skin and mucous membranes but are also well recognized as opportunistic pathogens. We believe that *C. pseudodiphtheriticum* was acting as a primary pathogen in our case as it was isolated in pure growth from several samples and was seen on gram-stained histological sections invading the dermis. The skin lesions responded well to appropriate antibiotic therapy. The organism may have been inoculated into the skin by the pecking action of the chickens.

*C. pseudodiphtheriticum*, originally named *Corynebacterium hofmannii*, was first isolated in 1888 by von Hoffman from the human nasopharynx. Since then, it has been reported as causing native and prosthetic valve endocarditis [1], necrotizing tracheitis [3], pulmonary infections [2], and urinary tract infections [4]. Unlike *Corynebacterium diphtheriae* or some of the other non-diphtheria corynebacteria [5], *C. pseudodiphtheriticum* has not been previously reported as a skin pathogen.

The diagnosis of disease caused by a skin commensal may be overlooked but must be considered in the face of microbiological and histological findings.

Carolyn Hemsley, Sonia Abraham, and Sarah Rowland-Jones
Department of Microbiology, John Radcliffe Hospital, Headington, Oxford, United Kingdom

References


Figure 1. Hand of a patient with *Corynebacterium pseudodiphtheriticum* infection.

Isolation of *Exophiala (Wangiella) dermatitidis* in a Case of Otitis Externa

Acute otitis externa is a frequently occurring infection, mainly seen in the hot season and most often caused by *Pseudomonas aeruginosa* or *Staphylococcus aureus* [1]. In contrast, fungi such as *Aspergillus niger* and *Candida parapsilosis* are mostly involved in chronic otitis externa [1]. To our knowledge, we report here the first case of chronic otitis externa with *Exophiala (Wangiella) dermatitidis* involvement.

A 19-year-old woman consulted an otolaryngologist because of a 4-day history of otalgia with partial loss of hearing. Otoscopy revealed severe inflammation of both auditory channels and dark punctate infiltrations of the mucosa. Empirical therapy with amoxicillin (1.5 g t.i.d.) and topical ofloxacin and gentamicin for 2 weeks produced no improvement. Therefore, swab specimens from both auditory channels were obtained for microbiological investigation, and therapy was switched to orally administered ciprofloxacin (250 mg b.i.d.). Slight improvement was seen within the next week. Because of isolation of a black yeast and *P. aeruginosa* from the swabs, topically administered antimycotic treatment with Soluto Castellani and nystatin was initiated; within 9 days, there was dramatic improvement, and the patient felt well. Swab specimens obtained at that time as well as 2 months later were negative.

Dark-pigmented yeastlike colonies with a smooth, waxy surface first appeared on Sabouraud glucose agar after 5 days of incubation at 37°C with diffusion of brown pigment into the agar. The fungus grew at 42°C but showed no utilization of inorganic nitrate (i.e., no growth on Czapek-Dox agar). Microscopically, hyphae with mostly intercalary flask-shaped conidigenous cells were seen besides abundant yeast cells. The annellated zones were narrow, and the ellipsoidal conidia measured 3–4 × 2–3 μm. All these features are indicative of *E. dermatitidis* [2]. Sequencing of the internal transcribed spacer 1 (ITS1) region of the nuclear rRNA gene was performed as recently described [3] and revealed the species-specific sequence of *E. der-
matitidis-ex type strain, thereby confirming the phenotypic identification. By using ATB Fungus (bioMérieux, Nürtingen, Germany), a commercially available micromethod for yeast susceptibility testing, our isolate as well as the ex-type strain of E. dermatitidis (CBS 207.34) was found to be susceptible to nystatin (MIC, <4 mg/L) after 3 days of incubation at 37°C.

Because of the pleoanamorphic life cycle of E. dermatitidis [2], species identification is difficult. As was recently shown, ITS1 sequencing is a highly reliable tool for species identification of strains that are phylogenically closely related to this black yeast species [3]. This approach showed unequivocally that our isolate was E. dermatitidis [3].

E. dermatitidis is a pleoanamorphic black yeast frequently isolated from patients with phaeohyphomycosis [2, 4]. Especially because of the distinct neurotropism of E. dermatitidis, infections due to this fungus can be life-threatening [4]. Severe courses are observed almost exclusively in immunocompetent patients in Southeast Asia, whereas it is mainly patients with underlying malignancies or with otherwise impaired immunity who are affected outside this region [4]. Besides rare cases of superficial mycoses (like onychomycosis and keratitis [2]), this zoopathogenic fungus leads also to long-term, mostly subclinical, colonization of the lungs of patients with cystic fibrosis [5].

The exact habitat of E. dermatitidis in the environment is still unknown. There are some indications that this black yeast can be isolated from oligotrophic water reservoirs [6] (e.g., wet tiled floors of swimming pools). Therefore, an association is commonly seen with bacteria such as P. aeruginosa and other nonfermenting bacterial species often recovered from such environments (e.g., inhalation equipment for patients with cystic fibrosis that has not been properly dried [5]). Since otitis externa is commonly caused by P. aeruginosa and frequently occurs after swimming, it may be speculated that this may also be the acquisition route of both microorganisms in our case.

Fungal infections of the auditory channel are mostly due to Aspergillus species. Isolation of two dematiaceous fungi (Doratomyces species and Exophiala mansonii) from patients with otitis externa [7] has been reported only once in the literature in a retrospective survey of a mycological reference laboratory; no further data were provided. Because the latter species was frequently confused with E. dermatitidis in the past [8], this may well have been the case in that report too.

**Scrub Typhus and Military Operations in Indochina**

Scrub typhus (an acute typhus-like infectious disease due to *Orientia tsutsugamushi*) is recognized as a significant disease entity throughout Southeast Asia, including Indochina and neighboring Thailand [1–3]. Scrub typhus was also identified as an important cause of acute illness in U.S. forces deployed to Vietnam [3, 4]. Mechanistic transmission, associated with the bite from chiggers in the genus *Leptotrombidium* (the only known vectors), generally occurs in rural habitats where larval mites live in scrub forests and tall grass; exposure opportunities for humans are greatest in these areas [3]. Before the advent of antibiotic therapy, fatality rates as high as 50% were reported from Japan [5]. Recent evidence documenting the failure of chloramphenicol and doxycycline in the clinical management of scrub typhus in Thai patients with this disease has amplified the threat of scrub typhus as a significant public health concern; a weekly dose of 200 mg has been found to be an effective prophylactic regimen [6, 7].

Targeted surveillance of 347 U.S., mostly military, personnel deployed to Laos (127), Vietnam (194), and Cambodia (26) was conducted from June 1996 through April 1998. The purpose of this screening activity was to provide a measure of area-specific risk relative to opportunities for exposure to *O. tsutsugamushi*. Twenty

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**References**


M.-L. Kerkmann, K. Piontek, H. Mitze, and G. Haase

Institute of Medical Microbiology and Hygiene, University Hospital, Technical University, and Health Center Laboratory, Dresden, Health Center for Otolaryngology, Pirna, and Institute of Medical Microbiology, University Hospital RWTH Aachen, Aachen, Germany

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