of the impact that this condition has on their life eg. work, friends, family etc...Life for sufferers can be intolerable as they struggle to endure the misery of intractable pain or prolonged infertility. Many women are embittered by the treatment they receive from the orthodox medical profession, unaware of the difficulties inherent in making an accurate diagnosis and treating the disease. Therefore, patient education is a vital part of management especially the chronic condition.

Prevention of Endometriosis

Varying degrees of obstruction to menstrual outflow in a young patient may present with severe dysmenorrhoea. More than half the patients who were noted to develop endometriosis during childhood and adolescence had varying degrees of genital tract obstruction (Hacker & Moore, 1998). There is a clear need for early diagnosis of congenital abnormality of urinary, intestinal or genital tract lesion (infants with genital tract obstruction were noted to develop endometriosis in the 1st year of life). Moreover, prompt action through cervical dilatation is indicated in some cases, though not routinely recommended.

TABLE 6 : Summary of a general treatment plan in the management of endometriosis

- Symptomatic approach to the clinical presentation
- Identification of sustaining and excitatory factors (especially chronic cases)
- Addressing lifestyle choices and identifying risk factors
- Addressing any concurrent complications in the clinical presentation
- Addressing issues of infertility
- Establishing effective referral systems for a definitive diagnosis in suspected cases
- Addressing wider implications of the presenting complaint
- Preventative measures (where possible)

Herbal Treatment Strategy

Owing to the complexity and characterisation of endometriosis, the holistic perspective in any herbal treatment strategy must, in part, address issues outside the symptomatic approach. The female reproductive system provides perhaps the most substantial challenge to modern medical procedures whilst representing potentially the richest prospects for an inspired phytotherapist (Mills & Bone, 2000).

Initial dysfunctions in menstruation may result in complicated manifestations through hormonal influences or imbalances. Quantifying the subjective distress that women suffer in reproductive

disorders makes treatment outcomes difficult to measure. This is matched by the lack of technical monitoring and is further hampered by the inconsistent pathology of endometriosis.

Nevertheless, a crude approach to redressing hormonal imbalances does present a remarkable beneficial effect. Ostensibly, this can have profound effects in alleviating symptoms. However, it has to be appreciated that the phytochemical efficacy of exogenous hormones does not compare to the complex pharmacological interplay of endogenous hormones that influence normal reproductive physiology. Much of the basis for treatment strategies rests on anecdotal evidence and attempts at understanding the phytopharmacological mechanisms of herb actions remain at best, speculative. However, the initial symptomatic approach may be superseded by plants that exert influence over endocrine action, particularly those that regulate reproductive function. The herbal drive to self-correct appears to be a feature of other gynaecological treatment strategies (Mills & Bone, 2000). A sophisticated approach would not only encompass the symptomatic and endocrine aspects but also include a trophorestorative function that nourishes and tones, especially the lymphatic and immune systems in addition to optimising elimination. This would particularly benefit those chronic cases where multisystem involvement as a result of adhesions has compromised anatomy and physiology of essential systems. A synopsis of the types of herb actions required at the symptomatic level is indicated in Table 7 (Adapted from Rogers, 1995 and Mills & Bone, 2000).

TABLE 7 : Summary of herbs commonly indicated in the symptomatic approach to endometriosis (Adapted from Rogers, 1995 and Mills & Bone, 2000) and the treatment rationale for their choice

Herb(s) of Choice	Treatment Rationale
<i>Vitex agnus castus</i> <i>Trillium erectum</i>	Progesteronc (to counterbalance oestrogen dominance – to halt hyperfollicularaemia)
<i>Viburnum opulus</i>	Antispasmodic and muscle relaxant – for addressing dysmenorrhoea and chronic pelvic pain
<i>Alchemilla vulgaris</i>	Oestrogen regulator Uterine astringent and toner
<i>Chamaelirium luteum</i>	Oestrogen regulator Minimum quantity required *
<i>Serenoa repens</i> <i>Rubus idaeus</i>	Hormone balancers – for addressing dysmenorrhoea and chronic pelvic pain
<i>Dioscorea villosa</i> *	Pelvic analgesic, anti-inflammatory and antispasmodic – for uterine & ovarian pain (specifically indicated)
<i>Glycyrrhiza glabra</i>	Hormone balancer
<i>Anemone pulsatilla</i>	Pelvic analgesic & anti-inflammatory – for ovarian & ovulation pain
<i>Viburnum prunifolium</i> <i>Piscidia erythrina</i>	Pelvic analgesic & anti-inflammatory
<i>Achillea millefolium</i> <i>Capsella bursa-pastoris</i> <i>Hamamelis virginiana</i>	Astringent & anti-haemorrhagic
<i>Gossypium herbaceum</i>	Antispasmodic, astringent, uterine stimulant – for heavy menstrual bleeding in endometriosis (Chevallier, 1997)

