



When Does a Patient with Acute Pneumonia Need a Surgeon?

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Keywords: AP: Acute Pneumonia; PE: Pleural Empyema; VATS: Video-Assisted Thoracoscopic Surgery

AP does not belong to the category of surgical diseases and such patients fall out of the field of vision of surgeons. However, in the case of purulent complications, among which PE is the leader, surgeons become the leading specialists in the treatment of this group of patients. This problem has been discussed by a wide range of specialists over the past decades, and its relevance remains due to the continuing trend of gradual decrease in the effectiveness of conservative therapy of AP and the growth of its purulent complications.

"The Journal of Pediatric Surgery" is also a popular place to discuss this issue. Over the past decade, the journal has published more than fifteen articles on the treatment of PE. If we take into account the fact that during this period no fundamentally new approaches were proposed to solve such complications, the number of publications is an additional evidence of the existing problem. One of the shadow sides of the discussed problem is the concentration of the main efforts on the PE as a separate process, and not as a variant of the complication of another nosology, which completely follows from the main cause of the disease and depends on the previous treatment. Therefore, the authors' opinions are determined not only by their experience and preferences, but also by the characteristics of the observed patients, depending on the timing of their admission and the stage of the disease.

Due to the established traditions, surgeons, as the most radical part of medical specialists, are deprived of the opportunity to fully assess the whole picture of what is happening and in practice are put before the fact when the complication becomes obvious. It is unlikely that any of the surgeons will apply and compare VATS (in the accepted framework of this procedure for pleural empyema) and enzymatic sanitation of the pleura as the leading medical techniques, if the cause of PE is mediastinitis, subdiaphragmatic abscess or osteomyelitis of the ribs, is not it? After all, in these examples, without eliminating the source and

cause of pleural complications, it is difficult to predict a favorable result.

At the same time, in the treatment of patients with PE as a consequence of AP, the pulmonary root cause of the disease is not given due attention. The affected area in the lung becomes the subject of discussion, as a rule, only in situations where additional problems arise, such as, for example, bronchopleural fistula.

The results of ongoing discussions among pediatric surgeons on this topic in recent decades indicate a periodic change of priorities in a small list of permanent auxiliary techniques for PE without any signs of progress. This circumstance allows the author to return to the results of his own unique experience and to present some considerations on this topic, at least as information for reflection.

Having more than 40 years of experience in pediatric surgery, the author at the beginning of his career in one of the Siberian clinics of the Soviet Union was forced to treat non-surgical patients in the initial period of aggressive forms of AP. This administrative decision was made in connection with the extremely severe course of the disease, the rapid development of purulent-destructive complications, high mortality, as well as the need to concentrate the most complex group of patients in a single Department in a large industrial center, where conditions for intensive care and resuscitation were created.

The situation described above forced to look for ways to solve this problem. This work was performed and tested in clinical conditions in 1976-1985 in the clinic of pediatric surgery at the state Institute of advanced training of doctors, Novokuznetsk, USSR [1]. The main and the first step in the study were a radical revision of views on the nature and mechanisms of AP development. The new doctrine was based on well-known scientific medical axioms and facts that already had previous justification and confirmation.

In addition, the following studies have been conducted: 1. Experimental model of AP (4 series of experiments, 44 animals) to obtain a model of pleural complications (certificate of invention No. 1631574, A1, November 1990, USSR). 2. X-ray study with contrast 56 anatomical lung preparations with different forms of AP, taken from deceased patients. 3. Recording of comparative reopulmonography before and after treatment procedures (36 patients). 4. Analysis of observation and treatment of 994 children with AP and its various destructive and pleural complications.

