

Paravertebral Abscess and Spondylodiscitis due to *Streptococcus agalactiae* after Transrectal Prostate Biopsy

Prostat Biyopsisi Sonrası *Streptococcus agalactiae*'ya Bağlı Gelişen Paravertebral Apse ve Spondilodiskit

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ABSTRACT

Streptococcus agalactiae, is the species designation for streptococci belonging to Lancefield group B and are facultative, gram-positive diplococci. In the previous years, it was known as urinary tract infection agent in pregnant women, it was rarely detected in other infections in adults. Nowadays, *S. agalactiae* is increasingly recognized as a cause of invasive infections such as bacteraemia without any focus, skin and soft tissue infections, upper respiratory tract infections, osteoarticular infections, peritonitis, cardiac infections, meningitis and other focal infections among non-pregnant adults, especially in the elderly and immunocompromised patients. Although rare in the literature, osteoarticular infections caused by *S. agalactiae* have been reported in adults. In this case report, we aimed to present a patient with iatrogenic spondylodiscitis due to *S. agalactiae* after ultrasound-guided transrectal prostate needle biopsy.

Keywords: Transrectal prostate biopsy; spondylodiscitis; *Streptococcus agalactiae*.

ÖZ

Streptococcus agalactiae, Lancefield sınıflamasına göre B grubuna ait, fakültatif, gram-pozitif koktur. Önceki yıllarda gebe kadınlarda idrar yolu enfeksiyonu etkeni olarak bilinirken, diğer erişkinlerde nadir görülen bir hastalık etkeni idi. Günümüzde ise *S. agalactiae*, gebe olmayan erişkinlerde özellikle immün sistemi baskılanmışlarda, kronik ve yaşlı hastalarda, kaynağı saptanamayan bakteriyemi, yumuşak doku enfeksiyonları, üst solunum yolu enfeksiyonları, osteoartiküler enfeksiyonlar, peritonit, kardiyak enfeksiyonlar, menenjit ve diğer odak enfeksiyonları gibi invaziv enfeksiyonların bir nedeni olarak giderek daha fazla saptanmaktadır. Literatürde nadir olmakla birlikte, erişkinlerde *S. agalactiae*'nin neden olduğu osteoartiküler enfeksiyonlar bildirilmiştir. Bu olgu sunumunda, ultrason eşliğinde transrektal prostat iğne biyopsisi sonrası *S. agalactiae*'ya bağlı iatrojenik spondilodiskit gelişen bir hastanın sunulması amaçlanmıştır.

Anahtar kelimeler: Transrektal prostat biyopsisi; spondilodiskit; *Streptococcus agalactiae*.

INTRODUCTION

Infection of the intervertebral disc, described as usually spondylodiscitis or vertebral osteomyelitis. In developed countries, the incidence of this disease varies between 1:100,000 and 1:250,000 and is more common in the elderly (1,2). Spondylodiscitis may develop spontaneously or iatrogenically. Although it is rare, spontaneous or iatrogenic spondylodiscitis may cause morbidity and long-term sequelae. Microorganisms can reach the intervertebral disc by hematogenous dissemination through arteries or veins or by directly inoculation (3). Some medical interventions like spinal surgery, intravenous catheter use, vascular or urogenital interventions may lead to iatrogenic spondylodiscitis.

Respiratory tract, skin, gastrointestinal tract, genitourinary tract, or the oral cavity infections are common primary sources for the haematogenous route of spine infection (3,4). In the etiology of pyogenic spondylodiscitis, *Staphylococcus aureus* is the most common pathogen (55.1%) isolated from cultures (2). The other common microorganisms frequently isolated in pyogenic spondylodiscitis are *Streptococcus* species and other Gram-negative bacilli (3).

