

Case Report

Overlapping symptoms of pelvic metastasis and degenerative spine disease in colorectal cancer: a challenge in early diagnosis

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ABSTRACT

Colorectal cancer (CRC) is the second leading cause of cancer mortality worldwide. 90% of CRC-related deaths are due to metastasis. One of the rarer CRC metastases is bone metastasis, especially pelvic metastasis, with minor symptoms that frequently overlap with other degenerative diseases. The 85-year-old woman with CRC experienced progressive lower back pain radiating to both legs. CT scan showed degenerative spine disease. Further bone scan revealed lytic lesions on the superior pubic ramus, prompting a rare diagnosis of pelvic metastasis in CRC. The clinical symptoms exhibited by a late-onset CRC patient, consisting of lower back pain radiating to both legs, accidentally concealed the rare presence of pelvic metastasis. In this case, the bone metastasis was successfully diagnosed following a routine bone survey, underscoring the importance of this procedure. Delayed diagnosis plummets the median survival from 20-30 months to just 2-3 months; clinicians must be aware of minor skeletal symptoms and utilize early advanced imaging to avoid catastrophic diagnostic delays and poor treatment outcomes. This rare case of pelvic metastasis in a CRC patient highlights the importance of not undermining minor skeletal symptoms in CRC patients and thoroughly exploring the possible cause of symptoms to avoid underdiagnosis or delays in diagnosing rare metastasis that could potentially alter outcomes for the worse.

Keywords: Colorectal cancer, Bone metastasis, Pelvic metastasis

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer and the second leading cause of cancer mortality worldwide, representing 11% of cancer-related fatalities across both genders.¹⁻³ CRC is further divided into two groups; early onset (EOCRC) and late onset (LOCRC). CRC survival outcomes can vary significantly depending on the age of onset, with lower survival outcome on patients with LOCRC.⁴⁻⁷

Fortunately, widespread CRC screening programs for adult populations-typically starting at around 50 years of age-have shifted these trends, leading to an early diagnosis followed by a subsequent decline in incidence

rates among older adults.¹⁻³ Despite improvements in early detection and treatment, metastasis remains a critical challenge. They are responsible for 90% of CRC-related deaths, leaving affected patients with a documented 5-year survival rate of less than 20%. An under-reported and under-research metastasis is bone metastasis-occurring in 6% of patients, but imposes a clinically significant complication due to its poor prognosis, short median survival time, and multiple severe clinical symptoms.⁸⁻¹⁰

Bone metastasis in CRC cases most frequently occurs in the spine, but other literature noted the occurrence of rib and pelvis metastasis.¹¹ Clinical symptoms are usually unrecognizable and vague, possibly delaying diagnosis

and treatment. This study focuses on the clinical manifestations of pelvic bone metastasis secondary to CRC, particularly on how these symptoms overlap with those of degenerative spine disease. Furthermore, this study underscores the importance of routine bone survey on a CRC patient, which is vital for optimizing overall survival outcomes, and increases the patient's quality of life.

CASE REPORT

An 85 years old woman came with chief complaints of stomach ache, nausea and vomiting and recurrent diarrhea. Her physical examinations were unremarkable, though her CT scan showed a caecum mass covering a third of the medial ascending colon; multiple lymphadenopathy in the para aortic, mesenteric, and bilateral inguinal. The patient's primary tumor was curatively resected and the samples were analyzed, resulting in a diagnosis of moderately differentiated adenocarcinoma of colon with no metastasis detected (T2N0M0). The treatment is then followed with two chemotherapy regimens due to chronic diarrhea and

partial ileus obstruction but is lost to follow up after just 3 sessions. The patient admits to having no complaint and has an excellent quality of life during her loss to follow up years.

