

Case Report

CERVICAL PAIN AND TUBERCULOSIS: CASE REPORT

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The presenting symptoms of tuberculosis (TB) are varied and may include acute and chronic pain in anatomical regions with active TB infection. Cervical spine TB, although rare, can present with nonspecific symptomatology emanating from the upper cervical spine, leading providers to overlook TB in their diagnostic approach. This case report demonstrates the necessity of a thorough history and physical with particular emphasis on pertinent sociodemographic risk factors for pain medicine clinicians to reliably ensure accurate diagnosis and treatment. A pa-

tient with TB of the cervical spine presented as a referral with pain symptoms refractory to standard pharmacologic analgesic regimens. Only with a thorough social history, made difficult by language and sociodemographic barriers, were we able to direct our diagnostic approach to elucidate the etiology, and engage the patient with the appropriate therapy.

Key words: Tuberculosis, cervicalgia, cervical spine, extrapulmonary tuberculosis, pregabalin, social history

Cervical neck pain remains one of the leading causes of disability worldwide (1,2). The prevalence in developed nations is elevated at estimated annual and lifetime prevalence rates of 37% (range, 16.7%-75.1%) and 48.5% (range, 14.2%-71%), respectively. In addition, the report from Global Burden of Disease in 2010 reported neck pain as the fourth most common cause of disability in the United States after back pain, musculoskeletal disorders, and depression (3). Ranking third behind heart disease and diabetes, low back and neck pain are estimated to cost \$87.6 billion (£67.8 billion; €77.2 billion) in the United States annually (4). Some of the risk factors associated with the

development of neck pain include sedentary lifestyle, trauma, back pain, smoking, obesity, genetics, poor general health, and psychopathology (5-8). Neck pain as the presenting symptom of tuberculosis (TB) is quite rare but not entirely unusual in high-risk patients.

The presenting symptoms of TB vary widely and may include acute and chronic pain in anatomical regions with active TB infection (9). Cervical spine TB, although rare, may present with nonspecific symptomatology emanating from the upper cervical spine, leading providers to overlook TB in their diagnostic approach. In the United Kingdom, a total of 8,483 cases of TB were reported in 2011, a rate of 13.6 per 100,000; the highest proportion of cases, approximately 42 cases per 100,000 population, occurred in London (10). In the United Kingdom, certain sociodemographic characteristics and social risk behaviors are associated with higher rates of TB, but recent trends have demonstrated a decline over the past 3 years.

While pulmonary tuberculosis remains the primary diagnosis in over half of TB infections in the United Kingdom, extrapulmonary TB may afflict the mus-

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culoskeletal system and cause acute skeletal pain, especially in immunocompromised patients (11). As stated above, the nonspecific clinical presentations of acute and chronic skeletal pain in such patients often delays appropriate diagnosis and treatment by misdirecting consideration of causative conditions such as TB. As part of the diagnostic regimen, therefore, pain medicine providers need to gather an effective social history and consider pertinent risk factors to reliably ensure accurate diagnosis.

We intend with this case article to communicate a rare case report of a female patient receiving poor management due to a lack of adequate social and medical history. Since neck pain is typically caused by noninfectious processes, the complete breadth of possible etiologies specific to her disease was easily overlooked. Cultural barriers represent a unique and particularly challenging barrier in this case. In addition, we stress the importance and relevance of a broad differential diagnosis alongside a multimodel approach to neck pain of infectious etiology.

CASE DESCRIPTION

Written informed consent was provided by the patient for inclusion in this report. A 54-year old female patient was referred to the pain clinic due to 3 months of persistent neck pain and neck swelling. The analgesic regimen prescribed by her general practitioner (GP), Tramadol and Co-codamol 30/500 three times a day, failed to provide effective pain relief, and the patient was not taking any pain medication at that time. The patient also suffered drowsiness and constant nausea from these medications. She had undergone physiotherapy for 2 months prior, which unfortunately exacerbated her pain symptoms that now radiated to her occipital region and head.

Our physical exam elicited limited neck mobility, chronic headache, and tenderness to palpation. Nondematous neck swelling was present over the patient's posterior cervical spine from C2-C5; she stated that this swelling had subsided significantly from the initial onset of neck pain. The patient clearly appeared uncomfortable with any movement secondary to neck pain. She endorsed pain levels of 8 out of 10 with movement and 6 out of 10 at rest on the Visual Analog Scale (VAS). On examination, she reported

significant difficulty turning her head to the left side, which caused sharp pain to radiate down her cervical spine and left arm. The pain dissipated after several minutes, with lingering paresthesias to her left hand.

