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Pertinent case studies illustrating the need for laboratory accessibility for Doctors of Chiropractic: a clinical conundrum

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Current provincial legislation in various jurisdictions across Canada, serves to impede the utilization of the diagnostic laboratory by doctors of chiropractic. Chiropractic students both in Canada and the United States, are required to successfully complete an intensive course of study in the area of laboratory diagnosis, as a necessary aspect of the undergraduate educational curriculum. Unfortunately, Canadian graduate doctors of chiropractic and their patients, are not currently afforded the privilege of direct referral to a community diagnostic laboratory. Rather, chiropractors must enlist the assistance of other health care providers, namely medical doctors, to acquire various laboratory testing procedures. The premise of this paper is intended to demonstrate the necessity of revising such laws, in order to address the needs of those health care consumers who seek the services of the rapidly growing profession of chiropractic. Two clinical cases are presented as illustrative examples.
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KEY WORDS: chiropractic, manipulation, legislation, laboratory, diagnosis.

L'absence d'uniformité des législations ayant cours d'une province à l'autre au Canada empêche les docteurs en chiropratique de poser un diagnostic à l'aide d'essais en laboratoire. Les étudiants en chiropratique, tant au Canada qu'aux États-Unis, doivent suivre un cours intensif sur le diagnostic biologique, qui est considéré comme nécessaire dans le cadre d'une formation académique universitaire. Malheureusement, les docteurs en chiropratique et leurs patients ne possèdent pas le privilège de pouvoir faire appel à un laboratoire communautaire. Les chiropraticiens doivent plutôt demander l'assistance d'un autre professionnel de la santé, en l'occurrence un médecin, pour procéder à différentes tests de laboratoire. La prémisse de cet article vise à démontrer qu'il est nécessaire de modifier les lois afin de répondre aux besoins des consommateurs de soins de santé qui font appel aux services de la chiropratique, une profession en pleine expansion. Deux cas cliniques serviront à illustrer notre propos.
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MOTS CLÉS : chiropratique, manipulation, législation, laboratoire, diagnostic.

Introduction

As the ever-changing face of health care delivery becomes increasingly more complex, issues surrounding the scientific, sociological and legal aspects pertaining to primary care practitioners, continue to present bolder challenges and difficulties previously not encountered.

The introduction of newer freedoms into the public domain, coupled with restrictions imposed upon certain complementary health care providers, serve to impede the optimal delivery of services. Such a climate fosters ill-feelings while promoting the notion of a "double standard" within the health care community, particularly affecting those considered to be primary health care personnel.

Furthermore, such ill-fated perceptions in the past, have lead to misconceptions involving various health care professions, specifically the profession of chiropractic.[1] The utilization of chiropractic services, however, has become

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increasingly more popular,[2,3] and in a recent study in the province of Ontario, chiropractic has been shown to be cost-effective when compared to other forms of health care.[4] Moreover, the value of and demand for chiropractors and their particular expertise, is now realized in industry, within multi-disciplinary clinical and physical rehabilitation settings and amongst professional athletes and several sports organizations.[4–6]

Doctors of chiropractic in Canada, for the most part, receive their training from the Canadian Memorial Chiropractic College (CMCC), based in Toronto, Canada. As part of their four-year curriculum, undergraduate students of CMCC receive 93 hours of training in the area of laboratory diagnosis (72 hours- clinical chemistry; 21 hours clinical clerkship), over the course of their latter three years, the final year comprising the internship.[7] Such training includes hematology, urinalysis (routine and microscopic) and general clinical chemistry.[8]

Although doctors of chiropractic in Canada are suitably trained in both the academic and technical aspects of laboratory diagnosis, they are, nevertheless, unable to utilize their knowledge and skills subsequent to graduation.[9] Such an undesirable situation is the direct consequence of specific legislation in various provinces nationwide, which precludes their participation in this regard.[7] Given the current trends connected, not only with contemporary modifications to the delivery of health care, but also with the legal ramifications associated with malpractice, it is not difficult to appreciate the apparent untenable precariousness of the practicing chiropractor. Therefore, the importance of laboratory investigations as an adjunctive diagnostic tool set, cannot be sufficiently underscored.

It is the ultimate responsibility of every duly registered and licensed primary health care practitioner, to provide state-of-the-art, quality service for patients who seek their assistance. Given the requisites associated with modern clinical practice then, the difficulties for the busy chiropractic practitioner become intuitively obvious.

