ABSTRACT Necrotizing pneumonia in children is a rare and severe complication of bacterial community-acquired pneumonia. Main characteristics are a loss of normal lung parenchyma and formations of multiple thin-walled cavities filled with air or fluid. Treatment with antibiotics broad spectrum and pleural drainage is often enough, and children get fully recovered in 5-6 months after diagnosis. The child was admitted to our clinic with 38.5 °C and irritating cough, misdiagnosed and treated before as pneumonia. On the x-ray of the chest was left the homogenous shade. Abdominal ultrasound showed locally pleural effusion. CT scan showed multilocular denser fluid encapsulated in left hemithorax and acted compressively to the mediastinum and suppresses it to the right. Laboratory findings indicate elevated erythrocyte sedation, leukocytopenia, thrombocytopenia, elevated serum amylase, lipase, amylase in thoracic drainage content, amylase in urine, also reduced values of haemoglobin, MCV, MCHC, urea, creatinine. We gave to patient meropenem and vancomycin. And patient after 24 hours became afebrile with 90 ml haemorrhagic content in a pleural drain. CRP was declining. The radiograph of the chest shows a re-expansion of the lungs with an elevated left diaphragm. Necrotizing pneumonia can be successfully treated with antibiotics and pleural drainage without major surgical procedures.

KEYWORDS pneumonia, lung infection, antibiotics, chest drainage

Introduction

Necrotizing pneumonia (NP) is a severe and rare complication of acquired pneumonia, which is characterised by enlargement of the lung parenchyma due to liquefaction, and the creation of caverns filled with air or liquid, although caverns do not always have to be present.

The radiogram shows the loss of the structure of the lung parenchyma, the presence of an area with parenchyma enlargement due to liquefaction, which as the disease progresses changes with multiple cavities of different diameter and shape filled with air or liquid. Computed tomography with contrast is much more sensitive and is used to set the terminal diagnosis. The blood sample is often used to determine the cause of infection.

The therapy uses broad-spectrum antibiotics, initially intravenously and then oral, fluid replacement, maintenance of circulation, ventilation, electrolyte balance. Of the surgical methods, pleural drainage is sufficient.

Case report

The patient is a second child from second neonatal pregnancy, delivered by cesarean section. Birth weight was 3400 grams and birth height 51 cm. The baby was regularly vaccinated. The child suffered from thrombocytopenia of viral aetiology for five years. On admission to our pediatric clinic child had nine years, 31 kg, pale skin, axillary temperature was 38.5 °C with an irritating
was treated with ERCP and percutaneous drainage of pancreatic pseudocysts. Abdominal ultrasound showed locally-pleural effusion, wholly of the chest shows a re-expansion of the lungs with an elevated density of X-ray results that cavitary lesions filled with fluid follow-ing liquefaction necrosis have the same density as an adjacent consolidated lung. The lesions will fill with the gas during disease progression when necrotic fluid drains into communicating bronchi [11]. The essential diagnostic features are weak or absent vascularity, loss of pulmonary structure, cavity formation (multiple small gas- or fluid-filled cavities). An affected lung undergoes liquefactive necrosis, and the multiple small cavities are forming large cavities, like gas-filled pneumatoceles [3]. Pleural fluid can be noticed during the inserting of chest drainage or intercostal needle aspiration. Sputum cultures are unreliable as potential pathogens because they can be founded in healthy children like pneumococci [3].

A prolonged course of intravenous antibiotics is main therapy, so it should cover gram-positive microorganisms. We should start first intravenous therapy than we can switch it to oral antibiotics once the child is afebrile for at least 24 hours and respiratory distress is resolving, inflammatory markers are declining. The oral antibiotics should be continued for at least the next 10-14 days or even longer [12,13,14].

Conclusion
Necrotizing pneumonia is a severe complication of pneumonia, but it can be successfully treated with antibiotics and pleural drainage without significant surgery.

