

# Metastases to the cervical spine: a report of a case

Dan Proctor BSc, DC\*

David Cassidy DC, MSc (Orth.) FCCS(C)\*\*

Dale Mierau BSPE, DC\*\*\*

Ken Yong-Hing MD, FRCS\*\*\*\*

*Metastases to the spine are a rare, but devastating cause for back pain. For these two reasons clinicians must be constantly aware of this possibility. A careful history, physical, laboratory, and radiographic examination are essential in suspected cases of metastases.*

**KEY WORDS:** Spinal metastases, neck pain, diagnosis, chiropractic, manipulation.

## Introduction

Metastases are the most common malignancy of bone, even greater than primary osseous neoplasms.<sup>1</sup> They account for seventy percent of all bony malignancies, while primary tumours of bone account for thirty percent. Greater than three quarters of all metastatic lesions affect the spine and pelvis because of the quantity of red marrow and the extensive blood supply in these areas.<sup>2,3</sup> Primary tumours can metastasize to the vertebral column from practically any location, but the majority (sixty percent) originate from the breast, lung, prostate, kidney, and colon while a few originate from the bladder, uterus, and cervix.<sup>1,2,4</sup> These metastatic lesions are usually multiple, although they can be solitary. The most common locations, in order of incidence, are the thoracic, lumbar, cervical, and sacral regions of the spine, specifically in the vertebral bodies and pedicles.<sup>2,3</sup> Their appearance is usually lytic, although they can be blastic or of a mixed lytic-blastic form.<sup>1</sup>

Since metastatic lesions are relatively more common in the spine and pelvis, a patient who presents with spinal pain and a history of a previous carcinoma should be considered to have metastases until proven otherwise. Investigations should include the use of the proper roentgenographic technique, including the removal of any artifact producing material (earrings, dentures, metal chains, belts, etc.) and basic laboratory investigations (CBC, ESR, Bence-Jones proteins, alkaline and acid phosphatase). However, the chiropractor should be aware that plain radiographs are relatively insensitive to the detection of metastatic lesions, especially with the equipment commonly used in chiropractic practice (300 Kv, 125 ma). With plain radiographs, evidence of bony destruction is not apparent until 30 to 50 percent of the bone structure is lost.<sup>3,5</sup> A technetium bone scan is the most sensitive diagnostic procedure for the diagnosis of secondaries to the spine, and any patient in

*Les métastases de la colonne vertébrale sont une cause rare mais dévastatrice de douleurs du dos. C'est pour ces deux raisons précisément que les cliniciens doivent être constamment conscients de cette éventualité. Une anamnèse soignée, un examen physique, des analyses de laboratoire et un examen radiologique sont essentiels dans les cas de suspicion de métastases.*

**MOTS CLEFS:** métastases vertébrales, douleur cervicale, diagnostic, chiropractie, manipulations.

whom secondaries are suspected should undergo radionuclide scanning. With the exception of multiple myeloma, a negative scan is a good indication of the absence of malignancy.

## Case report

A 49-year-old caucasian female was admitted to hospital in early 1984 with a chief complaint of severe neck pain and headaches. She apparently sustained a jarring, twisting injury to the neck when she slipped, without falling, in her basement four months previously. She reported no direct trauma to the area during the accident. At the time her neck pain was mainly in the upper posterior region of the cervical spine. Since the accident, both the neck pain and headaches had been increasing in severity. She had chiropractic manipulations to the cervical spine in November and December, initially with benefit, however, her symptoms became particularly worse in January, 1985. At that time she noticed increasing difficulty in looking straight ahead and upwards. She had no numbness, or weakness in either the upper or lower extremities. Past health history revealed that she had had a carcinoma of the cervix in 1975 which was treated with irradiation therapy.

Examination at the time of admission revealed a fixed kyphotic deformity of the neck with her chin resting on her manubrium and an inability to lift her head up. All movements of the neck were painful. The patient was alert and well-oriented, and there was no neurological deficit nor any thyroid, breast, or abdominal lumps.

Plain radiographs of the cervical spine taken by her chiropractor in November were reviewed at admission. The lateral view showed destruction of the body of C2, but this finding was partially obscured by the presence of an earring overlying this structure (Figure 1). Repeat radiographs revealed a pathologic fracture dislocation of C1 on C2. The entire body and vertebral arch, including the facets of C2, have been destroyed by a lytic process with C1 being displaced forward on C2. Moderate to marked prevertebral soft tissue swelling was present (Figure 2). Subsequent tomograms and a C-T scan showed complete destruction of the body of C2 with partial destruction of the body of C3 (Figure 3 and Figure 4).

The patient was reviewed for a possible primary tumour with a radionuclide thyroid scan, abdominal ultrasound, intravenous

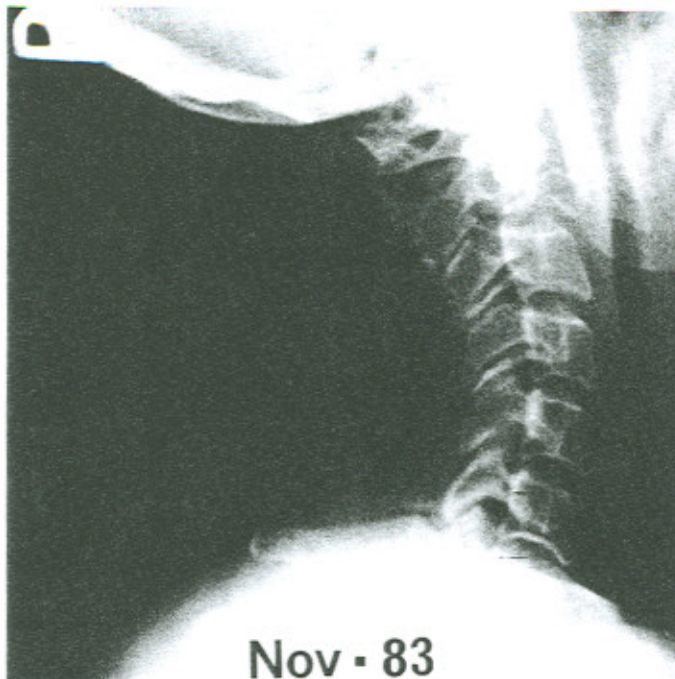
\* Resident II, Clinical Sciences, CMCC, Toronto