Currently, laboratory investigations, which may be required by chiropractors as the result of findings ascertained subsequent to appropriate history and/or physical assessment of a patient, are arranged by the family medical physician, at the request of the attending chiropractor. In provinces such as Ontario, the process necessitates billing the provincial health care system twice, prior to the acquisition of the specifically requested investigation or series of tests, the majority of which are also charged to the province.

Where such testing may be considered appropriate, the matter might be more expeditiously attended to, were chiropractors able to refer patients directly to clinical laboratories. Such a maneuver would circumvent the necessity for referral to the family medical physician, consequently defraying unnecessary costs to the system. Noteworthy is the fact that prior to 1972, chiropractors and their patients, enjoyed the convenience and privileges associated with direct referral to the diagnostic laboratory. At that time, due to legislative changes, however, continuing entitlement to laboratory utilization by chiropractors was precluded. The reader is encouraged to review Gotlib, Injeyan and Crawford[7] for further detail regarding this aspect.

A review of the current chiropractic literature reveals very few clinical case reports where diagnostic laboratory information has been utilized directly in the management of chiropractic cases.[10–12] In two of these situations, however, the attending chiropractors enjoyed the luxury of a co-operative working relationship with medical physicians, through whom appropriate testing was made accessible.[10–11] It is submitted that the relative paucity of such reports is not a reflection of missed or misinterpreted diagnoses by clinicians. Rather, it is more likely related to either the inability of chiropractors to refer patients to the diagnostic laboratory or is reflective of difficulties in obtaining pertinent information for reporting purposes. Often, patients who initially seek chiropractic care may be referred to their family medical physician with a request for a more definitive investigation of suspicious physical examination findings. Subsequently, due to the specific nature of a given disorder, management of the case generally becomes the responsibility of the physician rather than that of the chiropractor. As well, the patient may elect to cease chiropractic care while awaiting results of testing procedures and, consequently, may eventually disappear into the system. The attending chiropractor is often inadvertently disregarded as a consequence, the perception being that such matters do not directly impact within the realm and scope of chiropractic knowledge and practice.

What emerges, then, is a general perception that the role of the chiropractor does not require the use of the diagnostic laboratory. The misconception is that they are neither

cognizant of nor adequately trained to recognize those disorders which may require further and more sophisticated diagnostic investigation and verification. Therefore, the consensus is to leave such work to the medically trained personnel.

Reality, however, demonstrates that a growing number of health care consumers prefer to consult doctors of chiropractic with respect to their painful complaints, prior to seeking the advice of other health care professionals.[4] Therefore, it seems most prudent to provide chiropractors with the necessary legal means by which they may direct their patients' health care in the most appropriate manner. To do so would require the ability to requisition appropriate tests directly as outlined in Injeyan, Gotlib and Crawford.[13]

Although doctors of chiropractic may be consulted for a variety of reasons, most often they are asked to deal with maladies primarily affecting the nervous, muscular and skeletal systems.[14] Manipulation (i.e. chiropractic adjustment), mobilization and soft tissue therapy are considered the primary methods of treatment employed by the majority of chiropractors.[14–16] Consequently, due to the nature of their treatment methods and knowledge base, disorders of great interest to chiropractors would include: anemia and other blood dyscrasias; myeloproliferative disorders; coagulopathies; immunopathological disorders; neuropathies; serum protein, electrolyte and enzyme alterations; bone, joint and collagen-vascular abnormalities; nutritional deficiencies; gastrointestinal dysfunction; endocrine abnormalities and pregnancy. Such conditions considered in the differential diagnosis may be ruled in/out with the help of laboratory diagnosis tests, thus constituting the basis for treatment and/or referral.

To illustrate the foregoing, what follows are examples of two clinical cases which, due to their pathophysiological natures and symptomatic presentations, are conditions commonly associated with the maladies routinely treated by doctors of chiropractic.

CASE 1 – History

Mr. R.R., a retired 76-year-old Caucasian gentleman, presented with pain in the lower back region of approximately 6 months duration.

Although the patient related an intermittent history of chronic low back pain of several years duration, his current complaint was said to have had evolved insidiously and without relationship to any particular incident such as that associated with trauma, infection or other obvious illness. He stated that his current symptoms, which he attributed to "old age", were neither similar in character nor severity, to previously experienced complaints.

Pain, said to be localized to the lumbosacral region, was noted to be experienced matutinally and associated with stiffness. Further, such symptoms were reportedly experienced on an intermittent, but daily basis.