Language barriers rendered a relevant social history difficult to gather. The patient was originally from Sri Lanka, having immigrated to London 15 years ago to reside near her daughter. The patient spoke limited English, and her daughter acted as an interpreter. There were no obvious injuries or physical marks from domestic violence that could explain her symptoms. She had been unemployed for the last 3 years since working as a cleaner in a local shop, claiming that she rarely engaged in excessive physical activities as a result of neck pain.

The patient was unable to convey the details of any medical treatments she had received prior to immigrating to the UK, never remarking on a history of TB or treatment of TB. At the present moment, she endorsed a chronic cough, fatigue, and intermittent chest pain over recent months.

Owing to the lack of evidence for trauma, repetitive movement injury, or arthritic process to explain her symptoms, we elected to pursue further radiological investigations to investigate underlying cervical spine pathology. We performed an urgent cervical x-ray in clinic, which demonstrated a suspicious anomalous structure at the C2/C3 level with calcification at the plantar occipital ligament. The radiology report also commented on a possible fracture in that region. The investigations were undertaken over a 4-week period, resulting in a magnetic resonance imaging (MRI)-confirmed calcification of the atlanto-occipital ligament, which correlated clinically with her constant headache. A cervical spine computed tomography (CT) scan was unremarkable, demonstrating only a small rounded bony fragment at the tips of the C2 and C3 spinous processes immediately right of midline. This finding was clearly longstanding and unlikely to be of clinical significance. Her intervertebral discs remained well-preserved without radiologic facet joint arthropathy, leading us to conclude that her complaints were most likely secondary to left-sided occipital neuralgia. The patient was next referred for a surgical opinion, which concluded that surgical intervention was unnecessary based on her insig-

nificant imaging. She was diagnosed with left-sided occipital neuralgia and advised to follow an ongoing pain management plan. The patient's persistent cough and intermittent chest pain prompted a plain film chest x-ray, which showed evidence of right upper lobe cavitation, most likely due to TB.

TREATMENT

The patient was intolerant of most analgesic agents due to side effects and remained noncompliant with a simple pharmacologic analgesic regimen. Continual assessment of her pain was also difficult due to the language and cultural barriers described previously. The initial analgesic regimen after diagnosis consisted of 100 mg of Pregabalin twice daily, 1g of Paracetomol 4 times daily, and 50 mg of Tramadol as needed. Pregabalin is established as one of the most effective treatments for refractory central neuropathic pain caused by somatosensory system pathology (12). There were some doubts whether this analgesic regimen would alleviate her persistent pain, but we stressed the importance of compliance for therapy to be successful.

We next pursued interventional modalities. A local anesthetic solution (Bupivacaine 0.25% / Lidocaine 2%) was injected into her interspinous ligament as a temporizing measure until her analgesic regimen was fully established. The purely local anesthetic injection was chosen for a possible anti-inflammatory role within the affected region despite a lack of fully validated evidence in current literature (13). A course of acupuncture was offered to the patient. After 3 sessions, she endorsed a gradual improvement in pain and easier neck range of motion compared to prior. Further medical management included cholecalciferol capsules, as her vitamin D levels were very low at 25 nmol/L. A 25-hydroxyvitamin D [25(OH)D] concentration level below 30 nmol/L may cause osteomalacia in adults; interestingly, a single-centered study demonstrated that vitamin D deficiency remains very common among tuberculosis patients, which is consistent with the findings of this case report (14). All relevant findings were reported

back to her GP along with a recommendation to pursue an anti-tuberculous regimen. The patient promptly began treatment, with subsequent significant reductions in pain intensity after 2 months. The patient's pain management received regular follow-up with frequent review of her analgesic regimen. The simple analgesic regimen detailed above effectively managed her neck pain without reported side effects.

DISCUSSION

As this case report shows, an accurate social history and correlation with clinical presentations can be complicated and arduous, and incomplete or ineffective gathering of diagnostically relevant data may lead to misassumptions. The patient's symptoms and associated neck pain had not been treated appropriately because the causative etiology was not investigated on presentation. The long-term improvement in her chronic pain likely resulted from resolution of TB after treatment in addition to an optimized analgesic regimen. Even though TB rarely affects the cervical spinal regions, symptoms are often associated with chronic neck pain, limited movements, and localized spasm. Pain medicine providers must therefore maintain awareness of susceptible patient populations who may require further investigations to elucidate the appropriate treatment modality.

CONCLUSION

Ethnic diversity in the UK has changed dramatically over the last 2 decades, challenging health professionals in the National Health Service to apply a more holistic approach to patient care. Effective pain management can be challenging when patients exhibit communicative difficulties and language or cultural barriers. Their descriptions and perceptions of pain may differ widely from the clinician's expected, regularly encountered descriptions, which may further inhibit appropriate pain treatments. This case report highlights the importance of taking a comprehensive history and considering social background in order to appropriately direct a diagnostic and therapeutic regimen.

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