Proteus mirabilis

Proteus mirabilis skull osteomyelitis

Proteus mirabilis is a Gram negative, facultatively anaerobic, rod-shaped bacterium. It shows swarming motility and urease activity. P. mirabilis causes 90% of all Proteus infections in humans. It is widely distributed in soil and water.

Otogenic brain abscesses are one of the most significant life-threatening complications of otologic infections. Given their low prevalence, otogenic brain abscesses require a high index of suspicion for diagnosis.

In a systematic review, Duarte et al. from the Massachusetts General Hospital Boston and the University of Pennsylvania, Philadelphia, aimed to provide an analysis of otogenic brain abscesses and describe common clinical signs and symptoms, bacteriology, location, treatment options, morbidity, and mortality.

DATA SOURCES: PubMed, Cochrane CENTRAL database, Google Scholar, and Scopus.

The systematic review of literature was performed using the Preferred Reporting Items for Systematic Reviews and Meta-analyses recommendations. Variables assessed included clinical signs and symptoms, bacteriology, location, treatment, morbidity, and mortality.

Twenty-nine studies met inclusion and exclusion criteria, corresponding to a total of 1307 otogenic abscess cases for review. Fifty-five percent of abscesses were found in the temporal lobe and 28% in the cerebellum. Most patients (88.3%) had a history of suppurative chronic otitis media. The most common symptoms were headache, altered mental status, papilledema, and meningeal irritation. Fever, nausea, and vomiting affected about 40% of patients. The most commonly cultured bacterial species was Proteus mirabilis. In addition to antibiotics, most otogenic brain abscesses were treated by burr hole aspiration. Average mortality following advent of computed tomography was 8.11%.

Although rare, otogenic brain abscesses may occur as a complication of suppurative otitis media and require a high index of suspicion. Appropriate imaging studies and multidisciplinary expertise are crucial in the diagnosis and management [1].

A 2-year-old girl who presented with an infected dermal sinus leading to an intraspinal abscess. This abscess eventually spread and involved the entire neural axis leaving her quadriparetic. Drainage of the abscess resulted in recovery and the child regained normal function of her limbs. To our knowledge this is the first documented case of an intramedullary abscess involving the entire neural axis [2].

A case of an infected subdural hematoma that occurred 1 year after burr-hole irrigation for chronic

subdural hematoma. A 78-year-old woman who had developed left hemiparesis was admitted to our hospital. A computed tomography(CT)scan revealed the presence of a chronic subdural hematoma in the right hemisphere. Her clinical symptoms improved immediately after emergency burr-hole irrigation, which allowed her discharge from the hospital. One year after the initial surgery, she developed an infection of the urinary tract infection, which led to severe pyelonephritis and septic shock. Treatment of the urological symptoms eliminated the systemic inflammation. One month after the urinary infection, the patient was readmitted to the hospital in a comatose state. A CT scan showed regrowth of a residual subdural hematoma surrounded by a thick capsule, causing a midline shift in the brain. An emergency operation for removal of the subdural hematoma by burr-hole irrigation was performed, and pus was drained from the subdural mass. Microbiological cultures of the abscess revealed the presence of Proteus mirabilis. After surgery, the patient was administered an antibiotic treatment for three weeks and she was discharged with no neurological deficits. Cultures of blood from the septic shock as well as from the abscess both revealed the presence of Proteus mirabilis. Therefore, a diagnosis of infected subdural hematoma, which was caused by hematogenous infection, was made. We conclude that attention should be paid to the risk of infection of the hematoma capsule in subdural hematomas [3].

Mustafa et al. review and discuss the results of treatments for complications of cholesteatomatous chronic otitis media (CCOM) in a tertiary health care center. In a retrospective study, the medical records of patients with complications of CCOM who had undergone surgical treatment at the ENT Clinic of the University Clinical Center of Kosovo for the period 1994-2004 were reviewed. From a total of 1,803 patients suffering from CCOM, in 91 patients, 55 (60.4%) men and 36 (39.6) women, one or two complications are recorded. The mean age of the subjects was 30 years, and the age range was from 1 to 76 years. Extracranial (EC) complications were observed in 52 cases (57.1%), and intracranial (IC) complications were seen in 29 patients (31.9%). Twelve patients (11%) had multiple complications. For the EC cases, we found that subperiostal mastoidal abscess occurred in 26% of the all patients, facial nerve palsy was seen in 16.48% and labyrinthine fistula occurred in 10%. For the IC cases, meningitis (19.7%) and perisinusal abscess (15.3%) were the most common complications. The most often isolated pathogen from ear swabs was Proteus mirabilis in 33.3% of cases. The most frequent radiological diagnostic procedures were mastoid tip X-rays, which were performed in 77% of the patients, and computed tomography in 24%; magnetic resonance imaging was not performed on any of the patients during the study period. Patients with EC complications were treated in the ENT Clinic, whereas patients with IC complications, after otologic surgical procedures, were transferred to the Neurosurgery Clinic or to the Clinic for Infectious Diseases. In this series, three patients (3.3%) died as a result of complications, while the remaining 96.7% survived. Complications of COM with cholesteatoma can represent life-threatening conditions, and close cooperation between otosurgeons, neurosurgeons and infectious disease specialists is mandatory [4].

1)

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2)

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3)

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4)

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