Three years later, the patient returned with a chief complaint of progressive lower back pain radiating to the leg, which occurs intermittently and worsen for the past two days. The patient denied any prior trauma. Physical and vital examination holds no notable findings. Further CT-scan revealed lymph nodes metastasis at both axillae, Severe axial compression of the 12th vertebra thoracal (VTh) and 1st vertebra lumbar (VL), thoracolumbar spondylosis, spondyloarthrosis in the VTh 2-3 (Figure 1), and old fracture of the left pubic rami (Figure 2).

Bone survey results showed multiple lytic lesions on the superior pubic ramus suspected to be a bone metastasis and osteopenia at left femur, tibia and fibula (Figure 3). Patient is then subjected to 3 chemotherapy regimens that still continue to date and showed clinical improvement.

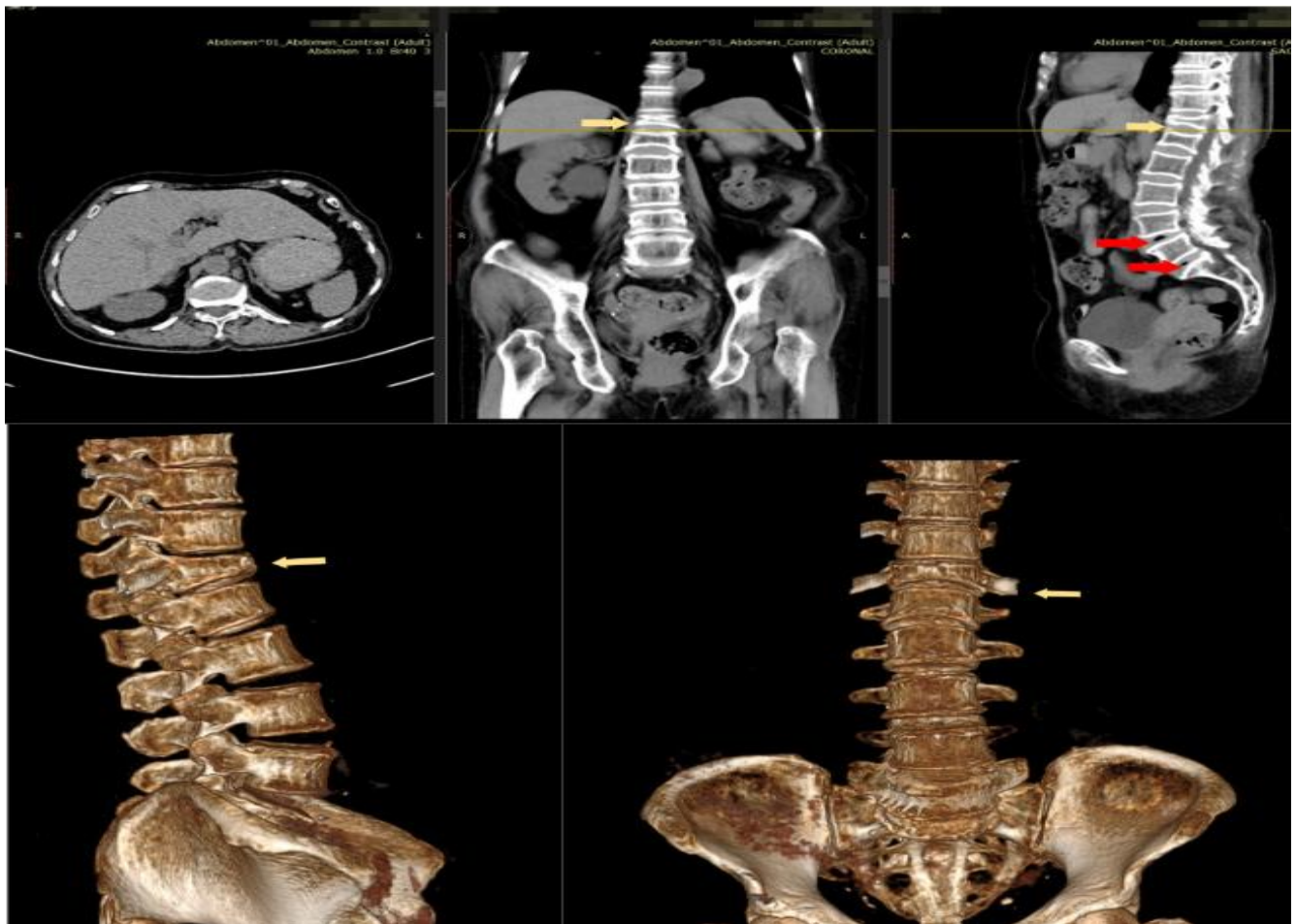


Figure 1: 3D sagittal, coronal, and axial CT scan views of the thoracolumbar spine; osteophyte lesions found on the thoracolumbar vertebral bodies (yellow arrow); vacuum phenomenon at the L4-L5, and L5-S1 intervertebral disc spaces (red arrow); Sclerotic changes at the inferior endplate of the L2 vertebral body; and axial compression at the T12 and L1 vertebral bodies.

