

Beyond Skin Deep: Cellulitis Induced Splenic Abscess

Introduction

Splenic abscess is a rare clinical manifestation with an incidence rate of less than 1%. Splenic abscess can present with a history of lower chest trauma, diabetes, hyperlipidemia, hypertension, aortic valve replacement, malignancy, splenic infarction, and immunosuppression. There have been reported cases associated with dental extraction, appendicitis, prostatectomy, and gastrointestinal surgeries as well. This case is an atypical presentation of splenic abscess due to the etiologic cause of chronic eczematous cellulitis.

Case Report

A 51-year-old male with poor medical compliance, diabetes with a HgbA1C of 14.2, hypertension, hyperlipidemia, COPD with a 40-pack-year smoking history, chronic eczema in the bilateral upper and lower extremities with associated cellulitis, and no history of intravenous drug use presented with an insidious onset of subjective fever, malaise, abdominal discomfort and distension, lower back discomfort, and worsening shortness of breath over the course of a few months. The patient had an initial mildly elevated leukocytosis of 12,000 cells/ μ L. Point of care ultrasound of the abdomen that was done in the ED showed a cystic mass in the spleen measuring approximately 8 x 8 x 6.5 cm (Figure 1). CT abdomen (Figures 2 and 3) showed findings consistent with initial ultrasound findings. CT chest (Figure 4) showed a prominent left sided pleural effusion and lower lobe lung consolidation with air bronchograms, which is due to the local inflammatory process surrounding the spleen. TTE was done to rule out underlying endocarditis, which showed a normal EF of 55% and no valvular vegetations (Figure 5). Since the patient had back pain as well, a subsequent MRI of the spine with contrast was conducted and showed osteomyelitis at the anterior/inferior corner of the L4 vertebrae (Figure 6). The patient was started on empiric treatment of IV piperacillin-tazobactam. Initial and repeat blood cultures were negative, however, a culture of a CT-guided abscess drainage grew MRSA. IV piperacillin-tazobactam was discontinued and IV vancomycin was started. A pleural catheter was placed for the left-sided effusion, from which 600mL of clear-yellow fluid was drained. The fluid was found to be exudative (pleural LDH 621 and pleural total protein 4.3). The patient had a splenectomy and vancomycin was continued for 6 weeks duration.