\*\* Department of Orthopaedics, University Hospital, Saskatoon

\*\*\* Fourth Avenue Chiropractic Clinic, Saskatoon

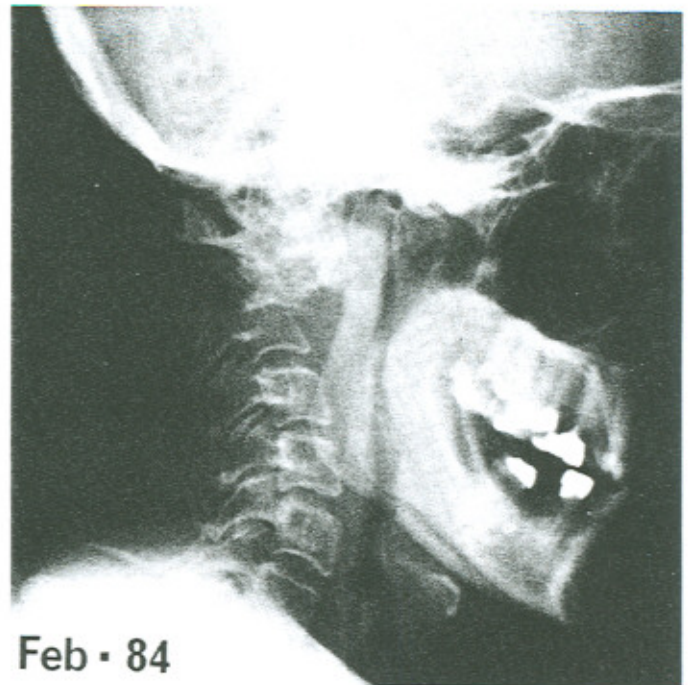
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Reprints to: Dr. J.D. Cassidy, Department of Orthopaedics, University Hospital, Saskatoon, Saskatchewan S7N 0X0



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**Figure 1** Original lateral view of cervical spine taken by the patient's chiropractor. Note the destruction of the C2 vertebral body which is partially obscured by her earring.

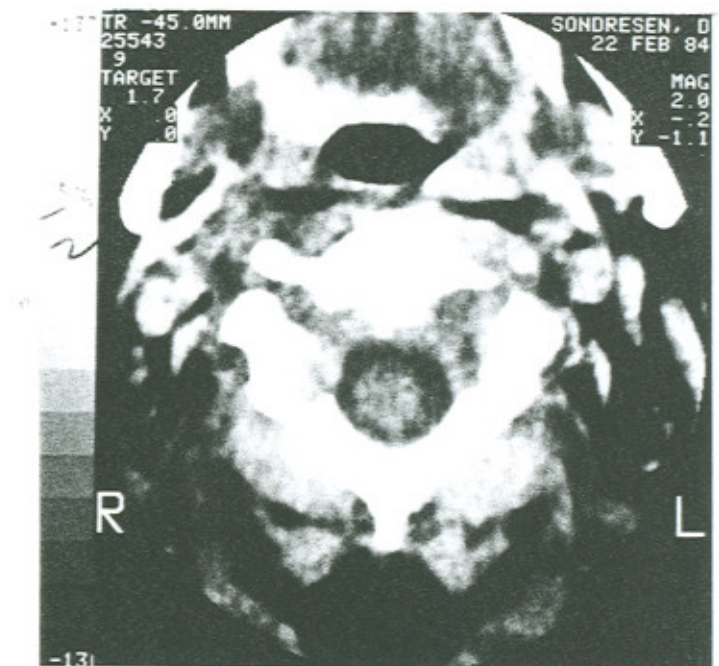


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**Figure 2** Lateral view of cervical spine taken at admission to hospital. There is marked destruction of C2 with forward displacement of C1. Moderate to marked prevertebral soft tissue swelling is present.



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**Figure 4** CT scan through the base of C2 showing destructive lesions in the neural arch.

**Figure 3** Lateral tomogram of cervical spine showing extensive bony destruction of C2 with only the odontoid process visible.

pyelogram, plasma protein electrophoresis, and chest x-rays, all of which were negative.

She was placed in a halo-traction unit with simple extension to reduce the marked anterior displacement. Thereafter, she had a posterior fusion and wiring from occiput to C4. The lytic process in the C2 body was inaccessible for biopsy or surgical removal, so postoperative radiotherapy was advised on the assumption that it was a metastasis.

### Comments

The principal areas from which metastases to the spine occur include primary tumours of the breast, lung, prostate, kidney, colon, and to a lesser extent, bladder, uterus, and cervix, in that order of occurrence. Since tumours may spread to the vertebral column from practically any malignancy, a patient who presents with vertebral pain, especially when there is a history of a previous carcinoma, should be considered to have metastases until proven otherwise. Investigations should include x-ray examination using proper radiographic techniques and patient preparation, (including the removal of earrings), a chest x-ray, a complete laboratory examination, and a technetium bone scan. In most cases, this involves referring the patient for a complete work-up by his physician.

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