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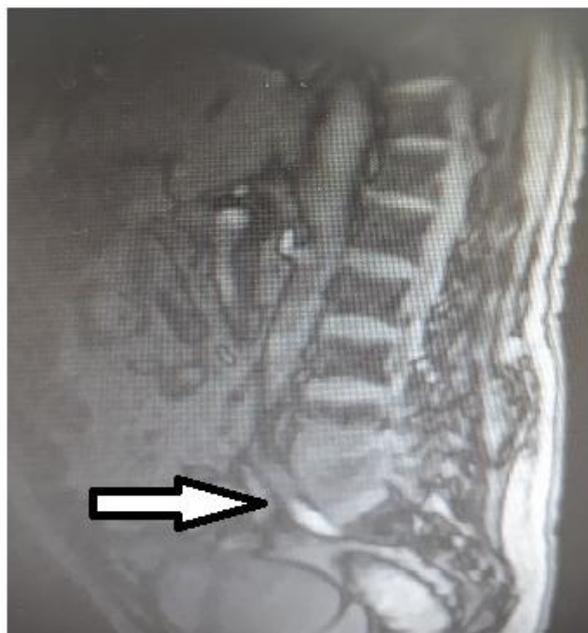
Streptococcus agalactiae is a member of the normal gastrointestinal flora in some humans and can spread to secondary sites. *Streptococcus agalactiae* may lead several invasive infections among non-pregnant adults who are usually elderly and have an underlying illness such as neurologic disease, cirrhosis, diabetes mellitus, renal failure, malignancies and immunosuppressive conditions such as acquired immunodeficiency syndrome and people those undergoing intravenous catheterization. They can rarely cause vertebral osteomyelitis and spondylodiscitis (5). In this case report, it was aimed to present a patient with iatrogenic spondylodiscitis due to *S. agalactiae* after ultrasound-guided prostate needle biopsy.

CASE REPORT

A 72-year-old male was admitted to the hospital with symptoms of fever, weakness, fatigue, anorexia and fever for two weeks. The patient did not have a history of trauma or known chronic illness (underlying chronic diseases including diabetes, cancer, renal/liver dysfunction and other any immunosuppressive conditions) except benign prostatic hypertrophy. In his medical history, he had a transrectal biopsy of the prostate performed one month ago. Before the transrectal biopsy of the prostate, he had used prophylactic oral ciprofloxacin (500 mg twice) treatment per day for three days. The two days after biopsy of the prostate, the patient experienced high fever, and two weeks after biopsy, he complained of pain localized to the lumbar spine. In physical examination, he was febrile (38,4°C), heart rate was 90 beats/min, arterial blood pressure was 132/82 mmHg, respiratory rate was 18 beats/min and oxygen saturation was normal. Pulmonary and cardiac auscultation and his neurological examination, including sensory function and motor strength, were normal. There was a tenderness in the lumbar spine. He had no history for tuberculosis. There were no risk factors for brucellosis in his medical history and there was no consumption of fresh cheese and animal husbandry.

In his laboratory examinations: leukocyte count (WBC) was: 8970/mm³ (neutrophil 80.5%), hemoglobin: 11.2 g/dL, erythrocyte sedimentation rate (ESR): 105 mm/h, C Reactive Protein: 86.3 mg/L (<5), RF: 10 IU/mL (<14). His serum creatinine, creatine kinase and liver enzymes were within normal values. Urine microscopy was normal. The Purified protein derivative (PPD) - tuberculin skin test was anergic. Rose Bengal test and Coombs anti-Brucella testes were negative. Serum result was negative for Human Immunodeficiency Virus (HIV).

Peripheral blood cultures and urine culture were performed on admission and treatment with sulbactam-ampicillin (1 g IV 4 times a day) were administered empirically. His blood and urine cultures were sterile. His chest radiograph, ultrasound imaging of the abdomen and transthoracic echocardiography were unremarkable. Vertebral Magnetic Resonance Imaging (MRI) was performed due to the patient's low back pain. The MRI revealed signs of spondylodiscitis and approximately 1x0.5 cm abscess was seen in the paravertebral area at the level of L2-L3 vertebra (Picture 1). An ultrasound-guided needle biopsy was performed to obtain a sample from the lesion described in MRI and tissue materials were cultured. The pathology of the biopsy material revealed spondylodiscitis. Gram-positive cocci were detected in gram staining of biopsy material and microbiological culture was positive for *S. agalactiae* by using API NH system (bioMerieux, NC, USA). The streptococcus strain was resistant to ciprofloxacin but susceptible to penicillin. Therefore the patient received intravenously penicillin (24 million of Units/day, divided in six doses) treatment for four weeks. After four weeks, his complaints decreased and he was discharged with sequential oral therapy and continued in ambulatory two weeks of therapy with amoxicillin plus clavulanic acid (2x1 g/day, po) as well as functional rehabilitation. In outcome and follow-up, the infection parameters declined in his laboratory examinations. There were no further episodes of fever, with significant reduction of the pain and there was no neurological deficit in physical examination.