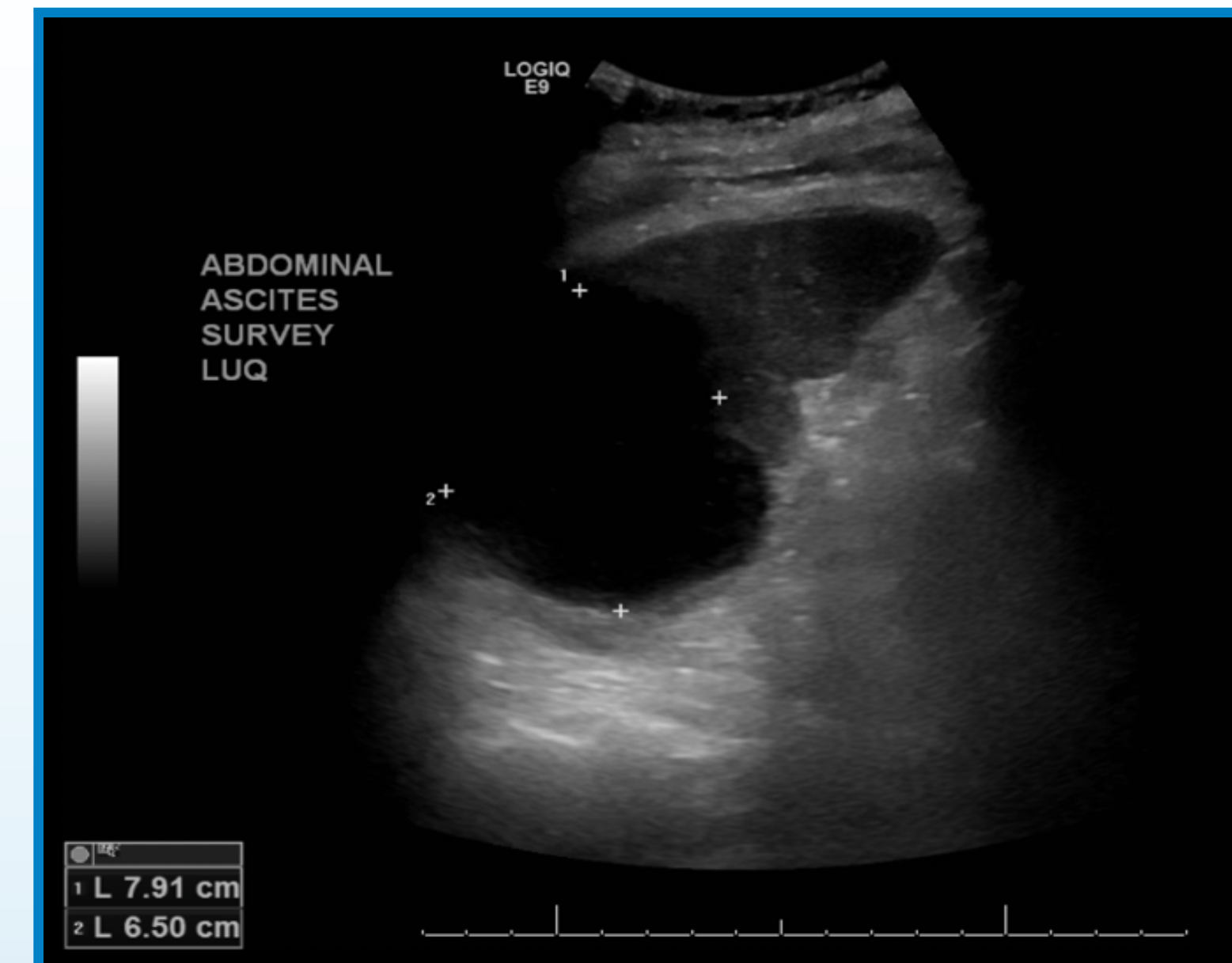


Figure 1. Cystic mass in the spleen measuring approximately 8 x 8 x 6.5 cm. No vascular flow was identified within the mass.