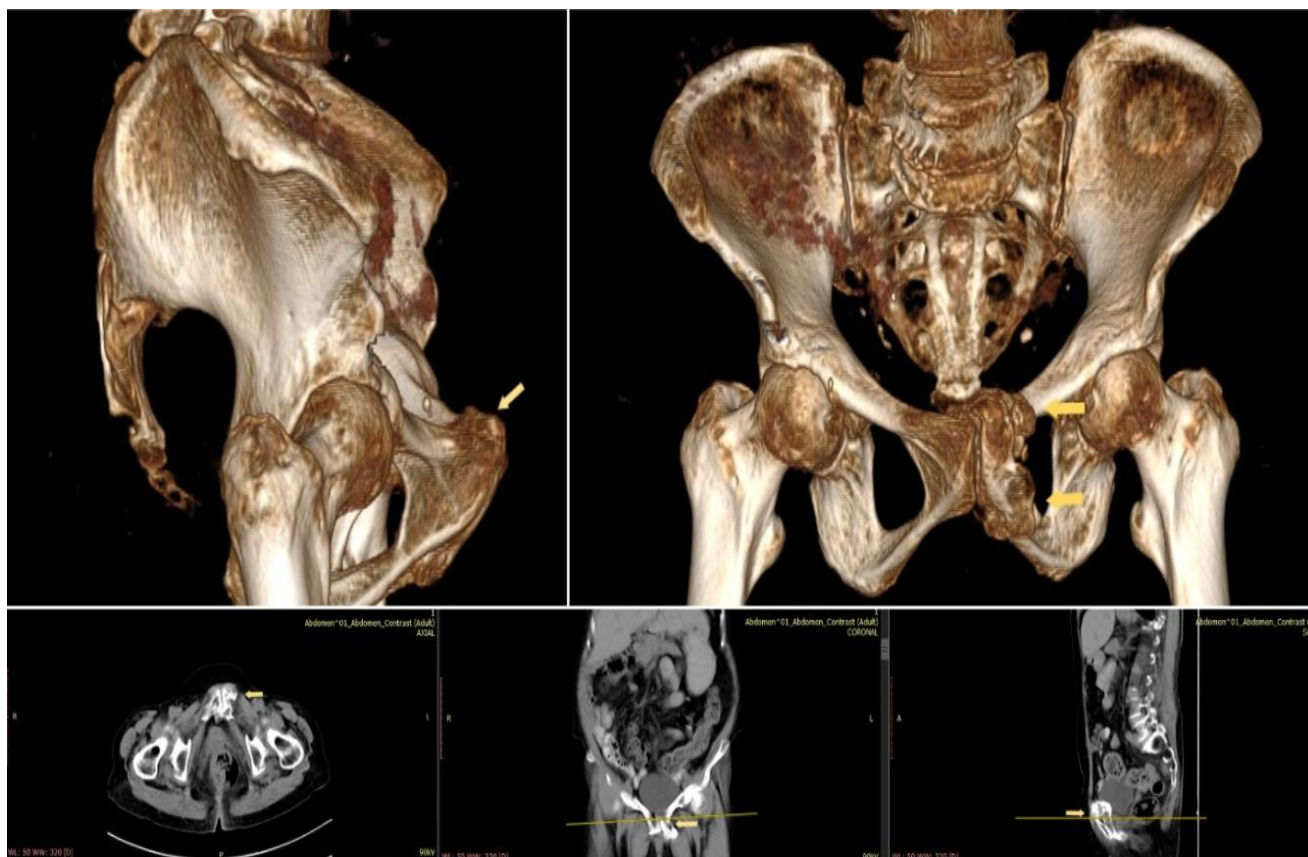


Figure 2: CT scan of the pelvic region revealed old fractures of the left superior and inferior pubic rami.