* Mills & Bone(2000) advise against its usage

Additional material: Norris, 1999

TABLE 8 : Summary of herbs commonly indicated in the symptomatic approach to endometriosis(Adapted from Rogers, 1995 and Mills & Bone, 2000)

Symptom	Phytochemical properties/ Pharmacological actions	Herbs of Choice
Chronic abdominal or pelvic pain	<ul style="list-style-type: none"> • pelvic tonic & astringent • anti-inflammatory • analgesic • antispasmodic 	<i>Senecio aureus</i> (life root) <i>Viburnum opulus</i> <i>Chamomilla recutita</i> <i>Piscidia erythrina</i>
Ovulation pain (pain mid-cycle)	<ul style="list-style-type: none"> • hormone balancer • ovarian tonic 	<i>Anemone pulsatilla</i> <i>Chamaelirium luteum</i> <i>Vitex agnus castus</i>
Dysmennorrhoea	<ul style="list-style-type: none"> • antispasmodic • analgesic • anti-inflammatory 	<i>Viburnum prunifolium</i> <i>Cimicifuga racemosa</i> <i>Anemone pulsatilla</i>
Menorrhagia	<ul style="list-style-type: none"> • anti-haemorrhagic • astringent 	<i>Achillea millefolium</i> <i>Trillium erectum</i> <i>Mitchella repens</i>
Menstrual irregularities	<ul style="list-style-type: none"> • hormone balancer (oestrogenic or progesteronal) 	<i>Vitex agnus castus</i> <i>Dioscorea villosa</i> <i>Smilax ornate</i>
Deep dyspareunia	<ul style="list-style-type: none"> • anti-inflammatory • analgesic 	<i>Anemone pulsatilla</i>
Dysuria	<ul style="list-style-type: none"> • astringent • demulcent • anti-inflammatory 	<i>Capsella bursa-pastoris</i> <i>Ulmus rubra</i> <i>Zea mays</i>
Pain on defaecation	<ul style="list-style-type: none"> • anti-inflammatory • astringent 	<i>Achillea millefolium</i> <i>Hamamelis virginiana</i>
Aggravated PMS	<ul style="list-style-type: none"> • hormone balancer (oestrogenic or progesteronal) 	<i>Vitex agnus castus</i> <i>Carduus marianus</i> <i>Angelica sinensis</i>
Pelvic congestion	<ul style="list-style-type: none"> • decongestants • circulatory stimulants • uterine tonics 	<i>Zingiber officinale</i> <i>Chamaelirium luteum</i> <i>Achillea millefolium</i>

Complications

Ectopic endometrial tissue embeds most frequently on the serosal aspect of the intestine, specifically the sigmoid colon and rectum (Haslett et al., 1999). Cyclical pain, bleeding, diarrhoea and constipation can be treated with herbal preparations on a symptomatic level. Complications through adhesions that cause non-specific obstruction may be more difficult to treat although *Centella asiatica* (GotuKola) and *Salvia miltiorrhiza* (dan shen) are recommended for significantly reducing the **rate** of adhesion formation (Mills & Bone, 2000).

Addressing the underlying pathology of any clinical presentation is always favoured in any holistic approach to treatment. In this respect, Table 9 lists the various mechanisms of underlying pathology

in endometriosis and the herbs that are commonly indicated for each aspect. (Adapted from McIntyre, 1992, Mills & Bone, 2000 and Peterson, 1995).

TABLE 9 : Treatment of underlying pathology in endometriosis(Adapted from McIntyre, 1992, Mills & Bone, 2000 and Peterson, 1995)

Underlying Pathology	Herbs influencing the Mechanisms
Regulation of ovarian function	<i>Vitex agnus castus</i>
Immune support (modulation & stimulation)	<i>Echinacea spp</i> <i>Astragalus membranaceus</i> <i>Picrorrhiza kurroa</i> <i>Phytolacca decandra</i>
Nervine tonics for stress/ anxiety	<i>Scutellaria lacterifolia</i> <i>Verbena officinalis</i> <i>Hypericum perforatum</i> <i>Turnera diffusa</i> (could also incl. Adaptogens eg. <i>Panax</i>)
Control of benign growths (anti-neoplastic)	<i>Thuja occidentalis</i> (Arbor-vitae) <i>Echinacea spp</i>
Liver support (hepatics that accelerate the breakdown of oestrogen)	<i>Silybum marianum</i> <i>Schisandra chinensis</i>