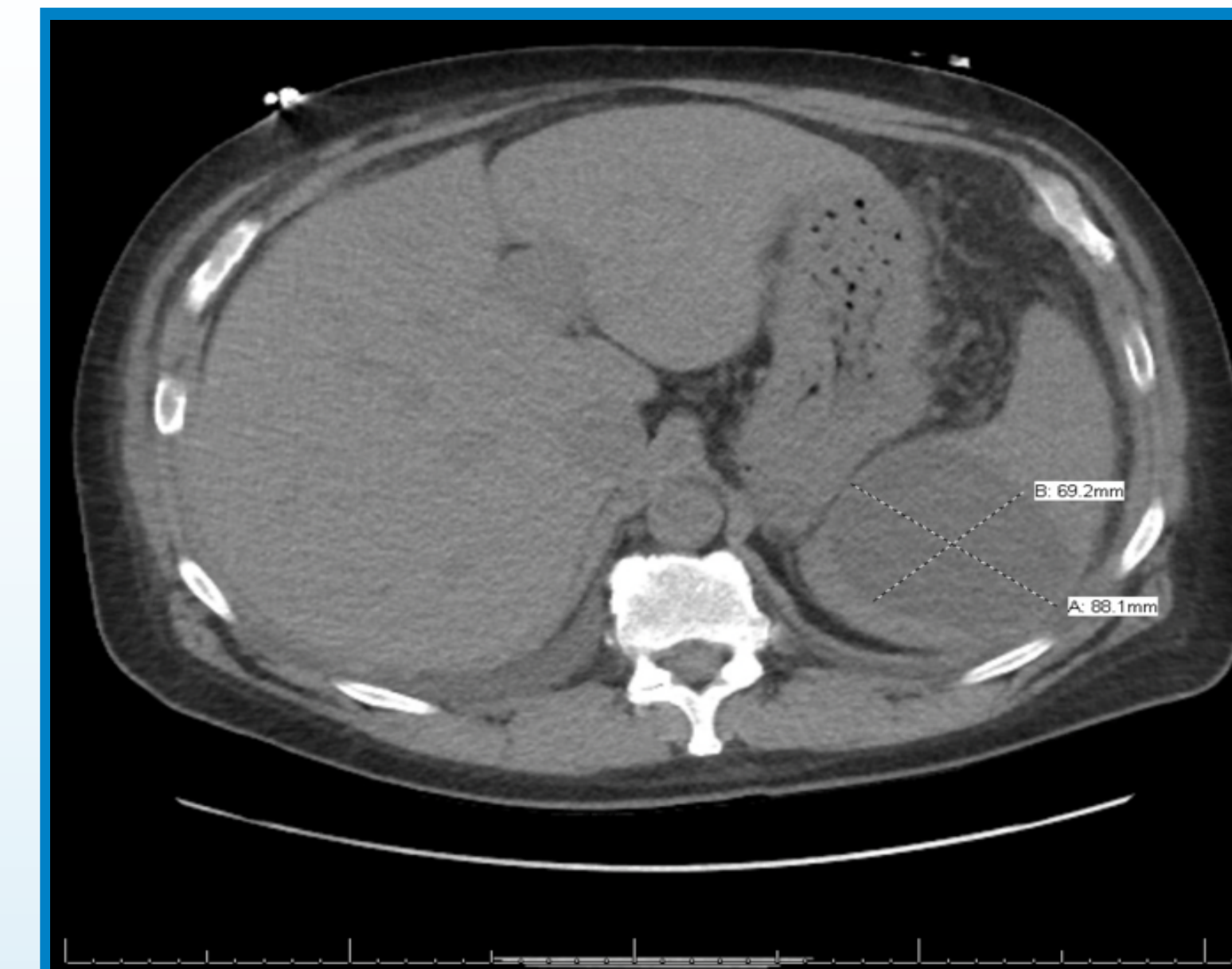


Figure 2. Splenic mass measuring 7.8 x 8.8 x 6.9 cm, similar in size to the results found on ultrasound examination.

