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Dysmenorrhoea -- To Treat or Not to Treat?

By Editorial Staff

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Abstract:

Patients suffering from painful periods (dysmenorrhoea) frequently seek chiropractic care to help manage their cyclic pain. In this paper we discuss literature, both clinical and theoretical, relating to chiropractic management of primary dysmenorrhoea in an attempt to clarify the chiropractor's role in management of this condition. The literature has identified that primary dysmenorrhoea, by definition, is cyclic pain without an organic basis which is often associated with pain of somatic origin. We discuss mechanisms thought to be responsible for primary dysmenorrhoea, including the somatic component, and examine clinical reports from the literature which discuss the response of primary dysmenorrhoea to chiropractic care.

Index Terms: (MeSH) Chiropractic; Dysmenorrhea; (other) Primary Dysmenorrhoea; Period Pain; Cyclic Pain.

Background:

The following review of the role of chiropractic care in the management of primary dysmenorrhoea was in response to a request from the Chiropractors and Osteopaths Registration Board of Victoria. This followed a complaint to the Board about an advertisement placed in a local paper by a chiropractor which stated that chiropractic care could help, inter alia, "period pain." The Board requested the chiropractor "...to provide acceptable scientific evidence that chiropractic treatment could help period pain, which is an organic condition."

This review attempts to summarize the evidence, both theoretical and clinical, relating to chiropractic management of dysmenorrhoea. Two points need to be clarified: first whether we are dealing with an organic disease or not. As defined below, primary dysmenorrhoea is period pain without demonstrable lesions affecting the reproductive structures. It can be argued that there is a strong somatic component of primary dysmenorrhoea that would be amenable to chiropractic care. In secondary dysmenorrhoea, where the cause is of an organic nature, there may be associated somatic problems that could be relieved by chiropractic care without making any claims as to affecting the underlying organic cause, which should be referred to the appropriate medical specialist. Second, the issue is whether chiropractic care can help period pain. This is not to say that specific manipulations or adjustments are necessarily or directly involved in alleviating period pain, but rather whether a holistic chiropractic approach can. This approach includes not only chiropractic adjustments, but a range of treatment regimes including soft tissue therapy, diet modalities such as ultrasound, and life style counselling, all of which are within the scope of practice of properly trained chiropractors.

Definitions:

Dysmenorrhoea basically means painful periods, the word being derived from a Greek root meaning difficult monthly flow, however it did not appear in the English language until about 1810.¹

Primary dysmenorrhoea is defined as a cyclic pain associated with menses if no pelvic or structural abnormalities are found as causes, and no abnormalities are present in the physical examination, the diagnosis being suggested by the patient's history.^{1,2}

Secondary dysmenorrhoea, on the other hand, is associated with organic pathology,^{1,2} including such conditions as endometriosis, ovarian cysts and pelvic infections. Generally such conditions produce a more generalized pain pattern unrelated to the menstrual cycle,² although some cyclic exacerbations may occur.³ These cyclic exacerbations tend to be somewhat irregular -- for instance, pain of an enlarging or leaking ovarian cyst can recur in relation to the menstrual cycle, but not with every cycle.² Secondary dysmenorrhoea due to a pelvic infection will also usually be accompanied by other clinical signs, including fever, lymphadenopathy and an increase in WBC count and ESR.

Primary Dysmenorrhoea

Signs and Symptoms

Primary dysmenorrhoea usually begins immediately before menstruation, peaking in severity as flow begins.^{1,2} The pain is usually colicky or cramp-like in nature, or consists of a constant dull ache localized to the lower abdomen. Accompanying pain also frequently occurs in the low back and lower limbs.^{1,2} Patients suffering from dysmenorrhoea often have systemic symptoms, including nausea, diarrhoea or constipation, headache, light-headedness and urinary frequency.¹⁻² These symptoms are thought to relate to the underlying disturbed physiology of primary dysmenorrhoea.¹

Physiology of Primary Dysmenorrhoea

There is a growing body of evidence that suggests that primary dysmenorrhoea may be due to an excessive production and release of prostaglandins 1,2,4 and perhaps vasopressin 2 during menstruation. This increased production is thought to cause uterine muscle hypertonicity, vascular constriction and ischaemia. Associated systemic symptoms of primary dysmenorrhoea (such as those listed above) are thought to occur as a consequence of increased plasma concentrations of prostaglandins.^{1,2}

Prostaglandins are a family of chemicals synthesized in response to tissue injury from the fatty acid precursor arachidonic acid.^{1,5,6} The endometrium and myometrium also synthesize and release prostaglandins.^{2,4}

The physiological effects of prostaglandins are many and varied, but those that are relevant to discussion include vasoconstriction (as mentioned above) and the sensitization of nociceptors.^{1,5,6}

