

## **When to operate: procalcitonin as a predictive factor in parapneumonic empyema**

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### **Abstract:**

**Objective:** The objective of this retrospective study is to evaluate the clinical value of procalcitonin (PCT) plasma concentration in its preoperative course before decortication of parapneumonic pleural empyema. We hypothesize that the PCT is a valuable factor in determining the time to operate regarding its attribute to evaluate the course of infection. It might predict the regression of pneumonia and the decrease of systemic inflammation and thus a fitter patient for surgery.

**Methods:** We identified retrospectively 20 patients with parapneumonic pleural empyema Stage II – III where the PCT was obtained at admission to the hospital and immediately before operation. The values of PCT, C-reactive Protein (CRP), time of preoperative antibiotic treatment, the patients postoperative course and the overall and postoperative length of stay are measured.

**Results:** The median age of the 20 patients (13 men, 7 women) was 55.3 years (23-84). Complications occurred in one patient. He was referred a second time having a recurrent pleural empyema after primary hospitalisation without complications. The first measured PCT showed a median value of 4.08 ug/l (range: 0.1 - 21 ug/l). The median value immediate before surgery was 0.9036 ug/l (range: 0.08 - 6.69 ug/l). The first measured CRP showed a median value of 195.3 mg/l (range: 27.07 – 429 mg/l). The median value immediate before surgery was 155.7 mg/l (range: 11 – 306 mg/l). The median duration of antibiotic therapy prior to operation was 10.45 days (range: 2 – 21 days). The median length of stay between hospitalisation and operation was 5.85 days (range: 1 – 13 days). The median postoperative length of stay was 8.45 days (range: 5- 14 days) and the median overall length of stay was 14.3 days (range: 7 – 25 days).

**Conclusion:** Our patients show a favorable postoperative course with almost no complications after pleurektomie and decortication. They might benefit from a longer preoperative period while recovering from pneumonia and therefore be fitter for surgery with a shorter postoperative length of stay with less complications. Although this approach might extend the time prior to operation the overall length of stay is retrospectively not prolonged and complications are less comparing to the current literature. Preoperative PCT might be a useful co-factor in determining this timing for operation.