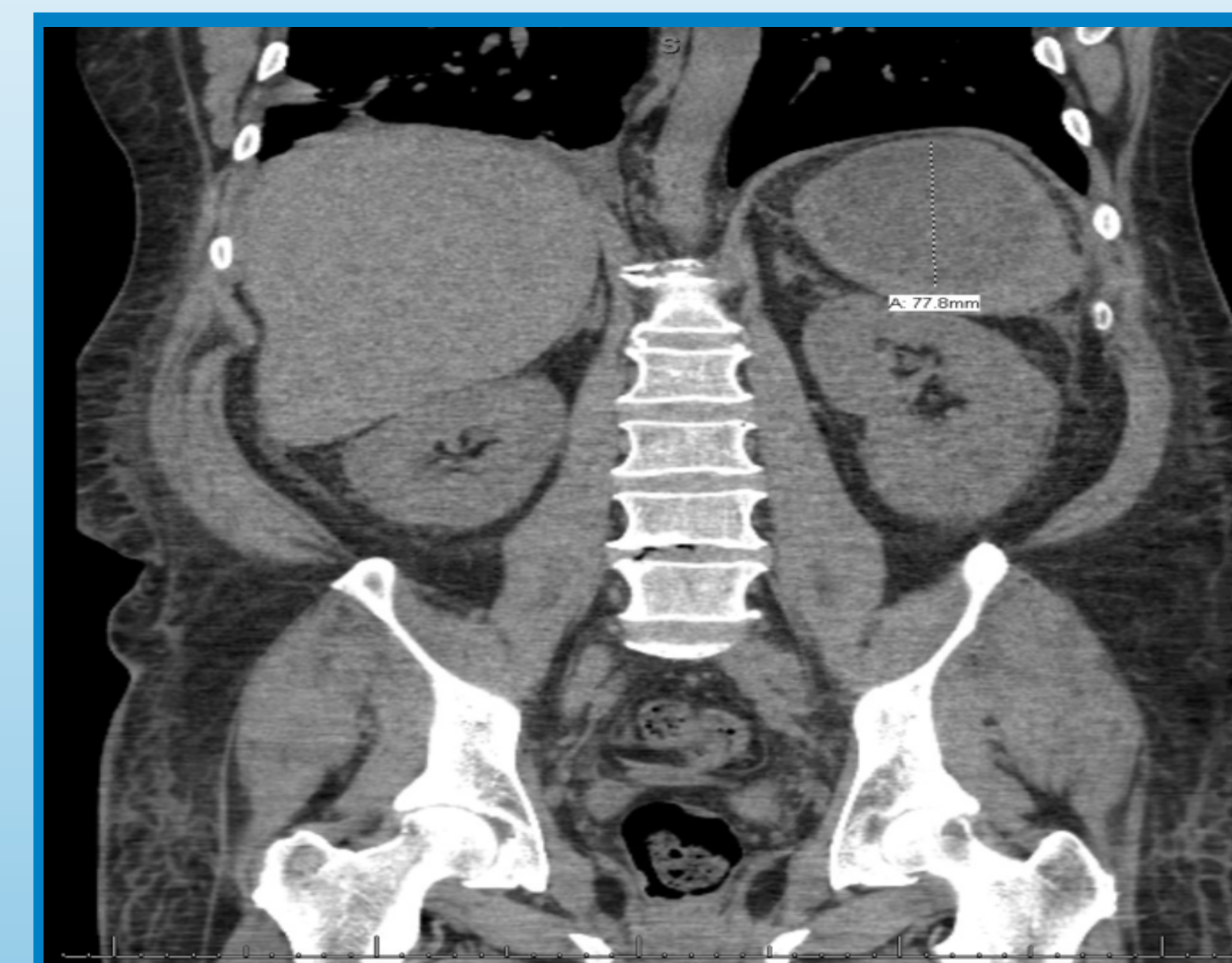


Figure 3. Coronal plane view of the CT abdomen showing the splenic abscess.