Evidence of Phytopharmacological Efficacy

An important focus is examining how effectively the body is eliminating and assess regulatory functions. This is partly a naturopathic philosophy. Another crucial aspect is circulation; part of the analgesic approach is to administer herbs that influence circulation in the pelvic region. In this respect, herbs such as *Crataegus*, *Zingiber* or *Capsicum* can all be helpful. Currently, there is a suggestion that thyroid antibodies are implicated in cases of endometriosis (Norris, 1999). Many of the herbs that influence immune function are also anti-inflammatory. *Echinacea* will modulate immune function whereas *Glycyrrhiza* will directly influence the adrenal glands whilst stimulating the immune responses that result from the augmentation of inflammatory processes. Further, pain control is important and though dosages are higher, more analgesic cover is required at the beginning, with gradual reduction for subsequent treatments (Peterson, 1995). Equally, treatment outcomes ought to be measured in the context of other medical or health problems with a view to modifying treatment strategies that prioritises more pressing concerns.

Hormonal influences of some herbs, particularly those that contain steroidal saponins (eg. *Dioscorea villosa*, *Chamaelirium luteum* and *Vitex agnus castus*) have all been indicated in endometriosis, though in minimal dosages. *Vitex* has been shown to influence pituitary function thereby exerting an indirect effect through gonadotrophin (GnRH) action (Murray, 1995). *Trillium erectum* is strongly indicated in cases of excessive bleeding or flooding (Norris, 1999). In Chinese medical theory, liver stagnation contributes to endometriosis by causing hormonal imbalances. Emphasis is on correcting liver malfunction through a liver cleansing diet combined with a Chinese patent formula called *Hsiao Yao Wan* (walker & Brown, 1998). Moreover, the Chinese herb *Keishi-bukuyo-gan* has been shown to suppress adenomyosis (ingrowth of the endometrium) in mice (Planta Medica, 1993).

Simple measures of other therapies such as aromatherapy may give local relief of pain by applying poultices of herbs such as *Chamomilla*, *Lavandula*, *Viburnum opulus*, *Anemone pulsatilla* or *Valerian* to the lower abdomen. Homeopathic and acupuncture methods are also used in the relief of pain or other commonly-experienced symptoms of endometriosis.

Nutritional Aspects of Management

By far the most important adjunct in the management of endometriosis is addressing nutrition, since dietary factors have been demonstrated on many occasions to be inextricably linked to health. An increased understanding of nutrition and the growing popularity of nutritional therapeutic strategies in addressing disease states has provided significant relief in some of the more common symptoms exhibited in endometriosis. On occasion, nutritional therapy considerably overlaps with herbal medicine, invariably when plant remedies prescribed therapeutically serve the role of nourishing the body and restoring raw materials (Lazarides, 1996).

With this in mind, hormonal imbalances in endometriosis can be addressed on a nutritional level and controlling oestrogen is essentially a nutritional process. Very low intakes of certain vitamins and minerals may limit the degradation of oestrogen and preventing its accumulation is essentially the treatment strategy, particularly as its build up through poor elimination is responsible for cell proliferation. Furthermore, the control of [oestrogen] is disturbed significantly by excess [sugar], insufficient protein and is almost incapacitated by a lack of the B vitamins, choline and inositol. Vitamin B₆ encourages production of progesterone to help rebalance the two main sex hormones (the SHE Trust, 2000).

Infertility and pain are two major symptoms that can be effectively addressed through diet; certain nutrients possess analgesic and anti-inflammatory properties which correspond to orthodox medicines without the side effects. Essential fatty acids such as fish oils, Evening Primrose Oil (EPO), Starflower oil, borage oil and linseed oils metabolise within the body to form anti-inflammatory prostaglandins (PGE₁) which help reduce pain and inflammation. Moreover, fish oil supplementation has been shown to significantly reduce the size of endometrial deposits. However, a balance between animal, vegetable and fish oil intake is necessary in order to avoid the production of certain prostaglandins that trigger inflammation. Other supplementary nutrients that are suggested have been summarised in Table 10. (Adapted from The SHE Trust, 2000).

