STAGE IV SMALL-CELL LUNG CANCER PRESENTING AS LEG PAIN

Tara Cheuvront, D.C.[1], Adam Sergent, D.C.[1]

[1] *Palmer College of Chiropractic, Port orange, CA, USA*

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ABSTRACT

Objective: To describe the management of a patient with unresolving anterior thigh pain who was later diagnosed with stage IV small-cell lung cancer.

Clinical Features: A 60-year-old female with anterior thigh pain had no relief following 4 weeks of conservative care. Radiographs of the affected area were taken and were unremarkable. Following another 4 weeks of care without improvement she was referred for a MRI of the right hip and leg that later revealed a lesion

Intervention and Outcome: After a referral and subsequent imaging it was confirmed that this lesion had metastasized from her previously undiagnosed lung cancer.

Conclusion: Following standard of care with imaging can lead the chiropractic physician to play a vital role in the healthcare field as a primary care provider. (Chiropr J Australia 2017;45:196-202)

Key Indexing Terms: Leg Pain; Chiropractic; Small Cell Lung Cancer

INTRODUCTION

There are an estimated 1.4 million deaths a year worldwide from lung cancer. (1) This cancer is subdivided into 2 categories, small-cell lung carcinoma (SCLC), which makes up approximately 15% of cases, and non-small-cell lung carcinoma (NSCLC) making up the large remainder. NSCLC is further subdivided into 3 groups; large-cell carcinoma, squamous cell carcinoma, and adenocarcinoma of the lung. (2) SCLC is more aggressive than non-SCLC and has a rapid doubling time. (3) Approximately 15-30% of all lung cancers metastasize to bone, and 22-60% of individuals have bone marrow micro-metastases found post-mortem(4,5) Lung cancer has poor survival rates at the 1 and 5-year mark and survival rates are often measured in months after the initial diagnosis. (5) Patients with lung cancer that end up developing metastases experience complications such as, bone pain, pathological fracture, spinal cord compression and bone instability; collectively, these are known as skeletal-related events (SREs). (6) Cigarette smoking is responsible for up to 95% of all cases and types of lung cancer. (7)

The finding of bone metastases is often 1 of the reasons a diagnosis of lung cancer is made. Approximately 60-70% of patients have metastatic disease at the time a diagnosis of lung cancer is made.(7) In the chiropractic clinic, patients often experience musculoskeletal pain of unknown origin; thus, a thorough history and physical exam must be performed upon initial exam to rule out any possible pathology. If there is minimal pain relief after 4-6 weeks, the chiropractic physician should refer for imaging or

special testing. Once imaging is obtained, the chiropractic physician can rule out any underlying pathology. If pathology is found, an immediate referral should be made.

A patient with suspected metastatic disease should be referred to an oncologist for evaluation and management. Treatment will depend on the staging of the cancer. Once the stage of the cancer is determined, an appropriate treatment plan may be developed. The most common type of treatment consists of chemotherapy and thoracic radiation therapy. (7) Survival rates have been shown to increase the earlier SCLC is detected and treated.

The purpose of this case report is to show the management of a patient that presents with right hip and femoral pain who did not respond to care after 6 weeks. At this point, imaging was obtained. Following results of the imaging, an immediate referral was made to an orthopedic oncologist for further management of her cancer.

CASE REPORT

A 61-year-old female patient sought treatment for complaints of right thigh, right hip, and right knee pain that began while the patient had been on a flight. The patient rated the intensity of her pain/symptoms as a 6 on a scale of 0-10 with 0 being complete absence of symptoms and 10 being very severe pain. She denied any specific mechanism of injury and noted a gradual insidious onset of pain. The symptoms had remained constant and present all day. She described the symptoms as better at night when she could rest. Her pain was described as stabbing. Her symptoms radiated from the right hip down the thigh to her knee. They were aggravated by activities involving sitting and driving. Some relief was obtained when lying down, ibuprofen was taken, rest occurred, or stretching/exercise was used.

Her initial course of conservative care consisted of manual therapy to the soft tissue extending from her right hip to her knee along with light force manual mobilization of the right knee and hip and stretching and strengthening exercises. With this, she had demonstrated a slight reduction in pain intensity and frequency. Additionally, she was being treated for sacral segmental dysfunction using light-force manual mobilization. She had had a past lumbar surgical disc procedure some years prior.

Her mild improvements began to plateau after 6 weeks of care and she was referred for right hip x-ray imaging. The findings were consistent with mild right hip osteoarthritis, but were otherwise unremarkable. (Figure 1) Her progression then began to further deteriorate despite changes in treatment plan that used light passive therapies including vibracussor and light effleurage massage of her right hip and quadriceps muscles. Her pain intensity became elevated, more prolonged, and she was sensitive to light touch. The only palliative treatments that seemed to provide relief were alternating warm and cold compresses while resting.