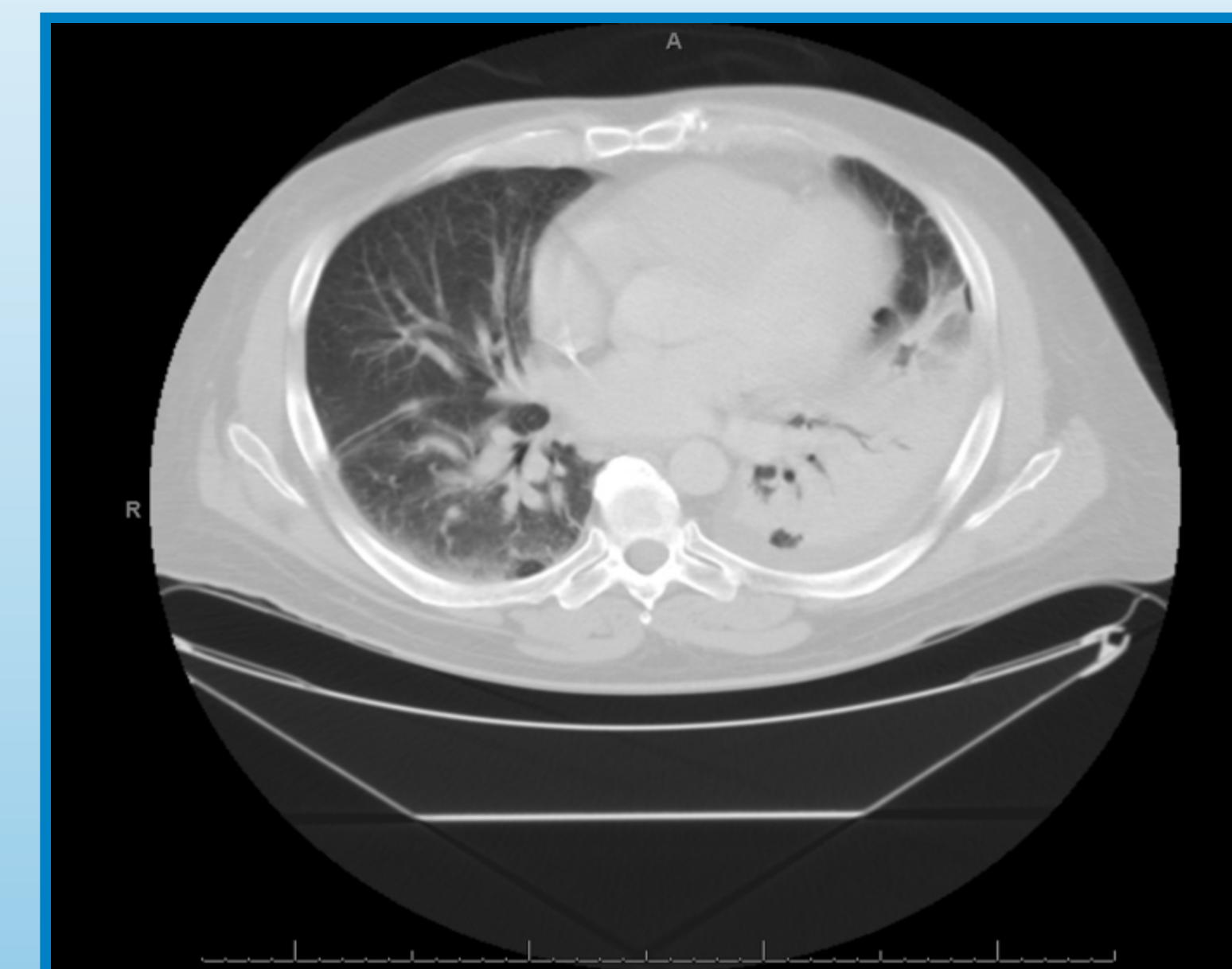


Figure 4. Left sided pleural effusion with lower lobe lung consolidation and air bronchograms. Patchy infiltrates in right lung were noted as well.