TABLE 10 : Selected nutrients of value and relevance in addressing manifestations of endometriosis
(adapted from The SHE Trust, 2000)

NUTRIENT	COMMENT
Vitamin C	<ul style="list-style-type: none"> reduces inflammation
B complex B ₁ B ₆ B ₁₂	<ul style="list-style-type: none"> anti-inflammatory effects analgesic action
Mg ²⁺ deficiency	<ul style="list-style-type: none"> causes muscle cramping in abdomen causes joint pains <p>(Mg²⁺ acts on nerves that influence the relaxation of muscles & reduce the cramping pains during menstruation)</p>
DL Phenylalanine; DLPA (amino acid)	<ul style="list-style-type: none"> marked reduction in pain through augmentation of endorphin release

Dioxin (pesticide))	<ul style="list-style-type: none"> • accumulation in fat cells is implicated in immune system damage and endometriosis through interference with choline metabolism (American Endometriosis Assoc.) (Choline = a B vitamin that is essential for liver function and oestrogen degradation)
Phytoestrogens	<ul style="list-style-type: none"> • isoflavones (weak exogenous oestrogens) in soya may counter the effect of endogenous oestrogens • broccoli, French beans, pomegranates & fish oils encourages production of endogenous oestrogens

CONCLUSION

The clinical presentation of endometriosis may be quite diverse in respect of physical findings in addition to the severity of symptoms. Although there is no effective cure at present, the symptomatic approach to treatment and management is the preferred course of action.

Current study into this condition is minimal and is hampered by limited proof on aetiology and pathogenesis. Further, the difficulties in diagnosing endometriosis may delay treatment that can inevitably result in an exacerbation of the current presentation, or equally, problems with fertility. Herbal treatment strategies have demonstrated their effectiveness owing to their proven phytopharmacological efficacy *in vitro*, particularly in addressing pain, inflammation and hormonal imbalances. Moreover, the immense emotional distress connected with menstrual disturbances can often be overlooked, and along with the physical involvement, a whole burden of anxiety can accompany the clinical presentation. Effective herbal treatment of the psychological and emotional aspects of endometriosis remain an essential component of the management approach.

The increasing number of self-help groups, societies and organisations provide much needed support and guidance as well as patient education. Nutritional advice has proved invaluable in alleviating symptoms, in addition to redressing dietary deficiencies. It is evident that there is a pressing need for significant scientific research into endometriosis providing crucial information from empirical data that transforms our knowledge and understanding of this particular disease. Until that is considered a priority, treatment and management will continue to be limited to the symptomatic approach. This may be beneficial in the short-term but offers little comfort and consolation to sufferers in the long-term. A holistic approach is therefore essential in addressing the wider implications of endometriosis, particularly, in coming to terms with infertility, but equally, in dealing with the physical and mental wellbeing of all patients afflicted with this condition.

BIBLIOGRAPHY

1. Bown, D. (1995) The Royal Horticultural Society Encyclopedia of Herbs and their uses. Dorling Kindersley.
2. Hoffman, D. (1996) The Complete Illustrated Holistic Herbal. Element.
3. Hedley, C., Shaw, N. (1998) Herbal Remedies. Paragon.
4. Ballinger, A., Patchett, S. (2000) Clinical Medicine. 2nd Ed. WB Saunders.
5. Stary, F. (1991) The Natural Guide to Medicinal Herbs and Plants. Tiger Books Intl.
6. BMA & Royal Pharmaceutical Society of GB. (March 2001) BNF 41.
7. Pender, F. (Ed) (1994) Nutrition and Dietetics. Campion Press.
8. McIntyre, A. (1992) Herbs for Common Ailments. Gaia Books Ltd.
9. Furedi, A., Tidyman, M. (1994) Women's Health Guide. Health Education Authority.
10. Shephard, B.D., Shephard, C.A. (1990) The Complete Guide to Women's Health. 2nd Ed. Plume.
11. Shaw, N. (1998) Herbalism – An illustrated guide. Element.