Figure 1. A and B. AP and frog-leg lateral radiographs to assess right hip pain. The iliofemoral joint is well-maintained. No obvious changes of aggressive bone disease are present. The tissue planes are unremarkable. Surgical clips are present within the pelvis.

4 weeks after referring her for right hip and femur x-rays, a re-evaluation examination was performed. Upon examination, she reported a 6/10VAS for right hip pain. She demonstrated weakness that was most pronounced with right hip flexion graded a 3/5, but general weakness was noted with her entire right lower extremity muscle testing. A +1 right patellar reflex was noted. Sensation was normal in the lower extremities bilaterally. Right hip range of motion demonstrated pain upon full hip flexion and external rotation. Negative SLR (Straight Leg Raise) and Bragard's orthopedic tests were noted bilaterally. Right hip Faber's Test and right hip compression tests were positive for pain. Lumbar range of motion was within normal limits and pain free.

We referred for a right hip and right femur MRI to rule out potential for bone or soft tissue tumor. MRI findings indicated a metastatic lesion involving the proximal femur with widespread periosteal reaction and significant surrounding soft tissue edema. (Figure 2) She was immediately referred for evaluation by an orthopedic oncologist. She then underwent further testing consisting of a full-body bone scan, full-body MRI, bloodwork, CT of right lower extremity, and CT of chest, abdomen, and pelvis with contrast. Treatment consisted of surgical stabilization and fixation of the right femoral shaft, radiation to femur post-surgery and 6 rounds of chemotherapy. She is still currently undergoing treatment.