Aggravating factors included active forward truncal flexion, arising from seated postures and prolonged periods of sitting and standing. Transient relief was said to be achieved while using 5 lb. dumbbell weights, in conjunction with forward flexional exercises. As well, the use of non-steroidal anti-inflammatory medications provided some relief of symptoms, however, the patient was virtually medication-free. Overall, the scenario was said to have been not worsening progressively.

Previously, the patient had experienced a prolonged history of chronic lumbosacral "strain", to which he attributed his condition of degenerative disc disease. Further history included a previous traumatic event, several years earlier, involving his left shoulder. As well, he had undergone a transurethral prostatectomy, appendectomy, hemorrhoidal surgery and inguinal hernia repair, in years past. No other elements of the patient's history were deemed pertinent to this case.

Physical assessment

Physical examination revealed decreased range of motion in the cervical spine with slight neck pain during active rotation. As well, slight pain was noted during active lateral lumbar flexion, bilaterally. Other orthopedic testing maneuvers included straight leg raising, assessment of leg length discrepancies, abdominal and hip and knee evaluation, all of which were noted to be unremarkable. All deep tendon reflexes, peripheral vascular pulses and motor/sensory assessments were noted to be intact and unremarkable, bilaterally. Plantar response was observed to be downward.

A provisional diagnosis of mechanical low back pain, likely secondary to degenerative disc disease, was rendered. Chiropractic care was administered on the basis of 3 visits per week for 2 weeks.

Although the patient appeared somewhat responsive after 6 visits, a referral to a medical facility (specialist),

was considered clinically expedient, to further elucidate the underlying causes of his symptoms. Laboratory investigation was requested by the attending chiropractor. As well, a plain film lumbar spine series was requisitioned.

Results

Radiographic analysis of the lumbar spine revealed advanced, diffuse, degenerative changes at all levels, with relative sparing of the L5–S1 intervertebral space. Diffuse osteoarthritis of the facet joints was noted at all levels.

Laboratory analysis of the patient's blood (i.e. cells and serum proteins), indicated normal findings for both erythrocytes and leukocytes (i.e. granular and agranular series), with respect to their morphological and functional characteristics and numbers.

When subjected to electrophoretic analysis, the patient's serum protein profile, demonstrated an abnormal band (i.e. paraprotein), in the slow gamma region. With further investigation, serum electrophoresis demonstrated slightly increased levels of both alpha-2-macroglobulin and IgA. Of note, however, was the detection of an IgG paraprotein (i.e. type k), in moderate concentration.

Subsequently, urine electrophoresis was performed and demonstrated the presence of both an IgG paraprotein (type k), in low concentration and a Bence-Jones protein (type k), in moderate concentration.

Consequently, as no significant physical abnormality could be detected during either the history or physical examination, the increase of plasma monoclonal gamma globulin, the significance of which was not understood, in conjunction with a Bence-Jones proteinuria, lead to a diagnosis of multiple myeloma.

CASE 2 – History

Mrs. L.L., a 52-year-old woman of Oriental descent, was seen during consultation, complaining of thoracolumbar pain, subsequent to shoveling snow 6 weeks earlier.

Apparently, the patient had previously attended two other chiropractors, having received a total of six treatments which included trigger point therapy and specific exercises from the first and a similar plan of management with the addition of acupuncture from the second. She experienced no relief, however, and was concerned that her symptoms were not abating as quickly as she had anticipated. Consequently, she sought the services of one of the co-authors (AG).

As far as could be determined, no previous history was related to the patient's presenting complaints, save for the incident involving snow shoveling which for the patient apparently constituted almost an entire days activity. She reported no recent trauma, bouts of infection or episodes of arthritic flare.

Severe pain was said to be localized to the thoracolumbar region with radiations to the ribs bilaterally and to the right hip. Aggravating factors, involving generalized movement, included prolonged periods of seated posture, change of position, forward and lateral flexion, walking and normal breathing. Nothing was noted to provide even transient relief. The patient stated that she was post-menopausal by age 46. As well, she related experiencing a fall 12 years previously, where she sustained left-sided rib fractures. Overall, symptoms were reported to be worsening progressively. As related by the patient, no other aspects of her history were considered pertinent to this case.

Physical assessment

The patient was noted to be functionally limited, due primarily to painful symptoms. Assessment of the cervical spine through active ranges of motion in all six cardinal directions was noted to be reasonably full and unremarkable.