REFERENCES

1. Chevallier, A. (1997) The Encyclopedia of Medicinal Plants. Dorling Kindersley.
2. Tortora, G.J., Anagnostakos, N.P. (1990) Principles of Anatomy and Physiology. 6th Ed. Harper Collins.
3. Lazarides, L. (1996) Nutritional Therapy. Thorsons.
4. Walker, L.P., Brown, E.H. (1998) the Alternative Pharmacy. Prentice Hall Press.
5. Murray, M. (1995) The Healing Power of Herbs. 2nd Ed. Prima Health.
6. Haslett, C., Chilver, E.R., Hunter, J.A.A., Boon, N.A. (Eds) (1999) Davidson's Principles and Practice of Medicine. 18th Ed. Churchill Livingstone.
7. McHoy, P., Westland, P. (2000) the Herb Bible. Barnes & Noble.
8. Rogers, C. (1995) The Woman's Guide to Herbal Medicine. Hamish Hamilton.
9. Mills, S., Bone, K. (2000) Principles and Practice of Phytotherapy. Churchill Livingstone.
10. Hacker, N.F., Moore, J.G. (1998) Essentials of Obstetrics and Gynaecology. 3rd Ed. WB Saunders.
11. Llewellyn-Jones, D. (2001) Fundamentals of Obstetrics and Gynaecology. Mosby.
12. Chamberlain, G., Hamilton, Fairley, D. (1999) Lecture Notes on Obstetrics and Gynaecology. Blackwell Science.
13. McKay Hart, D., Norman, J. (2000) Gynaecology Illustrated. 5th Ed Churchill Livingstone.
14. Kennedy, S. in McPherson, A. (Ed) (1999) Women's Problems in General Practice. Oxford University Press.

15. Bonnar, J. (Ed) (1995) Recent advances in Obstetrics and Gynaecology. No.19. Churchill Livingstone.
16. Rutherford, A., Salha, O.H. *Female Infertility : Other Causes*. **Medicine** 2001; Vol 29 (9) : 34-37.
17. Allen, K.M., Phillips, J.M. (1997) Women's Health across the lifespan. A comprehensive perspective. Lippincott.
18. Odukoya, D.A., Cooke, I.D. in Studd, J. (Ed) (1998) Progress in Obstetrics and Gynaecology. Vol 12. Churchill Livingstone.
19. Willocks, J., Neilson, J.P. (1991) Obstetrics and Gynaecology. Churchill Livingstone.
20. McPherson, A., Waller, D. (Eds) (1997) Women's Health. 4th Ed Oxford University Press.
21. Slade, R.J., Laird, E., Beynon, G. (1993) Key Topics in Obstetrics and Gynaecology. Bios Scientific Publ.
22. Stirrat, G.M. (1997) Aids to Obstetrics and Gynaecology. Churchill Livingstone.
23. Campbell, S., Monga, A. (2000) Gynaecology by Ten Teachers. 17th Ed Arnold.
24. Philipp, E., Setchell, M. (Eds) (1991) Scientific Foundations of Obstetrics and Gynaecology. 4th Ed. Butterworth Heinemann.
25. Barbieri, R.L. *Etiology and Epidemiology of Endometriosis*. **Am. J. Obstet Gynaecol**. 1990; 162 : 565-567.
26. American Fertility Society Classification of Endometriosis. **Fertil. Steril**. 1985; 43 : 351.
27. Sampson, J.A. *Peritoneal endometriosis due to menstrual dissemination of endometrial tissue into the peritoneal cavity*. **Am. J. Obstet Gynaecol** 1927; 14 : 422-469.
28. Lui, D.T.Y., Hitchcock, A. *Endometriosis : its association with retrograde menstruation, dysmnorrhoea and tubal pathology*. **British J. Obstet & Gynaecol** 1986; 93 : 859-62.
29. Bartosik, D., Jacobs, S.L., Kelly, L.J. *Endometrial tissue in peritoneal fluid*. **Fertility & Sterility** 1986; 46 : 796-800.
30. Steele, R.W., Dmowski, W.P., Marmar, D.J. *Immunologic aspects of humn endometriosis*. **Am. J. Repro & Immunol** 1984; 6 : 33-6.
31. Meyer, R. *Verberden strand der frage der adenomyositis, adenomyoma in allgemeinen (in sbesondere ueber), adenomyosis und adenomyometritis sarcomatosa*. **Zentralblatt fur gynakologie** 1919; 36 : 745-59 in Campbell & Monga, 2000.
32. Mohamed Ali, A.F., Ffateen, B., Ezzet, A., Badaway, H., Ramadan, A., El-Tobge, A. *laparoscopic intraperitoneal injection of human interferon α -2b in the treatment of pelvic endometriosis : a new modality*. **Obstet Gynecol** 2000; 95 : 475-485.
33. Badawy, S., Etman, A., Cuenca, V., Montante, A., Kaufman, L. *Effect if interferon α -2b on endometrioma cells in vitro*. **Obstet Gynecol** 2001; 98(3) : 417-420.
34. **Planta Medica** Aug 1993.