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# Spinal metastases mimicking low back pain of mechanical origin: a case report

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*Spinal malignancies are an essential consideration when a patient presents to a chiropractic office with back pain. This single case report exemplifies the importance of patient presentation and physical examination findings. We must also consider the rationale for x-raying patients on an individual case basis. Textbook cases do not always exist and special diagnostic tests do not always provide a definitive diagnosis of underlying pathology. Even though history and examination findings suggest a routine diagnosis, continual re-evaluation and recognition of the need to change the diagnosis on occasion is extremely important. The patient should not only be thoroughly evaluated upon initial presentation, but also each time they present for treatment. The decision to x-ray a patient is considered important. X-ray examination can be used to confirm a diagnosis or to rule out potential pathologies, and not necessarily done as a routine screening procedure.*

*A case report is presented in which the pathologic signs were not evident on plain film x-rays upon initial presentation.*
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KEY WORDS: low-back pain, spinal metastasis, pathological fracture, x-ray, re-evaluation, chiropractic.

*Lorsqu'un patient se présente chez un chiropracteur avec des douleurs dans le dos, il est essentiel de considérer la malignité vertébrale. Cette étude de cas unique montre l'importance de la présentation et des conclusions de l'examen physique d'un patient. Nous devons également considérer la raison d'être de la prise de radiographie en prenant chaque cas individuellement. Il n'est pas toujours possible de trouver un cas dans la littérature et un diagnostic définitif d'une pathologie sous-jacente n'est pas toujours fait en effectuant des examens de diagnostic spéciaux. Bien que les conclusions tirées à partir des antécédents et de l'examen d'un patient suggèrent un diagnostic de routine, il est extrêmement important de réévaluer continuellement et de reconnaître le besoin de modifier à l'occasion le diagnostic. Le patient devrait être évalué minutieusement non seulement lors de sa première visite, mais également à chaque fois qu'il se présente pour son traitement. La décision de radiographier un patient, bien que n'étant pas nécessairement une procédure de routine, est importante; l'examen radiographique peut être utilisé pour confirmer un diagnostic ou pour écarter toute possibilité de pathologies.*

*Une étude de cas est présentée dans laquelle les signes de la pathologie n'étaient pas évidents après observation des radiographies prises lors de la première visite.*
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MOTS CLÉS : douleur du bas du dos, malignité vertébrale, fracture pathologique, radiographie, réévaluation, chiropratique.

## Introduction

Skeletal metastases are the most common malignant tumors of bone, reported to comprise approximately 70% of all malignant skeletal tumors.[1] Their radiographic appearance is usually lytic, although they can also have a blastic or mixed appearance.[2] Every primary malignancy has the potential to metastasize.[3] The most common sites involved in metastatic disease are the lungs, liver and skeleton in that order.[1]

A major concern for chiropractors is that primary malignancies often metastasize to the vertebral column.[4,6] The most common locations (in order of incidence) are the thoracic, lumbar, cervical and sacral regions of the spine, specifically the vertebral bodies and pedicles.[5]

The purpose of this paper is not to review the pathology and presentation of spinal metastatic tumors, as this has been accomplished effectively by numerous authors in various publications.[1,5,6] One purpose of this report is to make practitioners aware, that spinal metastasis does not always present with the classical features of malaise, fatigue, cachexia, weight loss and night pain. In this case report, the patient did not complain of any systemic symptoms associated with primary liver malignancy, nor were there signs of metastatic changes on plain film x-rays with the onset of his back pain. However, he did present with a mechanism of injury and examination findings that would