The obtained results allowed speaking about the possibility of guaranteed prevention of purulent-destructive complications of the disease. Life circumstances and subsequent emigration did not allow the author to continue his research, develop the results achieved and present them at the international level

Submitted: 29 October, 2019 | **Accepted:** 15 November, 2019 | **Published:** 18 November, 2019

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Citation: Klepikov I (2019) When Does a Patient with Acute Pneumonia Need a Surgeon? SM J Pediatr Surg 4: 2.



in a timely manner. The main fragments of this work, relating primarily to the beginning of AP treatment, can now be viewed in publications in English. In this context, it is necessary to note only important features of the disease, which do not lose their role in the development of complications.

In this regard, it is necessary to recall that the basis of inflammatory tissue transformation is a vascular reaction, with a standard change of its stages. The reaction of the organism and, consequently, the rate of development of inflammatory transformation is an individual characteristic, which can have both a lightning nature and a relatively smooth development.

However, the main distinguishing feature of AP is that of the entire known list of acute nonspecific inflammatory diseases, it is the only nosology that develops in the basin of the vessels of the small circle of blood circulation. The fundamental difference between systemic and pulmonary circulation, their inverse interdependence has long been established, proven and well known. Therefore, the need for a special approach in acute pneumonia to the choice of treatment methods will become an obvious necessity if we once again evaluate and weigh the features of blood circulation and its regulation in a small circle.

Violations of pulmonary and systemic circulation in aggressive forms of AP are more pronounced, and the occurrence of PE can only exacerbate these phenomena. These generalized disorders of blood flow are mainly associated with the microcirculatory bed and are characterized by high sensitivity to various influences. They are an important difference between such patients from applicants for planned intra-thoracic intervention, and therefore the surgeon is not indifferent to have an idea about the pathophysiology of such shifts.

If from the position of these pathophysiological regularities to assess the role and importance of VATS in PE, such intervention looks undesirable. First, the honor and praise of modern anesthesiology, which allows surgeons to perform this intervention in very severe patients. We are talking about iatrogenic reproduction of a tense pneumothorax, which persists throughout the operation. After all, if such a condition in a patient with AP occurs spontaneously, then it is a disaster that requires the most urgent care, is not it? If such an intervention took place without any sudden changes in the patient's condition, it does not mean that such an event was a light load on the vital systems of his body.

Secondly, the inflammation of the lung tissue, which is the cause of all the trouble, still persists at the time of VATS. In such a situation, increased intra-chest pressure and physical manipulation on the surface of the lung have an adverse effect on the main focus of the disease, since the inflamed tissue is very sensitive and less resistant to external physical manipulations. Such consequences of this seemingly sparing operation forced surgeons to take their time with the vats and recommend it only

starting with the 2nd stage of PE. These recommendations were based primarily on practical experience rather than on scientific justification and research.

Thirdly, the stages of PE development reflect the natural sequence of the biological process, but only if there are conditions that do not interfere with its dynamics. Adequate treatment should act as a barrier to the transition of PE to its next stages. It is well known that the exudate around the focus of inflammation corresponds to the nature of the inflammatory transformation of the affected tissues. If the development of PE continues despite treatment, this circumstance is due to both persistent purulent inflammation in the lungs and continued active exudation into the pleural cavity. In such cases, a critical assessment and review of treatment is necessary [2]. Attempts to explain medical failures only by features of infection, from my point of view, are a brake in solving the problem of AP and its complications. The emergence and growth of so-called sterile PE, when inflammation progresses despite suppressed pathogens, is no longer a revelation to anyone today [3].

Finally, there is another aspect against excessive use of Vats in PE that should be understood by surgeons. Although it is impossible to draw absolute Parallels between PE and purulent peritonitis, but the analogy of such an intervention on its principles with sanation laparoscopy without eliminating the cause of peritonitis arises.

The discovery of antibiotics and the initial triumph of their use for many years directed the solution to the problem of AP only on the narrow path of suppressing its pathogens. The gradual distortion of views on the nature of the disease has led to the oblivion of its biological basis as an inflammatory process and the modern interpretation of the leading cause as infectious [4,5]. The long overdue need to revise and clarify the doctrine of AP cannot ignore the specialists of pediatric surgery as participants in the treatment of such patients.

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