Propionibacterium acnes

- A case of multifocal glioblastoma with ring enhancement, mimicking cerebral toxoplasmosis with ring-enhanced lesions
- Sinonasal Squamous Cell Carcinoma Mimicking a Brain Abscess: Report of a Unique Case
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- Propionibacterium acnes: A Difficult-to-Diagnose Ventriculoperitoneal Shunt Infection. Case Report
- A Case of Coccidioidal Meningitis With Biofilm Obstructing VP Shunt Due to Cutibacterium acnes

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Propionibacterium acnes is the relatively slow-growing, typically aerotolerant anaerobic, Gram-positive bacteria linked to the skin condition of acne; it can also cause chronic blepharitis and endophthalmitis, the latter particularly following intraocular surgery. The genome of the bacterium has been sequenced and a study has shown several genes can generate enzymes for degrading skin and proteins that may be immunogenic (activating the immune system).

This bacterium is largely commensal and part of the skin flora present on most healthy adult humans' skin.

It is usually just barely detectable on the skin of healthy preadolescents. It lives primarily on, among other things, fatty acids in sebum secreted by sebaceous glands in the follicles. It may also be found throughout the gastrointestinal tract in humans and many other animals.

It is named after its ability to generate propionic acid.

Propionibacterium acnes spondylodiscitis

A total of 120 patients with disc herniation surgery were enrolled in a study. The samples were excited during discectomy and then cultured in both anaerobic and aerobic incubations. Minimum inhibitory concentration (MIC) was performed for determination of antibiotic susceptibility.

Of 120 samples, 60 (50%) samples were positive for microorganisms. Disc herniation was at the level of L4-L5 in 63 cases and L5-S1 in 57 cases.

According to the results and presence of P. acnes in more than 35% of the cultured samples, the presence of P. acnes in lumbar disc herniation is a suspected element leading to this condition. After analysis of the antibiotics, the lowest MIC value was identified for amoxicillin, ciprofloxacin, erythromycin, rifampicin, tetracycline, vancomycin; the moderate MIC value was for fusidic acid; and the highest MIC value was for gentamicin and trimethoprim [1].

Propionibacterium acnes was cultured from intervertebral disc tissue of ~25% of patients undergoing microdiscectomy, suggesting a possible link between chronic bacterial infection and disc degeneration. However, given the prominence of P. acnes as a skin commensal, such analyses often struggled to exclude the alternate possibility that these organisms represent perioperative microbiologic contamination

A study confirms that P. acnes is prevalent in herniated disc tissue. Moreover, it provides the first visual evidence of P. acnes biofilms within such specimens, consistent with infection rather than microbiologic contamination [2)].

The presence of 36/46 modic changes in patients with lumbar disc herniation, positive for P. acnes suggests that P. acnes can lead to edema on the vertebrae endplates near to infected area [3)].

In a study, 145 patients including 25 cases with cervical and 120 cases with lumbar disc herniation were enrolled. There was no significant difference in the age of male and female patients ($p = 0.123$). P. acnes infection was detected in nine patients (36%) with cervical disc herniation and 46 patients (38.3%) with lumbar disc herniation and no significant differences were reported in P. acnes presence according to the disc regions ($p = 0.508$.). Moreover, there was a significant difference in the presence of P. acnes infection according to the level of lumbar disc herniation ($p = 0.028$).

According to the results, the presence of P. acnes is equal in patients with cervical and lumbar disc herniation. There was a significant difference in the distribution of P. acnes infection according to level of lumbar disc herniation [4)].

Case series

Clinical data obtained from 14 cases of P. acnes infection and 28 controls infected with other pathogens were analyzed. Craniotomy, malignancy, and prolonged duration of operation were significantly associated with the onset of P. acnes infection. No fatal cases were reported [5)].

Case reports

2017

Hemiparesis may be the result of lesions in the contralateral pyramidal tract in the brain or, less frequently, in the ipsilateral pyramidal tract in the upper cervical spinal cord. However, although rare, multiple lesions that simultaneously occur in both of these regions may be the cause of acute hemiparesis, and the clinical symptoms can often be misdiagnosed as a stroke. In addition, the correct diagnosis of these multiple central nervous system (CNS) lesions is very challenging if they are caused by infection from an unexpected microorganism. We evaluated an elderly healthy woman who presented with acute hemiparesis and multiple brain and spinal cord lesions that were confirmed to occur from an infection with Propionibacterium acnes. In this report, the differential diagnosis and

histopathological findings are discussed for these multiple CNS lesions in this healthy woman [6].

1)
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