

# PULMONARY ASPIRATION OF A POLYETHYLENE GLYCOL (PEG) - ELECTROLYTE SOLUTION (KLEAN-PREP®)

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## Objective

Klean-Prep® is used for intestinal cleansing before diagnostic and therapeutic interventions as well as for whole bowel irrigation after toxic ingestions. We report a case of aspiration pneumonia after administration.



### Ingredients:

One bag contains  
PEG 3350 59.000 g  
Sodium sulphate 5.685 g  
Sodium bicarbonate 1.685 g  
Sodium chloride 1.465 g  
Potassium chloride 0.742 g  
Aspartame, Aroma ingredients

The content of one bag should be dissolved in one litre of lukewarm water. The ingestion takes place in portions of 250 mL every 10 to 15 minutes (1 litre per hour). Via nasogastric tube 20 to 30 mL per minute should be instilled. A total volume of 4 litres should be administered.

## Case PIC Erfurt 200706836

**Patient:** 17-year-old female

### Anamnesis:

- recurrent convulsive abdominal complaints

### Procedure:

- Administration of Klean-Prep® solution in preparation for colonoscopy via gastric tube. A total volume of four litres should be given in quarter-litres, with the first two litres being instilled within two hours. The conscious patient was not intubated for this procedure.

### Clinical feature:

- Slight coughing and dyspnoea occurred after administration of the third portion (total 750 mL; 30 min after start of the procedure).
- Symptoms improved after removing the gastric tube and further drinking the solution. Nevertheless, symptoms reappeared three and a half hours later.

### Laboratory findings:

- Arterial Oxygen Saturation 84%
- C-reactive protein max. 50 mg/L
- White Blood Cell Count max. 18.8 Gpt/L

### Treatment and course:

- A foamy secretion was siphoned off by **bronchoscopy**.
- Intensive **bronchoalveolar lavage** was carried out to remove remaining aspirated solution.
- Patient was treated with **cefuroxime** and supplementary **oxygen** was given.
- She recovered under this treatment within 7 days.

### References:

- de Graaf P, Slagt C, de Graaf JL, et al. Fatal aspiration of polyethylene glycol solution. *Neth J Med* 2006;64:196-198.
- Marschall HU, Bartels F. Life-threatening complications of nasogastric administration of polyethylene glycol-electrolyte solutions (Golytely) for bowel cleansing. *Gastrointest Endosc* 1998;47:408-410.

## Time course of chest X-ray



June 7, 2007 at 13:19:02  
4 hours after first symptoms

### Evaluation:

Distinct blotchy condensations in the right inferior lobe, also sinistral paracardial incipient as consequence of an aspiration; heart slight.

### Feature:

Initial grade of aspiration pneumonia



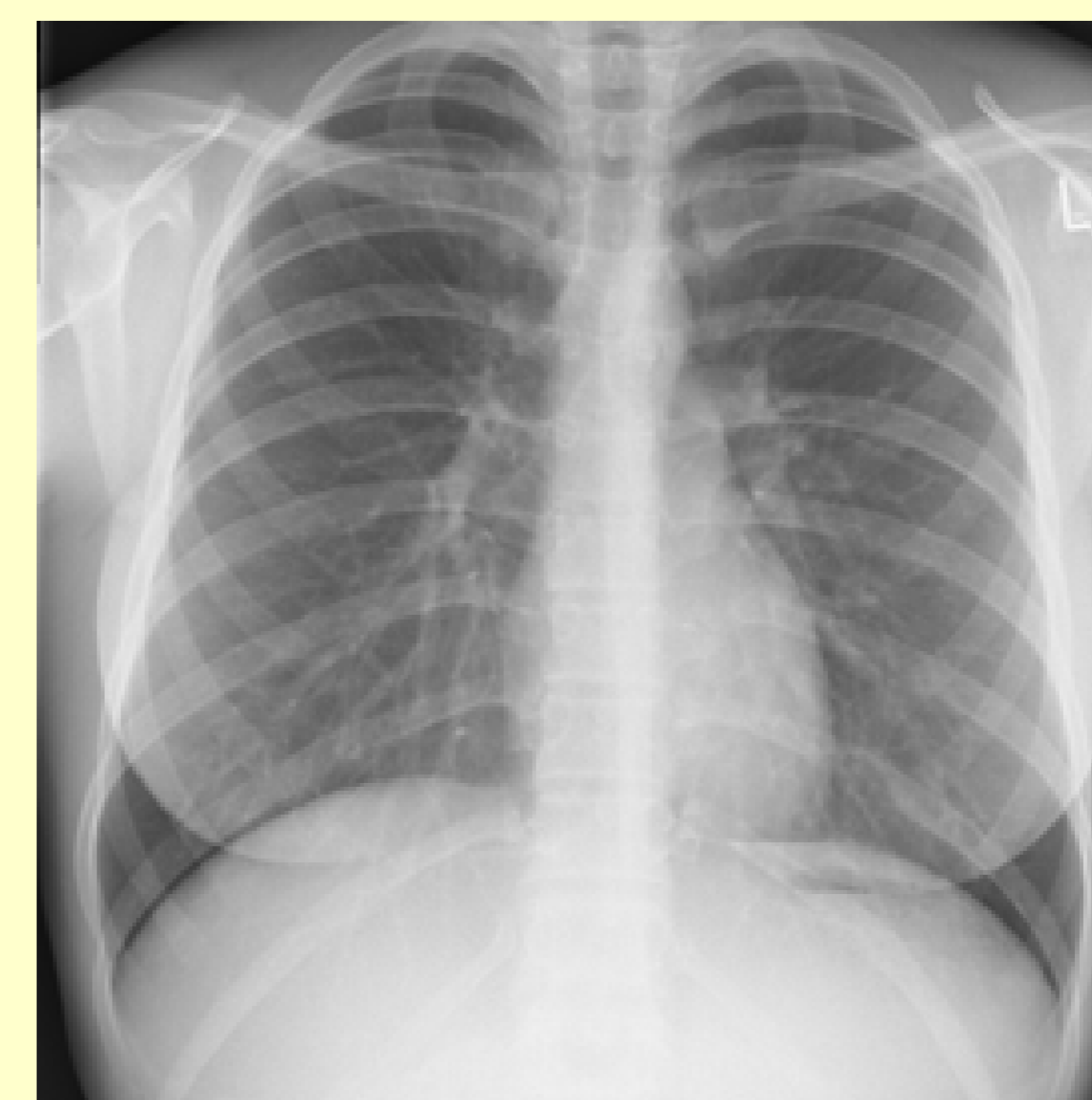
June 8, 2007 at 12:00:46  
27 hours after first symptoms

### Evaluation:

Declining trend of the basal pulmonary condensations and infiltrations; however little shadow of the right sinus through increased pleural fluid

### Feature:

Aspiration pneumonia



June 29, 2007 at 08:07:16  
3 weeks later

### Evaluation:

No pathological changes

### Feature:

Normal chest X-ray

## Conclusion:

- The nasogastric infusion of PEG electrolyte solution is more often complicated by pulmonary aspiration than oral administration (1). This complication must be taken into account in whole bowel irrigation when the patient cannot or will not take the solution orally (2).
- The aspiration of PEG causes a diffuse mucosal inflammation and interstitial oedema. The absorption of the solution by pulmonary tissue may be delayed as a result of its isotonic constitution.
- Bronchoalveolar lavage should be carried out immediately after aspiration to prevent life-threatening respiratory failure by toxic lung oedema (1, 2).