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## A Rare Cause of Septic Shock: Two Different Focuses

### Septik Şokun Nadir Bir Nedeni: İki Farklı Odak

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#### ABSTRACT

**Introduction:** Despite all clinical studies, sepsis is still a serious cause of mortality. Finding the focus of sepsis and starting treatment for the cause is the most important step. In order to determine the source correctly, the whole body needs to be evaluated in detail. Sepsis is usually caused by a single focus. However, it should be kept in mind that there may be a secondary focus, albeit rarely.

**Case Report:** A patient who had been treated for 10 days due to pneumonia was admitted to our emergency room due to confusion. Findings in computed tomography performed at an external center were interpreted as pneumonia. The patient's blood pressure was 85/60 mmHg, pulse 132 beats/min, and he had a fever (39°C). The patient was considered as having sepsis due to pneumonia. However, when the images were interpreted in the emergency room, perforation of an abscess of the gallbladder was seen, along with pneumonia.

**Discussion:** Treatment specific to the cause of sepsis should be started quickly. In rare cases, several different factors can be found together. In particular, physicians should be more careful about silent and hardly detectable infections such as intra-abdominal abscesses, cranial infections, and cardiac focuses. It should always be kept in mind that there may be more than one source.

**Keywords:** *Pneumosepsis; gallbladder perforation; focuses of infection*

#### ÖZET

**Giriş:** Tüm klinik çalışmalara rağmen sepsis hala ciddi bir mortalite nedenidir. Sepsisin odağını bulmak ve nedene yönelik tedaviye başlamak en önemli adımdır. Kaynağın doğru tespit edilebilmesi için tüm vücudun detaylı olarak değerlendirilmesi gerekmektedir. Sepsis genellikle tek bir odakta kaynaklanır. Ancak nadiren de olsa ikincil bir odak olabileceği akılda tutulmalıdır.

**Olgu Sunumu:** 10 gündür pnömoni nedeniyle tedavi gören hasta konfüzyon nedeniyle acil servisimize başvurdu. Dış merkezde yapılan bilgisayarlı tomografi bulguları pnömoni olarak yorumlandı. Hastanın tansiyonu 85/60 mmHg, nabızı 132 atım/dk, ateşi 39°C idi. Hasta pnömoniyeye bağlı sepsis olarak değerlendirildi. Ancak acil serviste görün-

tüler yorumlandığında pnömoni ile birlikte safra kesesinde apse perforasyonu görüldü.

**Tartışma:** Sepsis nedenine özel tedaviye hızla başlanmalıdır. Nadir durumlarda, birkaç farklı faktör bir arada bulunabilir. Özellikle karın içi apseler, kraniyal enfeksiyonlar, kalp odakları gibi sessiz ve zor saptanan enfeksiyonlara karşı hekimlerin daha dikkatli olması gerekmektedir. Birden fazla kaynağın olabileceği her zaman akılda tutulmalıdır.

**Anahtar Kelimeler:** *Pnömozeptis; safra kesesi perforasyonu; enfeksiyon odakları*

## INTRODUCTION

A symptom is a sign of any illness that is felt by the patient. The symptoms of many diseases are very similar. Therefore, patients' symptoms should be carefully evaluated. A single diagnosis that meets all of the symptoms will relieve the physician. However, at this point, the physician should be careful. Common symptoms of different pathologies mask the diagnosis of diseases with high mortality.

It is difficult to diagnose sepsis if there are simple and frequent symptoms. For example, a decrease in communication with the environment (especially in elderly patients), which is a simple yet difficult to recognize finding, points to sepsis. Therefore, "suspicion of sepsis" constitutes the most important step of diagnosis (1). The focus should be determined and the factor-specific treatment should be planned in the early stages. This period is called the "golden hours" (2).

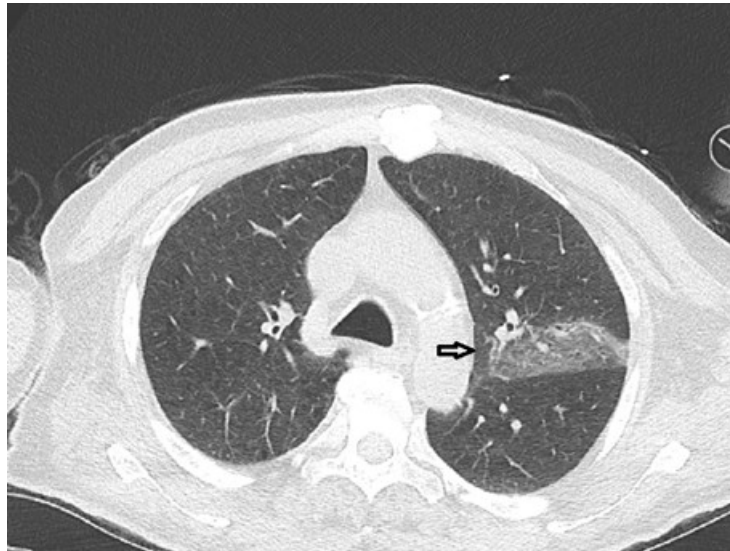
Respiratory tract infections, particularly pneumonia, are the most common site of infection in sepsis, followed by urinary tract infections and intra-abdominal infections.