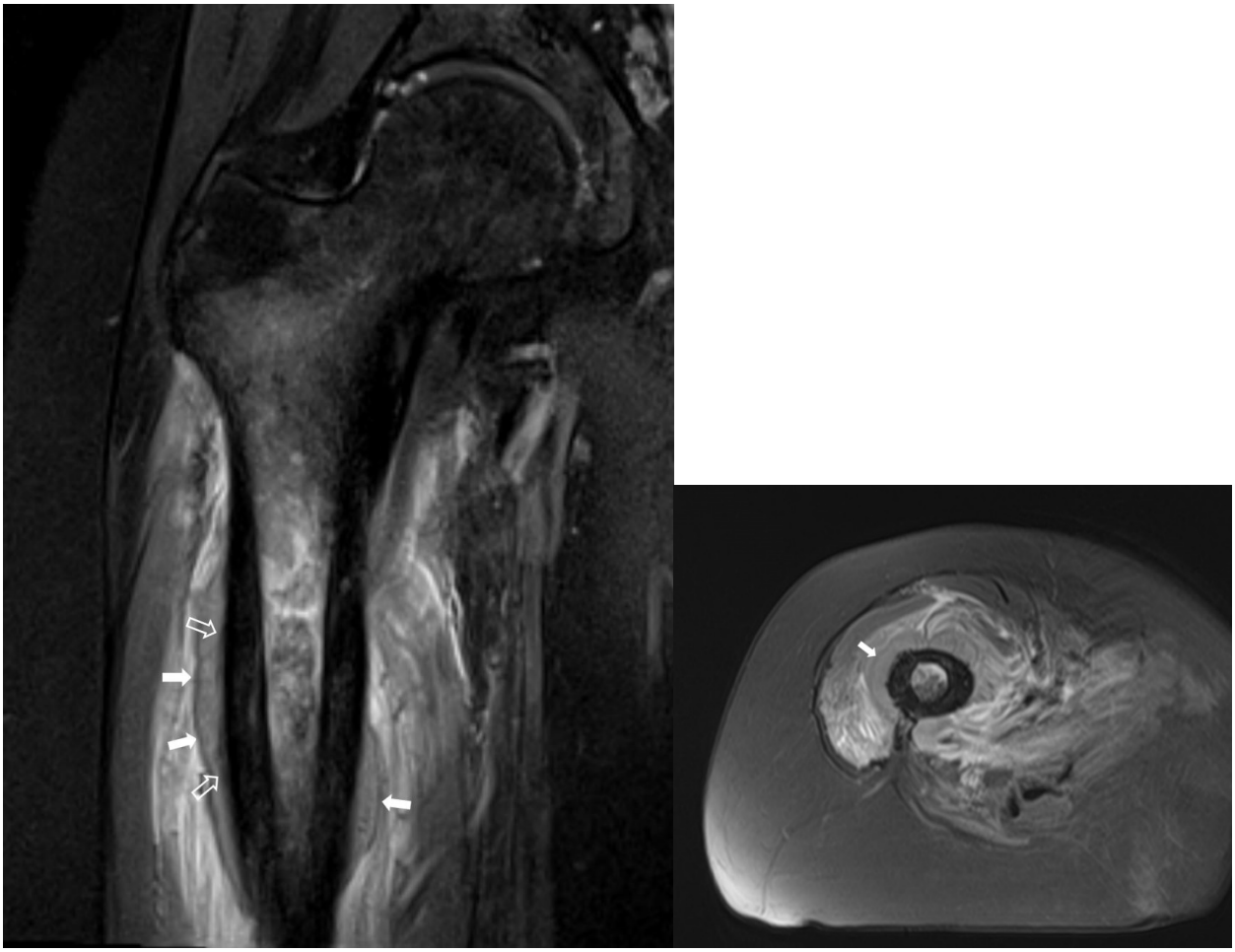

Figure 2. A and B. Coronal and axial fat suppressed T2 weighted MRI. Significant marrow edema centered within the marrow extending from the diaphysis into the intertrochanteric region of the femur. Serpiginous marrow appearance is suggestive of bone infarct. Intermediate signal intense soft tissue mass with thin hypointense margin (solid arrows) is observed concentrically adjacent to the marrow edema, consistent with lifted periosteum and underlying tumor mass. Thin interrupted linear hypointensity is noted closer to the cortical surface with appearance of Codman's triangles (open arrows), consistent with laminated periosteal reaction that has been blown through by aggressive tumor extension.

DISCUSSION

Anterior hip and thigh pain is a relatively common presentation for the chiropractic physician in practice. With a course of conservative care, most cases of musculoskeletal complaints start to improve within 4-6 weeks. Following this standard of care and lack of improvement, we suspected that there was possible underlying pathology. A differential diagnosis was developed based on the patient's history, age, presentation and lack of improvement. Differential diagnoses consisted of osteoarthritis, rheumatoid arthritis, infection, and our leading thought a bone or soft tissue tumor. With lack of response to care within 4-6 weeks, a history of smoking, and the patient being over the age of 50, a working diagnosis of possible bone or soft tissue tumor was

established. X-ray imaging of the right hip and femur was performed and found to be unremarkable. Following further care with changes in treatment modalities and course of care, again, minimal improvements were made and pain levels remained elevated. At this point, a right hip and femur MRI was performed approximately 4 weeks post X-ray.

SCLC is diagnosed with a detailed history, physical exam, lab work and imaging. Upon initial presentation the signs and symptoms that should be evident when taking patient history include, history of smoking, lingering cough that will not resolve, hemoptysis, shortness of breath, and age.(8) Distant metastasis to other organs may show in symptomatology of that particular organ. On physical exam during advanced stage lung cancer a patient may exhibit, gynecomastia, ataxia, vocal cord paralysis, and Horner syndrome. (8) After completing a history and physical exam imaging must be completed to confirm the suspected diagnosis of lung cancer. Imaging examination is the next step, imaging may include plain film X-rays of the lung, computed tomography (CT) and magnetic resonance imaging (MRI). The spiral CT scan with slice thickness of less than 10mm is the gold standard. (8)

SCLC is the most common primary malignancy. (7) SCLC is categorized using the Veterans Administration Lung Cancer Study Group (VALCSG), which is sub-divided into limited-stage SCLC (LS-SCLC), or extensive-stage SCLC (ES-SCLC). However, SCLC also uses the tumor-node-metastasis (TNM) staging system.(7) Each of these staging systems allows for individual treatment strategies. LS-SCLC is used to describe a tumor in one hemithorax with no metastatic disease, whereas ES-SCLC is used to describe a tumor in which there are more affected areas such as lymph nodes. ES-SCLC could not be treated with one radiation port due to multiple areas of disease. More recently it is thought that the Tumor-Regional Lymph Nodes-Distance Metastasis (TNM) system is better at estimating survival rates than the VALSG system. “T” stands for primary tumor, “N” stands for regional lymph nodes, and “M” stands for distance metastasis.(9) SCLC is best staged using both the VALSG and TNM systems for the most appropriate treatment.

Treatment for advanced SCLC is based partially on the staging of the cancer. More than 2/3 of SCLC is ES-SCLC, in this stage, Chemotherapy is the most important and used initial treatment.(8) LS-SCLC is mostly treated with a combination of chemotherapy and radiation therapy in the thoracic spine. In patients with LS-SCLC treated this way survival times are greatly increased. Surgery is often not an option to treat SCLC, there is one study that demonstrates surgery in conjunction with standard care for LS-SLCL, which shows no improvement in survival rates. (7)

CONCLUSION

As with any cancer early detection and management greatly increases survival rates. Chiropractors must rule out possible pathologies when there is lack of progress in what is thought to be a musculoskeletal problem.

Limitations

Signs and symptoms of this particular patient did not indicate any lung pathology upon initial exam. The nature of her complaint appeared to be musculoskeletal and an appropriate care plan was started. Patients as in this particular case will not present with the classic signs and symptoms of lung cancer. For the chiropractor making this diagnosis it will almost always be an incidental finding seen on imaging once the pathology metastasizes.

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