There are two mechanisms that can be postulated to account for the somatic pain syndrome associated with primary dysmenorrhoea (i.e. back and lower-limb pain and headaches). One involves the phenomenon of referred pain, while the other involves the concept of facilitation.⁷

Referred Pain

Referred pain is pain perceived in an area that does not seem to have any relation to the source.⁸ Referred pain is usually accompanied by reflex muscle spasm, deep tenderness and autonomic hyperactivity.² One of the features of referred pain is that it can outlast the causative pathology because of local alteration to reflex patterns, continuing local stressors (e.g. abnormal mechanical loading of muscles) or the development of hypersensitive areas known as trigger points.^{2,8,9}

The mechanism thought to account for the phenomenon of referred pain involves the convergence of visceral afferent fibres with cutaneous nociceptive fibres on the same neurone, at some point along the sensory pathways, to conscious perception.² These points can include spinal, thalamic and/or cortical levels. The first opportunity for this to occur is at the level of the spinal cord upon spinothalamic tract neurones.¹⁰ The resulting propagated impulses are interpreted by the higher centres as having originated from the skin, as this is a learned response from previous exposures when the tract fibre was stimulated by cutaneous efferents.^{2,10}

Anatomical Review

The innervation of the uterus arises from the inferior hypogastric plexus, predominantly from the part of the plexus known as the utero-vaginal plexus.¹¹ Preganglionic sympathetic fibres in this plexus arise from spinal cord segments T10-L2 with parasympathetic preganglionic fibres from sacral segments 2, 3 and 4.^{11,12}

The major visceral afferent input to the cord is closely related to afferent output and enters the spinal cord at the same levels, i.e. T10-L2; S2-S4.¹²

Given the above sensory distribution, referred pain from the uterus might be anticipated to involve any somatic areas innervated by the above cord segments.

The Concept of Facilitation

The concept of facilitation can be summarized as a lowered threshold for firing of a spinal cord segment as a result of sustained afferent input into the CNS associated with a spinal or segmental somatic dysfunction.⁷ Such a dysfunction can present with or without pain.¹³

The facilitation hypothesis suggests that a lesioned segment is sensitized to all other inputs impinging on that segment.^{7,13} Such a phenomenon has been demonstrated, for example, by the reduction in level of pain tolerance that occurs at the site of a lesioned segment.¹⁴ Prostaglandins are known to sensitive nociceptors. The excessive rise in plasma concentrations of prostaglandins in primary dysmenorrhoeic women (four times higher in dysmenorrhoeic as opposed to normal women³) may contribute to, and serve as a necessary trigger for a previously subthreshold somatic dysfunction to be manifested as cyclic pain.

Clinical Evidence from Current Literature

Current medical treatment for primary dysmenorrhoea includes the NSAIDs (nonsteroidal anti-inflammatory drugs), which are thought to act by inhibiting prostaglandin synthesis.^{2,4}

Nondrug therapies for primary dysmenorrhoea which have been investigated include transcutaneous electrical nerve stimulation,^{15,16} acupuncture¹⁸ and exercise.^{18,19} Each of these modalities is thought to act by stimulating endogenous opioid pain-modulating systems.⁴

Chiropractic Care

The use of chiropractic care in the management of primary dysmenorrhoea is also supported by the literature. Arnold-Fronchot²⁰ reported on five female patients, aged 18-23 with primary dysmenorrhoea. Spinal adjustments were performed for two to three months and a "Menstrual syndrome questionnaire" was used to assess outcome. Two patients were almost completely relieved of menstrual pain, one responded to other pelvic chiropractic therapy and two had no benefit. The author was unable to explain the results.

A study by Thomason et al.,²¹ examined the effects of spinal manipulative therapy on the relief of pain related to the menstrual period. This study was one of the first to include a control group. Efficacy of chiropractic care in alleviating pain was measured by use of a menstrual symptom questionnaire. The results showed that there was a significant reduction in the severity of symptoms associated with menses in the group which received spinal manipulative therapy.

Kokjohn et al.,⁴ were the first to compare the effect of spinal manipulative therapy versus sham manipulation on three parameters used to measure primary dysmenorrhoea. First, on circulation plasma levels of the prostaglandin F_{2a} metabolite; second on perceived abdominal and back pain and third on perceived menstrual distress. The methodology used in this study was a randomized clinical pilot study investigating the outcome measures before and after treatment. The results suggested that spinal manipulative therapy may be an effective and safe nonpharmacological alternative for relieving the pain and distress of primary dysmenorrhoea.