Visual inspection of the patient during erect, weight-bearing posture revealed an obvious kyphosis of the thoracic spine. When tested in all directions, active ranges of thoracic spinal motion were noted to elicit pain, particularly at the level of the thoracolumbar junction. Digital palpation of the thoracic spinal elements and rib cage was noted to be tender. Further orthopedic evaluation included straight leg raising from the supine, non-weight-bearing posture, the results of which were noted to be within acceptable limits. As well, deep tendon reflexes, peripheral vascular pulses and motor/sensory assessments were determined to be intact and unremarkable, bilaterally.

Initial clinical impressions suggested the presentation of spinal pain to be the result of compression fractures, secondary to osteoporosis. Due to the vague overall course of the initial interview and limited physical assessment, however, it was decided to requisition both thoracic and lumbar plain film radiographic studies. Further, it was determined that the patient be referred for medical consultation, prior to proceeding with specific chiropractic care.

Results

Radiographic investigation of the lumbar spine demonstrated degenerative changes at the L3–4 and L4–5 levels. No other findings were noted to be of significance.

Examination of the thoracic vertebral elements revealed the presence of compression fractures at T5 and T8. With respect to plain film radiography, however, such a finding is inconclusive with regard to the age of such fractures. No other specific findings were reported.

Laboratory investigations, within 4 days of initial assessment, indicated increased serum calcium and phosphorous levels, along with an increase in the alpha-1 and alpha-2 globulins and an elevation in the gamma globulin band, as assessed by serum protein electrophoresis. Approximately one week later, the patient remained hypercalcemic and demonstrated a slight decrease in albumin levels. Alpha-1 and alpha-2 globulins remained elevated with an abnormality in the gamma band. Urine immunoelectrophoresis indicated the presence of immunoglobulin fragments, likely light chain derivatives, due to their reactions to specific antisera. It was suggested that the presence of such entities may mask the presence of a paraprotein.

After three weeks of intensive laboratory investigation, the patient was referred for a total body bone scan in an effort to resolve the cause of her abnormally elevated serum calcium levels. The study demonstrated increased uptake of the radiolabelled tracer in the following sites: the 8th and 12th thoracic vertebrae, representing significant osteoblastic activity, signifying either compression fracture or metastatic disease; distal end of the left 2nd rib, compatible with a fracture at the costochondral junction or a costochondritis; two other ipsilateral ribs and the right 10th rib, again indicating increased osteoblastic activity which may represent recent fracture or a metastatic process; the articular margins of the right hip, signaling arthritic degeneration.

At the fourth week following her initial assessment, the patient was hospitalized for both pain management and for further tests. At the time of admission, the patient was found to be hypercalcemic, with increased phosphorous and suppressed parathyroid hormone levels. As well, she was found to be suffering with hypochromic, microcytic anemia. Endoscopic examination subsequently revealed the presence of a 1.0 cm. duodenal ulcer. Otherwise, no obvious gastrointestinal tumor was noted. Abdominal ultrasonography revealed no abnormalities or lesions, either primary or metastatic. Studies of bone marrow aspirates demonstrated a mild plasmacytosis to a level of 8% and no malignant cells were visualized. The patient remained in hospital for a period of three weeks, at which time she was discharged.

It was concluded that the hypercalcemic state was most likely multi-factorial in nature. The consideration of metastatic carcinoma with an unknown primary source was eventually ruled out and based upon the overall presentation of the case, the diagnosis of multiple myeloma was rendered. The patient succumbed shortly thereafter.

Discussion

In the foregoing, the common element initiating each chiropractic consultation was the condition of low-back pain, either resulting from some associated physical incident, or brought about insidiously. Also in each example, the offending malady *multiple myeloma*, is a disorder beyond the reach of that which chiropractors, due to their scope of practice, are capable of treating effectively, particularly without further clinically pertinent information.

Not only is it the case where those seeking chiropractic care suffer unknowingly with multiple myeloma. Such scenarios are commonly encountered in daily practice where patients suffer with a variety of conditions. Examples include the arthritic variants of rheumatoid arthritis, ankylosing spondylitis and others, myopathies, gastrointestinal disturbances including Crohn disease, autoimmune disorders such as SLE and myasthenia gravis, peripheral neuropathies and demyelinating diseases such as multiple sclerosis. Often, patients seek advice and obtain remedies from natural care practitioners, prior to attending the offices of traditional health care personnel. Therefore, denied utilization of the diagnostic laboratory may serve only to confuse, frustrate and delay otherwise appropriate and timely care.