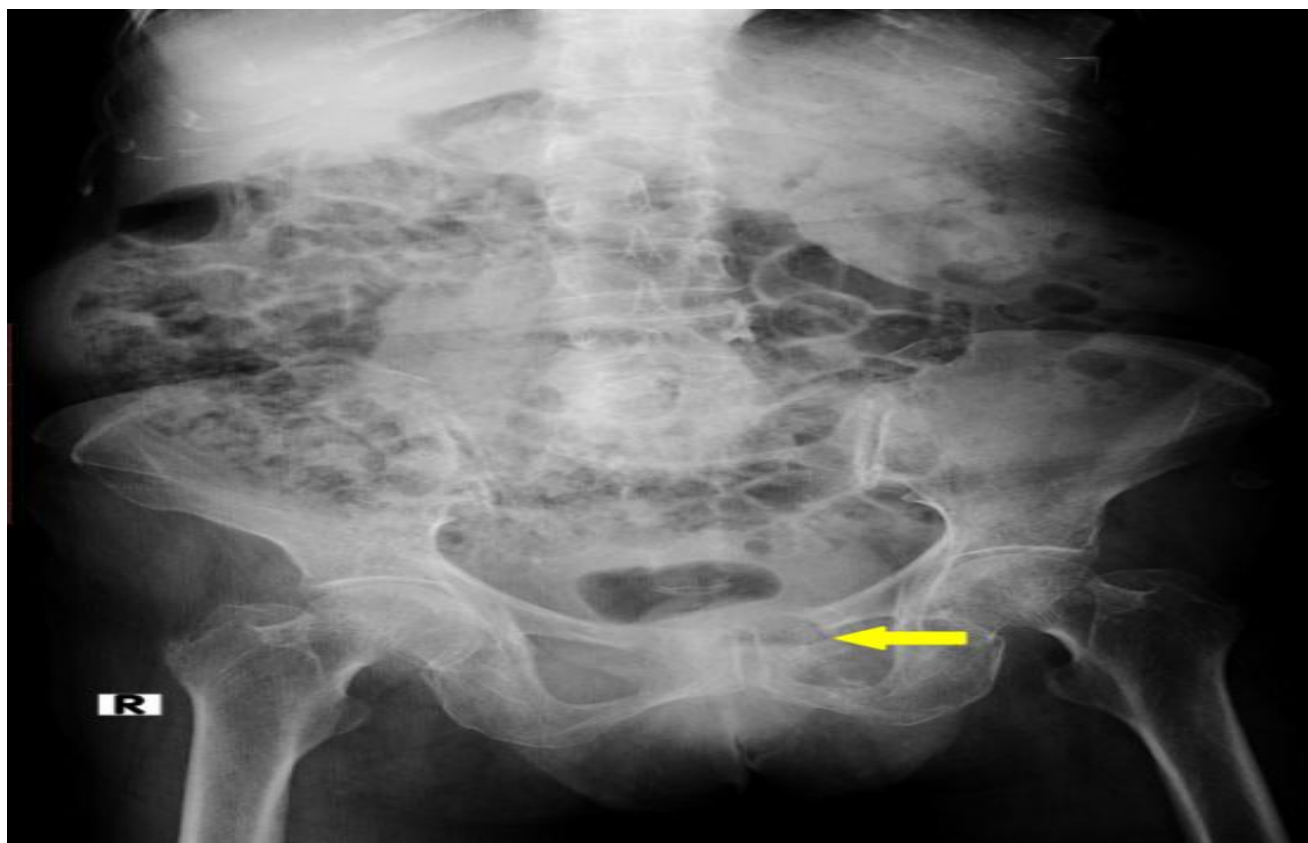


Figure 3: Lytic lesion was found in the left superior pubic ramus during pelvic bone survey.

DISCUSSION

In the scarce presence of bone metastasis in a late onset CRC, a pelvic metastasis is even rarer. Previously, some studies stated an 8.3% incidence rate for the case of pelvic metastasis due to CRC.¹¹ Furthermore, the metastasis lesions in this case are revealed to be in zone III (comprising the pubis and ischium) which accounts for 5.4% of the total cases of pelvic metastasis due to CRC.¹²

Clinically, this patient developed gradual severe intermittent back pain which radiated to both legs, worsened at night, instability, and nerve compression reducing the quality of life drastically after three years without notable complaint. This aligns with previous studies where bone metastasis patients experience similar clinical symptoms after a median time of 17-33 months.^{10,12,13} Consequently, due to the patient's age, and vague signs and symptoms it is mistaken for a much benign condition leading to a delayed care-seeking.¹³

Diagnosing these types of bone metastasis are difficult, especially when the metastasis pain is clinically masked by the presence of a degenerative spine condition with identical symptoms. In this particular case, the pain caused by the pubic bone metastasis was concealed by degenerative spinal cord compression, which matches the complaints, thereby delaying the recognition of the pelvic malignancy. Furthermore, in the current CRC guideline, there are no recommendations for routine use of bone survey, paired with the rare prevalence rate making it seem farfetched to diagnose a bone metastasis.