Another study implicating a somatic dysfunction in the pain syndrome experienced with primary dysmenorrhoea was that conducted at the Canadian Memorial Chiropractic College in 1991. In this study, Hains et al.,²² attempted to identify a somatic lesion that would correlate with primary dysmenorrhoea in a double blinded study. Their results showed that there was a significant increase in the number of tender

points at the thoracolumbar junction in subjects with primary dysmenorrhoea when contrasted with those having no period pain. No significant difference in tender points was found in a control area. (T8-9) between the two groups. Their study suggested that primary dysmenorrhoea, of this small population group, is associated with a significant reproducible somatic component, although its underlying mechanism was not investigated.

Madeleine Crnec of the Canadian Memorial Chiropractic College has provided a detailed review of primary dysmenorrhoea, including aetiological and management aspects. References are given of anecdotal/case study reports in the chiropractic and osteopathic literature which document the effect of manipulation on the symptoms of pain associated with menses. Of importance to mention here is her assertion that part of the pain syndrome associated with primary dysmenorrhoea is in fact somatic in origin. Chiropractic care is partly directed, in her opinion, to the removal of this somatic component.

Crnec also gave consideration to the involvement of regional soft tissues in the manifestation of the pain syndrome associated with primary dysmenorrhoea. An example of this hypothesis is given by Dobrik.²³ This author suggests that the topographic and anatomic connections among the iliopsoas muscle, the internal genitalia and the osteotendomyogenic structures as well as their common vascular and nervous supply, provides implication for their mutual reflex influence. Dobrik further suggests that such a hypothesis is supported by clinical observation.

Conclusion

Whether or not chiropractic intervention is able to influence visceral function, and if so, by what mechanisms, is not at issue here. The issue is whether "chiropractic care" can help alleviate "period pain." Current evidence suggests that:

1. Primary dysmenorrhoea is not associated with organic pathology but is thought to involve an over-production of prostaglandins by the endometrium.
2. Period pain is associated with a significant somatic component with cyclic pain commonly experienced in the lower back and lower extremities.
3. The origin of this somatic component is thought to involve pain referral and reflex facilitation mechanisms.

4. On the issue of referred pain it is established that the referred pain manifestations associated with a deep somatic or visceral structure can outlast the original stimulus leading to a primary somatic dysfunction.

5. Whether or not a significant somatovisceral reflex component contributes to the clinical entity of primary dysmenorrhoea has not been specifically investigated in literature. There is, however, a body of evidence which supports the concept of somatovisceral reflexes and the capacity of aberrant reflex activity to influence the balance of autonomic function to an organ with a resultant change in function.^{24,25}

It would be reasonable, on the available anecdotal, theoretical and scientific evidence, to claim that holistic chiropractic care embracing spinal manipulation, soft tissue therapy, and other appropriate advice and modalities, could offer some relief to sufferers of primary dysmenorrhoea. This is not to claim that chiropractic can "cure" the problem, or that spinal adjustments per se are the reason for any observed relief. However, there would appear that there is at least as much evidence and rationale for chiropractors treating primary dysmenorrhoea as there is at present for their treating thoracic pain, for example.

Outcome of Submission

In late October 1994, the Chiropractors and Osteopaths Registration Board delivered its decision regarding this case. A written warning was delivered to the chiropractor which stated:

"...there is insufficient evidence supplied in these references to warrant freedom to advertise a response to period pain by chiropractic methods..."

In addition, the Board stated that it "...continues to accept the advice of the New Zealand Commission of Inquiry into chiropractic in that it regards the inducement of persons to believe that chiropractic treatment will necessarily cure or alleviate any organic or visceral condition as conduct unbecoming (p.309)."

The Board resolved "...to issue a warning on this occasion" to the involved chiropractor.

While recognizing that the Registration Boards are charged with the responsibility of protecting the public interest, a balance must be struck between this and what is acceptable scientific evidence. If clinical practice, and the advertising of the role of chiropractic in the health-care arena is limited to those procedures and/or conditions that have been thoroughly scrutinised by science, chiropractors may well be limited to "treatment" of uncomplicated mechanical low-back pain. Such an attitude places a great deal of faith and responsibility at the feet of science to provide all the answers for the clinical results that are observed in the

chiropractor's office. It also neglects the role of clinical practice itself, and both empirical and prima facie evidence in contributing to our clinical knowledge base. A further issue is that responsible advertising about the role of chiropractic in health-care needs to be balanced with the right of the public to know that there is evidence, albeit inconclusive at this time, that chiropractic care may be helpful in alleviating the suffering of people afflicted with conditions such as primary dysmenorrhoea.

Finally, it is well recognized that primary dysmenorrhoea has a significant somatic component. The chiropractor did not claim that chiropractic management of period pain cured or even alleviated a visceral condition, much like an aspirin does not cure or alleviate a visceral condition. The original advertisement simply stated "...chiropractic care...including...period pain."

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