Competing Interests
There were no financial supports or relationships between authors and any organisation or professional bodies that could pose any conflict of interest.

Acknowledgement
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Discussion
Necrotizing pneumonia is an uncommon and severe complication of bacterial pneumonia characterised by quick progression of illness despite appropriate antibiotic therapy and runs a prolonged clinical course [1]. The bacteria associated with necrotising pneumonia in children are pneumococci and Staphylococcus aureus in most cases [3]. The most common symptoms that may be present even for several days before presentation are chest pain, tachypnea, percussion dullness, decreased breath sounds, and bronchial breathing. Despite treatment, illness continues with persistent fever, respiratory distress and clinical or radiographic signs of non-responding or progressive pneumonia [4,5,6]. The mechanism of necrosis complicating pneumonia is related to thrombotic occlusion of alveolar capillaries associated with adjacent inflammation, resulting in ischemia and eventually necrosis of the lung parenchyma [7]. Necrotizing pneumonia with pneumatocele is a combined loss of normal lung parenchyma and formation of multiple thin-walled cavities filled with air or fluid [8].

Necrotising pneumonia is associated with elevated inflammatory markers like high leukocytes, C-reactive proteins (>100mg/L), mild or moderate anaemia, hypoalbuminemia [3]. The child who remains unwell despite at least 72 hours of appropriate antibiotics should be considered to have necrotising pneumonia. If there is evidence of bronchopleural fistula, postpneumonectomy pulmonary oedema or loculated empyema which has undergone drainage without improvement, it suggests us that it can be necrotising pneumonia [6,9,10]. The low sensitivity of X-ray results that cavitary lesions filled with fluid following liquefaction necrosis have the same density as an adjacent consolidated lung. The lesions will fill with the gas during disease progression when necrotic fluid drains into communicating bronchi [11]. The essential diagnostic features are weak or absent vascularity, loss of pulmonary structure, cavity formation (multiple small gas- or fluid-filled cavities). An affected lung undergoes liquefactive necrosis, and the multiple small cavities are forming large cavities, like gas-filled pneumatoceles [3]. Pleural fluid can be noticed during the inserting of chest drainage or intercostal needle aspiration. Sputum cultures are unreliable as potential pathogens because they can be founded in healthy children like pneumococci [3].

Computerized tomography showed multilocular denser fluid encapsulated in left hemithorax and acted compressively to the mediastinum and suppresses it to the right. Pancreatic parenchyma is wholly changed (Figure 2). The abdomen was full of fluid collection masking pseudocysts of the pancreas. Laboratory findings show elevated erythrocyte sedimentation, leukocytopenia, thrombocytopenia, elevated serum amylase, lipase, amylase in thoracic drainage content, amylase in urine, also reduced values of haemoglobin, MCV, MCHC, urea, creatinine. The patient was treated with meropenem and vancomycin. And the patient after 24 hours became afebrile with 90 ml haemorrhagic pulmonary oedema or loculated empyema which has undergone drainage without improvement, it suggests us that it can be necrotising pneumonia [6,9,10]. The low sensitivity of X-ray results that cavitary lesions filled with fluid following liquefaction necrosis have the same density as an adjacent consolidated lung. The lesions will fill with the gas during disease progression when necrotic fluid drains into communicating bronchi [11]. The essential diagnostic features are weak or absent vascularity, loss of pulmonary structure, cavity formation (multiple small gas- or fluid-filled cavities). An affected lung undergoes liquefactive necrosis, and the multiple small cavities are forming large cavities, like gas-filled pneumatoceles [3]. Pleural fluid can be noticed during the inserting of chest drainage or intercostal needle aspiration. Sputum cultures are unreliable as potential pathogens because they can be founded in healthy children like pneumococci [3].

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Figure 1: X-ray of a necrotising lung in a child, before and after treatment.

Figure 2: CT scan of a necrotising lung in a child, before and after treatment.
References


