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 cyclic 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 × 10^3/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, dyspnecic 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 × 10^3/L), thrombocytopenia (platelet count, 12 × 10^3/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, salicine, 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.

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**References**


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**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).
In the pediatric intensive care unit, the girl was treated for septic shock. Vancomycin (40 mg/kg), gentamicin (6 mg/kg), cefazidime (100 mg/kg), and dexamethasone (stress doses) were administered intravenously, and she received circulatory and respiratory support. In spite of maximal treatment she died within 1 hour of admission. The presumptive diagnosis was spontaneous gas gangrene with circulatory failure. The diagnosis could not be confirmed because autopsy was not permitted.

To our knowledge, we have described the first case of a fatal infection due to *C. ramosum* in a child with leukemia and chemotherapy-induced neutropenia. A number of the >80 known clostridial species have been isolated from soft-tissue infections. They are frequently part of polymicrobial cultures and can act synergistically with other pathogens, thereby worsening the clinical outcome. Underlying illnesses such as cancer are believed to facilitate the development of clostridial infections. Our patient presented with spontaneous gas gangrene. This disorder has been reported in patients with colon cancer and leukemia and other forms of neutropenia. *C. septicum* is the *Clostridium* species most frequently isolated from blood cultures and intraabdominal specimens in these patients [1, 2]. *C. ramosum* has been cultured from gastrointestinal abscesses and ear infections. Since many other *Clostridium* species and non-clostridial bacteria are often present in such infections, it is difficult to assess the pathogenic role of *C. ramosum*. On the other hand, there have been a few reports of unusual infections with *C. ramosum* as the sole microorganism isolated [5, 6]. Bacteremia has been described and is occasionally found in leukemic patients [7].

In healthy persons, *C. albicans* is frequently isolated from gastrointestinal tract specimens as part of the normal flora. Fifty to seventy percent of the stool and throat specimens from immunocompromised patients show colonization with *C. albicans* [8].

The finding of a blood specimen positive for *C. ramosum* in the presence of gas gangrene in the neck and thorax implicates a serum IgA and secretory IgA to bacterial IgA proteases: evidence for the presence of enzyme-neutralizing antibodies in both serum and secretory IgA, and also in serum IgG. Microbiol Immunol 1987;31:1097–106.

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**References**


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**Disseminated Papulopustular Eruption Due to *Mycobacterium fortuitum* in an Immunocompetent Patient**

Cutaneous infections due to atypical mycobacteria are well known. However, the frequency of rapidly growing mycobacteria is probably underestimated. Cutaneous or soft-tissue infections are the most frequent human diseases caused by these microorganisms. The lesions are usually nodular, ulcerative, or cellulitic. To our knowledge, we describe the first case of a disseminated papulopustular eruption due to *Mycobacterium fortuitum* without associated systemic infection in an immunocompetent patient.

A 45-year-old male marine electrician presented with a progressively spreading papulopustular eruption. The first lesions had appeared 2 months earlier on the right arm and had persisted despite local disinfection. Gradually, the other arm, the trunk, and the neck had become involved (figure 1). There was no pruritus or fever. Oral antibiotics were administered (oxacillin, 2 g per day for 1 week, followed by pristinamycin, 3 g per day for 2 weeks) with no improvement. There was no history of previous surgery, trauma, or injection. The clinical examination did not reveal lymph node involvement or hepatosplenomegaly. Blood cell count, lymphocytic phenotyping, profile of ion concentration, hepatic and renal function, as well as chest radiographs and abdominal ultrasonography were normal. A serology for antibodies to HIV was negative. Cultures of two different specimens from two pustules obtained at 2-week intervals both yielded mycobacteria within 5 days. The strain presented characteristics of *M. fortuitum* group [1]: colonies were nonphotochromogenic, grew on MacConkey agar, and were positive for nitrate, iron uptake, and arylsulfatase. As determined by the Etest method (AB BIODISK, Solna, Sweden), the strain was susceptible to clarithromycin, ciprofloxacin, and minocycline.