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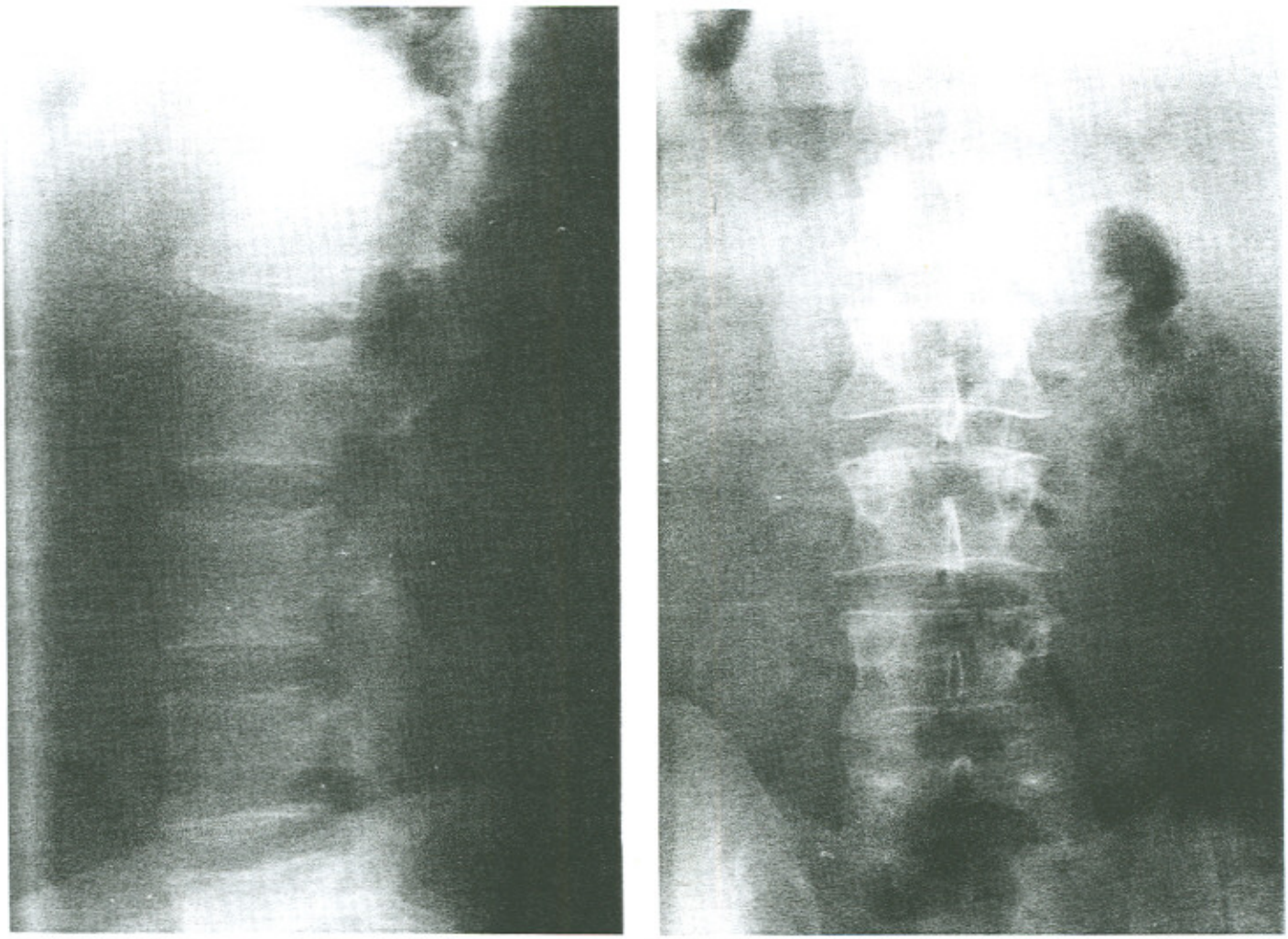

**Figure 1** Lumbar spine anteroposterior and lateral views taken two months prior with no indication of spinal metastases or compression fracture.

most definitively suggest a sprain/strain diagnosis.

This paper also suggests that plain film x-ray of every potential chiropractic patient may not necessarily be required. In this patient's case the metastatic tumor was not visualized on plain film x-ray until two months after the onset of his low back pain. In essence, the practitioner should always evaluate each case individually and treat the patient in accordance with examination and treatment findings, and also be prepared to alter the plan of management when deemed necessary.

