Renal cell carcinoma (RCC) is the most common primary malignancy of the kidney. Here, we reported a 75-year-old female patient who was admitted to the hospital with chronic low back pain radiating to both legs with numbness. After lumbar magnetic resonance imaging reported findings such as left paracentral disc protrusion at the level of L1-2, left paracentral foraminal disc protrusion at the level of L45, and diffuse annular bulging at the levels of L3-4 and L5-S1 with bilateral narrowing of the neural foramina, we started physical therapy with a diagnosis of lumbar radiculopathy. During her follow up, renal ultrasonography (US) was performed because of slightly high persisting creatinine levels. Renal US reported a renal mass that includes necrotic regions. Finally, she was diagnosed with non-metastatic RCC. Her pain substantially disappeared after she underwent radical nephrectomy.