Infections of the intraabdominal cavity, the central nervous system, and heart-related infections are silent (3). In rare cases, infections can occur at the same time in a number of these systems. In this study, we present a rare case of sepsis with another infection site that is likely to be overlooked beside the prominent infection site.

## CASE

A 68-year-old male presented with general deterioration, cough, fever, and vomiting. Thorax computed tomography

(CT) performed at another hospital indicated pneumonia. He was treated for pneumonia for 10 days. Moxifloxacin was prescribed and he was discharged. One day after being discharged, the patient was admitted to our hospital due to a deterioration of his consciousness again. He had chronic obstructive pulmonary disease (COPD), hypertension (HT), and chronic renal failure (CRF). The Glasgow Coma Scale (GCS) score was 12. His body temperature was 39°C, blood pressure 85/60 mmHg, pulse 132 beats/min, respiration rate 29-34/min, and oxygen saturation 78%. Bilateral widespread rhonchi were heard in both lungs. The patient had tenderness and guarding on the right upper quadrant of the abdomen. The patient had signs of dehydration. Other physical examinations were normal. The findings of the arterial blood gas without any oxygen support taken from the patient were as follows: pH: 7.15, partial pressure of carbon dioxide (PCO<sub>2</sub>): 43.5 mmHg, arterial blood gas (PO<sub>2</sub>): 129 mmHg, lactate: 7.2 mmol/L, and bicarbonate: 14.4 mmol/L. Other laboratory findings were as follows: white blood cells (WBC): 33.000 K/uL, hemoglobin (Hb): 11.1 g/dL, urea: 123 mg/dL, creatinine: 5.32 mg/dL, aspartate transaminase (AST): 162 U/L, alanine aminotransferase (ALT): 80 U/L, total bilirubin: 0.63 mg/dL, and direct bilirubin: 0.5 mg/dL. The electrocardiogram (ECG) of the patient revealed sinus tachycardia. Pneumozeptis was considered in the patient, considering the current findings and his previous history. Supporting therapy (volume replacement and positive inotrope) and antibiotics were initiated. Computed tomography images were examined. There were areas suggesting pneumonia (Figure 1). However, free air was seen under the diaphragm. After the patient's vitals were stabilized, thorax and abdominal CT were repeated. Left pneumonic infiltration and perforation of an abscess of the gall bladder, were seen. The borders of the abscess were not clearly seen; it was in the left and right liver lobes, had air bubbles inside and had infiltrated into the liver. Free air was observed in the liver (Figure 2, 3). The patient was consulted by specialists in infectious diseases, chest diseases, and general surgery. He was transferred to the intensive care unit (ICU). Despite the ongoing treatment, the patient died one day after his hospitalization.



**Figure 1.** Pneumonic infiltration in the left lung



**Figure 2.** Abscess in the liver with free air



**Figure 3.** Abscess in the liver with free air

## DISCUSSION

Since sepsis was defined, it has become one of the most studied topics. Despite current pathobiology knowledge and a better understanding of body chemistry, it is the most important cause of death in ICUs (1). Only early diagnosis and treatment can reduce mortality. The respiratory system and urinary systems are the most common sources. The intraabdominal area, central nervous system, arthritis, and pericarditis can also be sources. It rarely occurs in more than one focus.

As in our case, perforations of gall bladder abscesses are rare complications. The mortality rate is usually high because of late diagnosis or the absence of diagnosis and non-specific findings. It is seen in approximately 2-11% of patients with acute cholecystitis and has a mortality rate of 12-16% (4-6). Cholecystitis is more common in women but perforation is more common in men (7).

Stasis and distension lead to increased intraluminal pressure. Impaired lymphatic and venous circulation cause vascular damage and lead to the formation of necrosis; perforation develops with the progression of necrosis (8). The most common side of perforation in the gallbladder is the fundus region, which has the lowest blood supply and is the most distal part. In perforations of the fundus, cholecystoenteric fistula, which progress to the transverse colon, and biliary peritonitis can also be seen. Perforations outside the fundus are limited to the right hypochondrium with the help of the omentum. This causes the later appearance of the clinic signs (9).

## CONCLUSION

Sepsis is still not fully defined. In order to prevent mortality and morbidity, it is necessary to suspect sepsis and treat the cause early. It should be kept in mind that it can originate from multiple focuses, even if it is rare.

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