## Case report

A 44-year-old caucasian male salesman presented complaining of low back pain, numbness and tingling over the right hip of two months duration. The patient reported that the symptoms began immediately following a short fall off a ladder when he failed to step onto the last rung. The areas of complaint were the thoracolumbar junction and the supratrochanteric region of the right hip. The patient sought chiropractic treatment immediately following his accident. The attending chiropractor took plain film radiographs of the lumbar spine which were interpreted as unremarkable (see Figure 1). A diagnosis of mechanical back pain was made and the patient was treated accordingly. After the first three treatments the patient reported to be much improved. However, for reasons unknown the fourth treatment was extremely painful and the patient immediately discharged himself from further care.

Four weeks later he presented to a medical office with the same initial symptoms he presented to the chiropractor's office with. Once more, lumbar spine radiographs were taken and were reported to the patient as unremarkable. The patient was

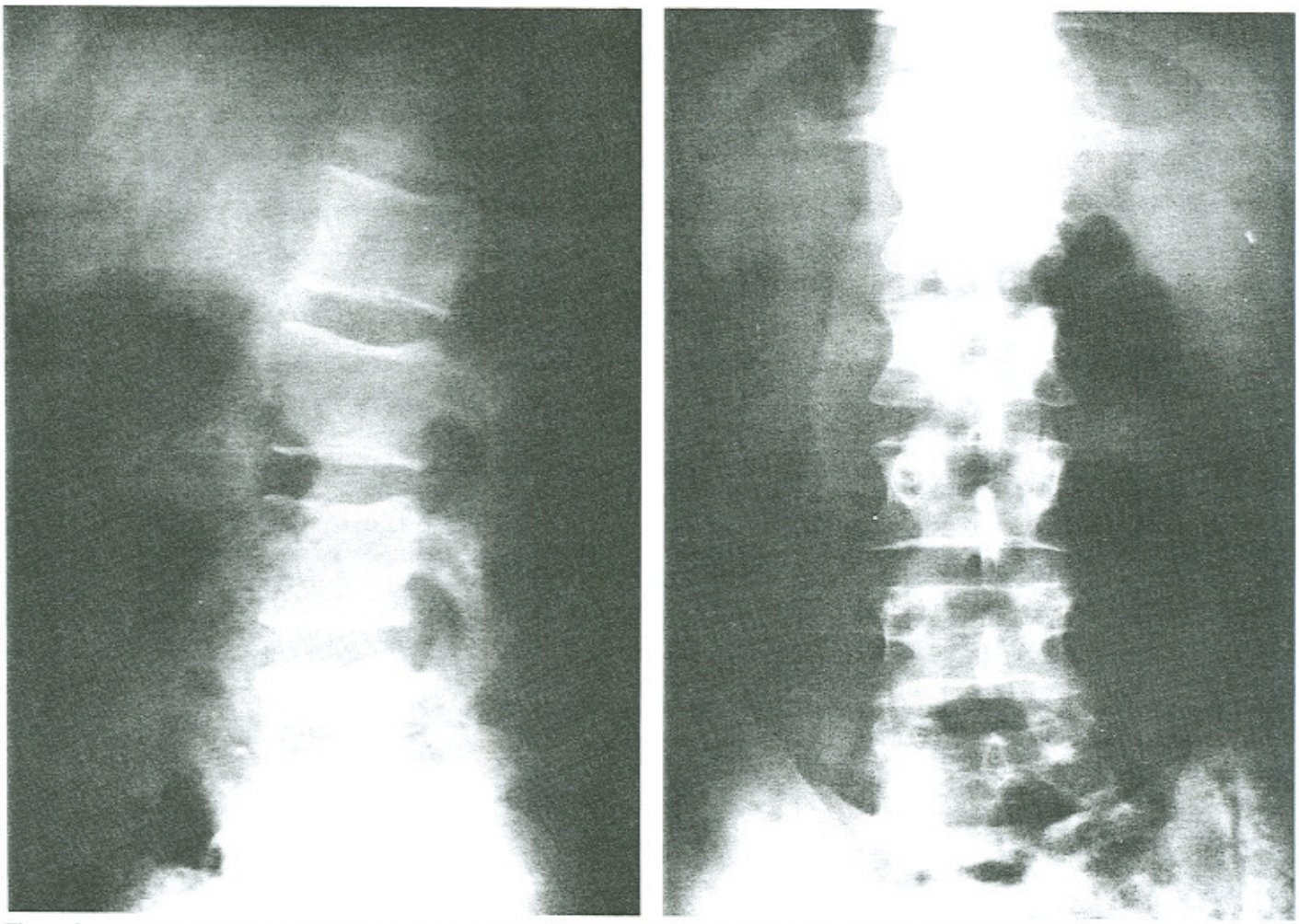

**Figure 2** Lumbar anteroposterior and lateral views taken two months after the onset of pain. The lateral film shows a pathological compression fracture of T12 due to metastases from a primary liver malignancy.

prescribed Motrin (anti-inflammatory-analgesic) and rest. The pain did not subside and eight weeks after his accident he presented to this office.

At the time the discomfort in the thoracolumbar region was described as dull and tight, while the parasthesias involving the right hip ranged from non-painful to achey on occasion. The problem was aggravated by sitting and was not relieved by anything. The symptoms were identical to those he previously reported to the initial chiropractor and physician. His past medical and family history were essentially unremarkable. Aside from his presenting complaint the patient appeared in good physical health. The patient was a non-smoker and there was no history of alcoholism or heavy drinking. Systems review was unremarkable.

On examination the patient was alert, oriented and co-operative. He was 180.3 cm tall and weighed 80 kg. An abdominal examination did not appear warranted at this time and was not performed. Neurological examination of the lower extremities demonstrated normal motor function, reflexes and sensation to light touch. Superficial abdominal reflexes were present and the plantar reflexes were down going bilaterally. Ranges of motion of the lumbar spine were full and did not aggravate the patient's symptoms. Further orthopedic testing was unremarkable.

