Candida (Torulopsis) glabrata: A New Pathogen Found in an Empyema

A 75-year-old man presented to the emergency department because of epigastric pain, nausea, and vomiting after consuming dinner. On initial presentation he was afebrile. He had diffuse abdominal tenderness with guarding. His physical examination findings were otherwise normal. The WBC count was normal with no left shift. His chest radiograph revealed a small left-lower-lobe infiltrate, for which he was started on intravenous ampicillin/sulbactam. An abdominal series revealed no evidence of obstruction. An exploratory laparotomy showed no significant pathology. Within 24 hours following the operation, a closed chest-tube thoracostomy was performed because of the development of an expanding massive left pleural effusion with compression atelectasis. Microscopic evaluation of a pleural-fluid specimen revealed a yeast-like organism, and culture of the pleural fluid yielded Candida (Torulopsis) glabrata.

The patient was treated initially with intravenous fluconazole, 1,200 mg over 3 days, for a presumed systemic candidal infection while awaiting the final identification of the yeast. Therapy with fluconazole was discontinued when the organism was identified, and then therapy with intravenous amphotericin B was begun. Video-assisted thoracoscopy revealed a multiloculated fluid collection with massive fibrinous pleuritis and an entrapped lung. The patient underwent a left thoracotomy, intrapleural instillation of streptokinase, open drainage, left lung decortication, and open lung biopsy of the left lower lobe and left lingulae, as well as a left pleural biopsy. Gram staining of the biopsy specimens and empyema (figure 1) revealed a yeast-like organism, and cultures yielded C. glabrata. Blood cultures were positive once for C. glabrata and three times for Staphylococcus aureus, for which the patient was treated with intravenous vancomycin. A serology for antibody to HIV was negative. Immunoglobulin assay studies revealed a mild decrease in IgA and IgG. The patient was anergic on skin testing with controls. He received a total dose of 1,260 mg of amphotericin B. Despite intense treatment, he died of persistent empyema and polymicrobial sepsis. The family declined an autopsy.

The patient we described represents the first reported case of pleural empyema associated with C. glabrata. His presentation is interesting, as others have also reported infection due to C. glabrata with an initial presentation of gastroenteritis [1]. Although the upper airway is an important portal of entry for Candida species, pneumonia due to Torulopsis species is very rare [1, 2]. Several cases of pneumonia due to Torulopsis species associated with fungemia have been reported, but the pulmonary infection was not believed to be the etiology of the fungemia [3]. Although studies suggest that C. glabrata is an organism of low virulence, C. glabrata accounts for ~7% of all nosocomial fungal infections [4]. Underlying disease and coexisting bacterial infection are the most important factors responsible for death [5].

References
In summary, empyema due to *C. glabrata* has not been reported previously. Early diagnosis and appropriate treatment of infections due to *Torulopsis* species with prompt, adequate drainage of an empyema will reduce morbidity and mortality.

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Gas Gangrene in an Immunocompromised Girl Due to a *Clostridium ramosum* Infection

Clostridia are gram-positive, spore-forming anaerobic rods. A number of *Clostridium* species that are normally present in the commensal flora of the human intestine may cause infections. Severe infection of soft tissue results in gas gangrene or myonecrosis. Such infections occur after traumatic injuries as well as spontaneously. Spontaneous nontraumatic gas gangrene is either locally associated with an intraabdominal focus or a distant spread of infection. These infections occur mainly in immunocompromised hosts. *Clostridium septicum* is the *Clostridium* species isolated most frequently in nontraumatic gas gangrene in patients with malignancies of the gastrointestinal tract and leukemia, and in children with cyclical neutropenia [1, 2]. In patients colonized with *C. septicum*, it appears that neutropenia predisposes to the development of bacteremia. *Clostridium ramosum* is one of the *Clostridium* species that is often isolated from stool samples of children, but has been associated only rarely with severe infections or bacteremia [3, 4]. The number of cultures positive for *C. ramosum* is probably underestimated. The organism can easily be missed in anaerobic cultures, because it usually stains gram-negative instead of gram-positive, and the typical terminally located spores are sometimes hard to detect. We describe a lethal septic episode in an immunocompromised child with spontaneous gas gangrene and cultures of blood yielding *C. ramosum* and *Candida albicans*.

An 11-year-old girl had been receiving chemotherapy for several weeks because of the recurrence of a common acute lymphatic leukemia and was in a neutropenic phase (WBC count, 200 × 10⁹/L). While at home, she developed a severe mucositis, and her condition deteriorated in the days before she was admitted to the hospital. She had fever, chills, myalgia, loss of appetite, and watery, bloody diarrhea. Physical examination at admission revealed a sick, somnolent, dyspneic girl with yellow sclerae and several greenish necrotic ulcers on the tongue. Her face and neck were swollen with palpable crepitations of the skin. She had a temperature of 40.5°C, a pulse rate of 160 beats/min, and a blood pressure of 80/45 mm Hg. A chest radiograph revealed no signs of pulmonary infection or congestion, but showed an interstitial emphysema in the right axilla and the superior mediastinum (figure 1). This finding was confirmed by ultrasonography. Laboratory findings showed leukocytopenia (WBC count, 100 × 10⁹/L), thrombocytopenia (platelet count, 12 × 10⁹/L), and anemia (hemoglobin level, 4.1 mmol/L). There was diffuse intravascular coagulation (partial thromboplastin time, >40 sec; activated partial thromboplastin time, >150 sec). The sodium level was 128 mmol/L, potassium level was 6.9 mmol/L, total bilirubin level was 750 mmol/L, and lactate level was 11.6 mmol/L.

Only one blood culture set (anaerobic/aerobic) could be obtained. In both bottles, microbial growth was noted after 24 hours. Gram staining of the anaerobic bottle specimen demonstrated gram-negative rods with typical terminal spores. Subculture on blood agar plates yielded growth only anaerobically after 48 hours. The isolate was nonmotile, unable to produce indole, and able to ferment maltose, salicin, lactose, sucrose, and mannitol, and was, therefore, identified as *C. ramosum*. Antibiotic susceptibility tests showed that the isolate was susceptible to penicillin. *Candida albicans* was isolated from the aerobic bottle. A culture of the oropharyngeal swab yielded a few colonies of *C. albicans*. No other specimens were available for culture.

References

Figure 1. Radiograph of the thorax of an 11-year-old immunocompromised patient with an infection due to *Clostridium ramosum*. Interstitial emphysema is seen in the right axilla (black arrow) and the superior mediastinum (white arrows).