This concept has been recognized by leading scholars who have reviewed the efficacy and effectiveness of chiropractic and recommended the incorporation of specialized diagnostic services into chiropractic practice. For example, Manga and associates,[4] examined the effectiveness and cost-effectiveness of chiropractic intervention with respect to the management of low back pain. One of their major recommendations in 1993 was as follows:

"Hospital privileges should be extended to all chiropractors for the purposes of treatment of their own patients who have been hospitalized for other reasons and for access to diagnostic facilities relevant to their scope of practice and patients' needs".

The authors point out that a similar recommendation had been previously proposed by Kelner and New (cited by Manga et al.[4]) in a study funded by the federal government, thirteen years earlier. Further recommendations of Manga and colleagues include the following:

"It is illogical to extend hospital privileges to the medical profession for diagnostic and treatment services for patients with low-back pain but deny similar privileges to a profession whose services have far more extensive evidence of safety, effectiveness and cost-effectiveness".

Additionally, the Ontario Chiropractic Services Review,[17] recommended the following:

"... chiropractors should be able to order a limited range of laboratory tests as specified by the College of Chiropractors of Ontario, and that the performance of these tests should be an insured service under OHIP" R6.1

By definition, doctors of chiropractic are primary health care providers, fully responsible for the assessment of those who seek their assistance and the diagnosis of their presenting complaints, thereby providing the basis for appropriate care.[9] Due to a variety of reasons, not all patients necessarily respond to traditional manual therapies. It is essential, therefore, that access to the diagnostic laboratory be made available to chiropractic practitioners for purposes of elucidating underlying conditions. This of necessity, is consistent with contemporary private clinical practice and is in the best interest, of both chiropractors and their patients. The current practice of referring patients in need of laboratory diagnostic procedures to their respective family physicians, is neither cost-effective nor expeditious. As noted by others,

"the right to order and/or perform laboratory tests is likely to once more be an integral part of chiropractic practice in Canada in the near future because of changes in technology and the law".[9]

References

1 Wardwell WI. Chiropractic: History and evolution of a new profession. St. Louis: Mosby-Year Book, Inc., 1992: 1–38.
2 Wardwell WI. The Connecticut survey of public attitudes toward chiropractic. JMPT 1989; 12(3):167–173.
3 Sanchez JE. A look in the mirror: A critical and exploratory study of public perceptions of the chiropractic profession in New Jersey. JMPT 1991; 14(3):165–176.
4 Manga P, Angus D, Papadopoulos C, Swan W. The effectiveness and cost-effectiveness of chiropractic management of low back pain. Ministry of Health, Province of Ontario, 1993.
5 Watkins RG. Lumbar spine injury in the athlete. In, Rehabilitation of the spine: A practitioner's manual, Liebenson C (ed.), Baltimore: Williams & Wilkins, 1996: 341–354.
6 Liebenson C. Active rehabilitation protocols. In, Rehabilitation of the spine: A practitioner's manual, Liebenson C (ed.), Baltimore: Williams & Wilkins, 1996: 355–387.
7 Gotlib A, Injeyan HS, Crawford JP. Laboratory diagnosis in Ontario and the need for reform relative to the profession of chiropractic. JCCA 1997; 41(4):205–220.
8 Canadian Memorial Chiropractic College course calendar, 1997.
9 Henderson D, Chapman-Smith D, Mior S, Vernon H. Clinical guidelines for chiropractic practice in Canada. JCCA 1994 (suppl); 38(1):41–67.
10 Hains F, Cassidy JD, Dust W. Pelvic chonrosarcoma presenting as mechanical back pain: Two case reports. JCCA 1993; 37(1):15–21.
11 Lemire JJ, Mierau DR, Yong-Hing K. Metastatic bone disease presenting as low back pain: A case report. JNMS 1994; 2(3):131–139.
12 Rogers RG. Prostatic metastasis - Confirmatory diagnostic procedures: A case study.JNMS 1994; 2(2):79–82.
13 Injeyan HS, Gotlib A, Crawford JP. The clinical laboratory in chiropractic practice: What tests to order and why? JCCA 1997.
14 Haldemann S. Principles and Practice of Chiropractic. 2nd ed. Norwalk: Appleton & Lange, 1992: 413–531.
15 Gatterman MI. Chiropractic management of spine related disorders. Baltimore: Williams & Wilkins, 1990: 111–255.
16 Gatterman MI. Foundations of chiropractic subluxation. St. Louis: Mosby-Year Book, Inc., 1995: 87–122;429–465.
17 Ontario Chiropractic Services Review. Ontario Ministry of Health. Province of Ontario, 1994.