Motion palpation revealed a restriction of the right sacroiliac joint in extension, L4/5 in right and left rotation and T11/12 in right rotation. Only the above restricted areas were sensitive to digital pressure. Because the patient had had two previous sets of lumbar spine x-rays taken in the past two months, additional

films were considered superfluous. The former radiographic studies were requested and read as normal.

A diagnosis of right sacroiliac dysfunction and T11/12 facet irritation was made.

After completion of the physical examination and absence of specific positive signs, the obvious diagnosis from a list of differentials was low back pain of mechanical origin; more specifically right sacroiliac dysfunction and T11/12 facet irritation. The treatment consisted of side posture and anterior to posterior high velocity, low amplitude spinal adjustments to the restricted areas.

The patient was adjusted in the lateral recumbent position for both the sacroiliac and lumbar subluxations and in the supine position for the thoracolumbar subluxations. The patient felt markedly better after his first treatment. The patient reported continued improvement after the second treatment. However, when he presented for his third visit, the patient complained of extreme pain. His thoracolumbar junction was so intensely painful, that the area could not even withstand a light touch. Because of the acute onset with no apparent cause or mechanism and the severity of the pain, thoracolumbar spine plain radiographs were taken immediately.

Anterposterior and lateral lumbar spine views, collimated to include the lower three thoracic vertebrae, were taken. In the anteroposterior projection the 12th ribs bilaterally are not well visualized. The lateral projection demonstrated lytic destruction of the T12 vertebral body, with a decrease in anterior vertebral body height. There was also sclerosis of the vertebral endplates, suggestive of a compression fracture (Figure 2). It is difficult to determine from these plain films whether the T12 compression fracture was pathologic or traumatic due to the marked decrease in anterior vertebral body height and relative maintenance of posterior vertebral body height. Regardless, the patient was taken to the hospital emergency by ambulance.