Picture 1. Lumbar vertebral MRI revealed signs of spondylodiscitis at the level of L2-L3 vertebra.

DISCUSSION

Transrectal ultrasound (TRUS)-guided prostate needle biopsy, under prophylactic antibiotics, is the method for diagnosing prostate diseases and is generally known to be a safe procedure. Infectious complications may occur after this procedure, such as symptomatic urinary tract infection, bacterial prostatitis, epididymitis, urethritis, prostatitis, fever, chills and sepsis (6). *Escherichia coli* is the most common bacteria isolated from cultures after TRUS-guided prostate needle biopsy, due to inoculation of bacteria during the TRUS-guided prostate needle biopsy as the needle passes through the contaminated rectum (7). Antibiotic prophylaxis for prostate biopsy reduces the incidence of infective complications after this procedure. Fluoroquinolones are the most commonly used antibiotics in prophylaxis. However, it has been reported in the literature that rectal flora elements are resistant to quinolones of 4% to 13% (8). The patient we presented had ciprofloxacin as prophylaxis too.

According to the source screening, in the literature six cases of spondylodiscitis following TRUBP have been reported previously (9). The incidence of iatrogenic spondylodiscitis is rising, possibly due to vascular devices or invasive procedures. This infection is more common in males than females and in fourth to fifth decades for unknown reasons. The most common location of spondylodiscitis is lumbar region (3). The case we present was 72 years old male; he had a recent history of prostate needle biopsy and had spondylodiscitis at the level of L2-L3 vertebra.

It is known that major symptoms associated with spondylodiscitis are pain (present in 90%) and fever (present in 52% of cases). However chills or fever spikes are rare (3). Our patient had fever and pain in the lumbar spine.

Elevated WBC scores rarely exceed in spondylodiscitis patients (present in 52% of cases). But ESR is usually above 40 mm/h and is seen in almost all cases of spondylodiscitis. Our case's ESR was elevated, too (2,3). Blood, urine and bone cultures should be cultured before the antimicrobial therapy and this will help to guide the choice of antimicrobial therapy. Blood cultures may be positive in 50% of cases. We had taken the blood and urine cultures but there was no growth of the cultures. The patient's biopsy culture was positive for *S. agalactiae* and susceptible for penicillin. MRI is a sensitive method for scanning spine and has become the gold standard in the evaluation of pyogenic spondylodiscitis. The findings on MRI can help early diagnosis. We had performed MRI, too.

The duration of intravenous treatment for susceptible microorganisms isolated in culture is recommended for six weeks or until ESR decreases significantly but there is no consensus on this issue (2,3,10). The coexistence of paravertebral abscess with spondylodiscitis greatly influences the duration and method of treatment (surgical or medical, IV / oral therapy). In most patients, treatment may need to be completed with parenteral therapy. But; if paravertebral abscess is not complicated, if there is no comorbidity, if there is oral susceptibility of the causative microorganism, if there is good response to the first parenteral treatment, bioavailability of the given oral treatment is good, the patient can continue with oral treatment after parenteral treatment (11). But there is no consensus on the minimum optimal duration of parenteral treatment in the treatment of spondylodiscitis (11,12). Our case had treatment for four weeks intravenously and continued in ambulatory two weeks of oral therapy.

CONCLUSION

In conclusion, pyogenic spondylodiscitis should be considered among the major complications of biopsy of the prostate and may occur despite prophylactic antibiotic use. There are no randomized or prospective studies concerning the optimal choice and duration of antibiotic treatment, as well as the role of surgery. The therapeutic approach is not standardized. As spondylodiscitis due to *S. agalactiae* is rare, large comparative prospective studies for the optimal length of the antibiotic treatment needed.

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