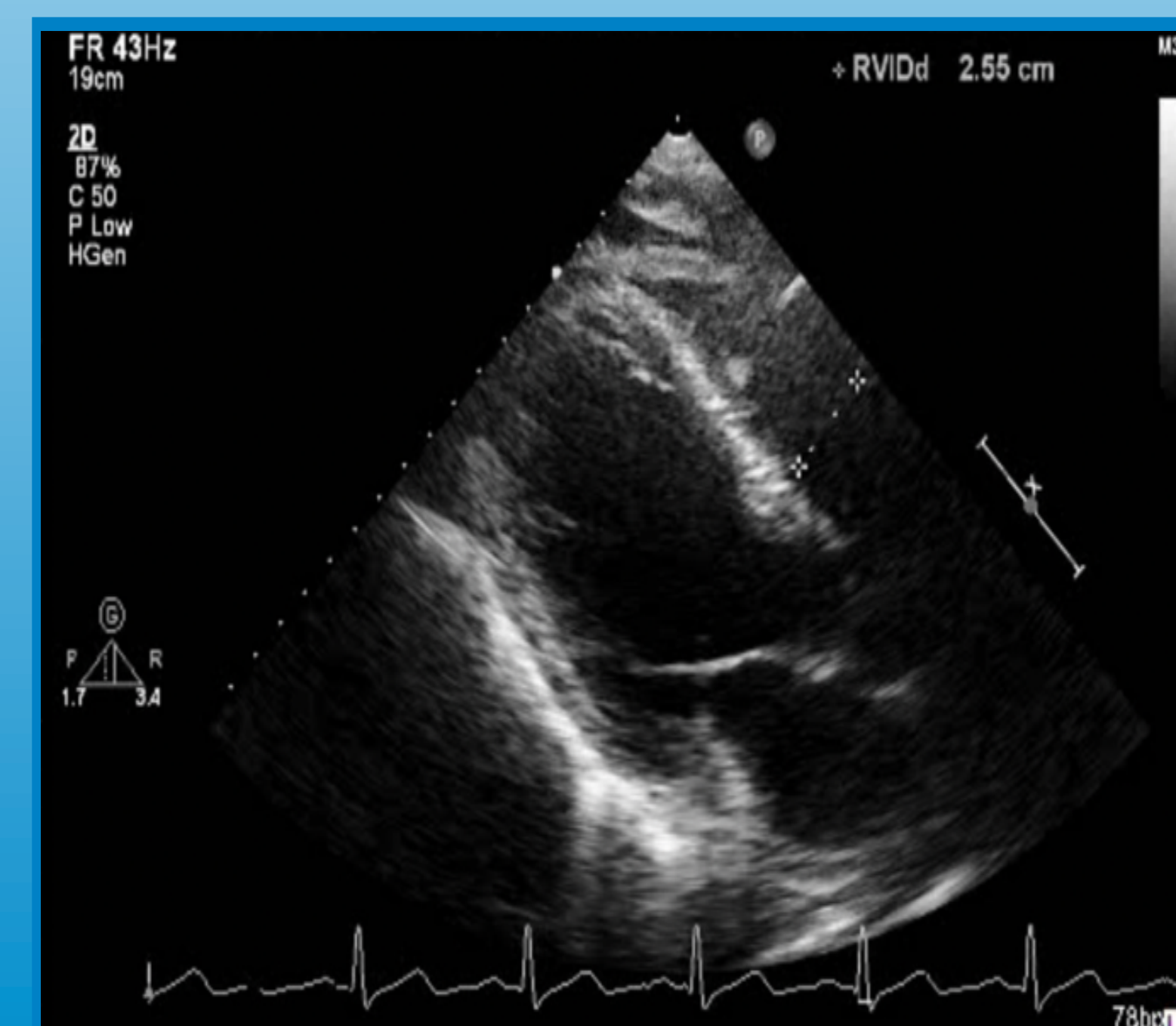


Figure 5. Parasternal long-axis view of a TTE that did not show any valvular abnormalities.