It was felt that the pathological fracture of T12 body resulted from a compressive force. The adjustments previously used were limited to rotary moves in the lower lumbar and sacroiliac joint areas. An anterior move was performed at the T11/12 junction. These moves afforded the most relief to the patient. Relief was instantaneous and lasted for a day and a half. In light of this positive response and because the adjustments felt normal as they were administered, it was felt that they did not create the T12 fracture. Further consultation with the attending physicians supported the hypothesis that spinal adjustments were non-contributing to the fracture. However, because of the history of only minimal trauma and the lytic appearance of the T12 vertebral body, a pathologic compression fracture was immediately suspected.

It was interesting that prior to being seen in our office, the patient had not complained of any pain, weakness, fatigue or other health problem except for his lower back complaints. The patient died four months later due to complications associated with liver malignancy. Further follow up revealed that the carcinoma of the liver had metastasised to his spine and pelvis. The T12 compression fracture was just one of multiple sites of metastatic skeletal lysis.

## Discussion

Neoplasms of the liver arise either in the hepatic parenchymal tissue (hepatoma) or biliary ductules (cholangioma).[7] A history of cachexia, weakness, weight loss and the sudden appearance of abdominal ascites could implicate a liver pathology.[7] The patient in this case did not present with any of the above symptoms. Physical examination of the abdomen may uncover tender enlargement of the liver both to percussion and palpation.[7] Auscultation of the liver may reveal a bruit over the tumor, or a friction rub may be heard once the neoplasm has extended beyond the liver. Incidentally, physical examination of the patient's abdomen by the emergency room physician was reported to be unremarkable.

Laboratory findings are often non-specific. Leukocytosis, elelvated serum alkaline phosphatase and alphafetoprotein are commonly associated with hepatic neoplasm. A liver biopsy is diagnostic.[7]

Typically a case report like this is written to emphasise the importance of routine spinal x-rays for most patients. We believe however, that singular cases like this are so atypical that it does not suggest the need for routine film studies. Careful retrospective comparison of the lumbar x-rays taken initially (Figure 1) and at six weeks (Figure 2) failed to reveal any evidence of lytic destruction or fracture on the initial films.

This case suggests the need for careful attention to physical examination and treatment details and underlies the need to evaluate each case individually. On the third treatment date, it was obvious from the patient's subjective report and from our examination, which revealed such severe pain, that his condition was quite different than on his first or second visit. This fact supported the need to perform an additional x-ray exam, resulting in an immediate referral.

This case also reminds the practitioner of the suddenness with which a lytic skeletal neoplasm can become apparent, the unpredictable pain patterns that can exist from one patient to the next, as well as the insidious nature of onset of terminal conditions in some patients. It is not only important to completely evaluate the patient upon initial presentation, but it is equally important to re-evaluate patients each time they present to your office.

## References


1 Kogan PL, Mclaughlin KJ. Metastatic bone disease: a review of various concepts and report of a case. J Can Chiropr Assoc 1988; 32(3):127–132.

2 Boland PJ, Lane JM, Sundaresan N. Metastatic disease of the spine. Clin Orthop 1982; 169:95–102.

3 Yochum TR, Rowe LJ. Essentials of skeletal radiology. Vol. 2. Baltimore: Williams and Wilkins, 1987: 699–729.

4 Sherry HJ, Legg RN, Siffert RS. Metastatic diseases of bone in orthopedic surgery. Clin Orthop 1982; 169:44–52.

5 Proctor D, Cassidy D, Mierau D, Yong-Ming K. Metastases to the cervical spine: a case report. J Can Chiropr Assoc 1987; 31(1):17–19.

6 Kogan PL. The radiographic appearance of metastatic bone disease. J Can Chiropr Assoc 1982; 26(2):77–78.

7 Schrodeder SA, Krupp MA. Current Medical Diagnosis and Treatment, 1990 ed. East Norwalk: Appleton and Lange, 1990: 448.