For this case, the bone metastasis is successfully diagnosed after a bone survey was conducted revealing multiple lytic lesions on the superior pubic ramus, emphasizing the importance of conducting a routine bone survey for all CRC. To mitigate these diagnostic challenges, advanced imaging is vital for early detection and treatment planning. Even with multimodal treatments, late onset CRC patients with a late diagnosed pelvic metastasis face a higher risk of local recurrence within the pelvic bone, poor prognosis and inhibit significantly lower median survival of 2-3 months from the initial 20-30 months without metastasis.^{10,14} Hence why clinicians must not overlook minor signs and symptoms to avoid pitfalls in diagnosis and treatment of bone metastasis in late colorectal cases.

CONCLUSION

This case reported an exceedingly rare zone III pelvic metastasis on a late-onset CRC which only occurs in 5.4% of total pelvic metastasis cases. The symptoms exhibited prompted a diagnostic pitfall in which the patient's progressive lower back pain is concealed by a finding of degenerative spine condition. These overlapping symptoms, combined with the patient's age led to an underdiagnosis of the malignancy, which only

revealed after a bone survey examination was conducted. In the case of pelvic metastasis, delayed diagnosis would profusely lower the median survival rate from 20-30 months to just only 2-3 months. Therefore, clinicians must not undermine minor skeletal related symptoms and it is highly suggested that bone survey is added in the CRC follow-up protocol.

This case exposes how seemingly common age-related symptoms could conceal a rare, highly aggressive metastasis. Because the patient's pelvic metastasis perfectly mimicked benign degenerative spine disease, and the current CRC guideline has not included bone surveys as a routine exam for surveillance after curative resection, leads to the diagnosis being delayed. Possibly causing a drop in median survival rate and worsening clinical outcome. Hence proving the importance of early detection to alter an otherwise poor prognosis.

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