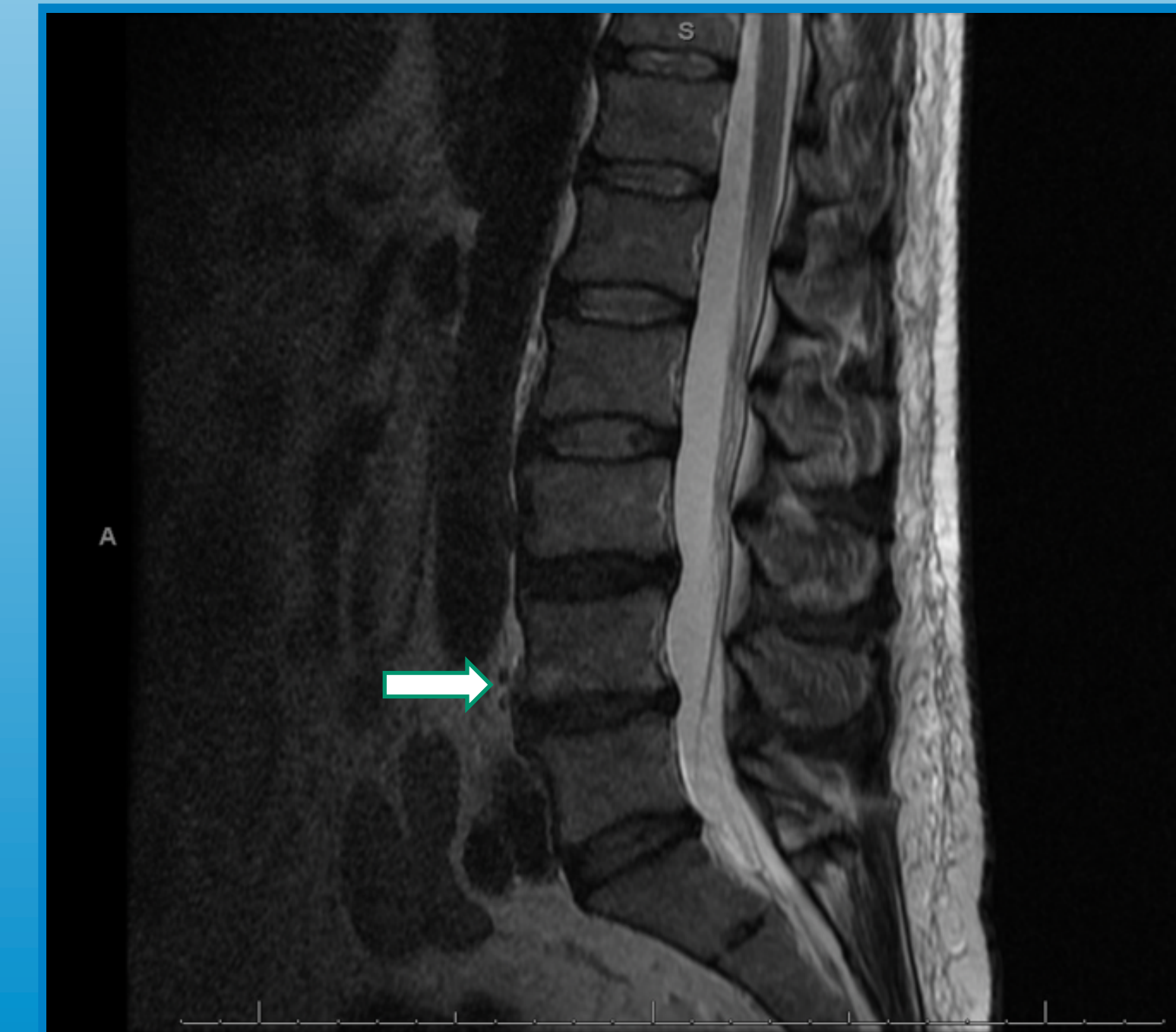


Figure 6. MRI of the spine with contrast showing a small osteomyelitis of L4 vertebrae at the anterior/inferior corner (as noted by the white arrow).

Discussion

Splenic abscess is commonly caused by endocarditis, followed by urinary tract infections, appendicitis, pneumonia, and wound infections as other primary etiologies. The most common offending organisms associated with splenic abscess are aerobic organisms, particularly *Streptococci*, *Staphylococci*, and *Escherichia coli*. Facultative anaerobic organisms such as *Enterococcus* and *Klebsiella pneumoniae* have also been implicated as frequently encountered organisms in splenic abscess. In certain endemic areas, *Mycobacterium tuberculosis* and *Salmonella typhi* can be involved in the pathogenesis of a splenic abscess. In rare instances, immunocompromised patients have presented with a fungal splenic abscess, with the most common offending organism being *Candida*.

Clinical findings consist of fever, chills, flank/lumbar pain, left upper quadrant tenderness and/or left lower chest tenderness. The manifestation of splenic abscess follows a relatively bimodal distribution, with a preponderance in those younger than 40 years of age and those older than 70 years of age. In the former group, splenic abscess typically originates from immunosuppression or drug addiction and these individuals generally present with multilocular abscesses. In the latter group, splenic abscess generally manifests in the context of diabetes and/or a noncardiac infection focus. These individuals generally develop a unilocular abscess. Leukocytosis can range from 10-18,000 cells/ μ L. Abdominal ultrasonography is integral to the early diagnosis of splenic abscess. The sensitivity of abdominal ultrasonography in the diagnosis of splenic abscesses is roughly 75-93%. The abdominal CT with the ultrasound examination has a diagnostic sensitivity estimated at 94.7%. Treatment options include intravenous antibiotics with CT-guided percutaneous aspiration or splenectomy. Percutaneous drainage is performed when the abscess is unilocular or bilocular with discrete septal walls and can be an alternative to splenectomy for critically ill patients and for young patients where splenic preservation is preferred.

Conclusion

Our patient overall did well with the splenectomy and parenteral antibiotic therapy for his L4 vertebral osteomyelitis. After careful history taking, physical examination, and evaluation of diagnostic imaging studies, the patient's chronic skin cellulitis was the source of his splenic abscess and vertebral osteomyelitis. This case brings to light the fact that chronic skin infections may not be as benign as perceived and if unaddressed could lead to bacterial metastasis.