

Name:
Period:

Clinical Case Study: *Covid-19 and the Nervous System*

Number each paragraph

Circle: Subjective Data

[Bracket]: Objective Data

Underline: Recommendations



Max is an 11-year-old boy who tested positive for Covid-19 on September 20, 2020. He began his 10 days of isolation, and despite initially having no symptoms and feeling quite well, Max suddenly lost his taste and smell, and everything he smelled or tasted was making him vomit. He started saying the food was off, and it continued to get worse. He said, “Food tasted like sewage, and water tasted like rotten eggs,” and he would keep throwing up. Then all of a sudden he just stopped eating because he could not hold anything down. Additionally, he would look at his food and start gagging. He couldn’t cope with the smells and physically could not eat. He became tired and cold all the time due to him not eating.

Max’s mom, Suzy, was very concerned and scheduled a virtual appointment for Max with his primary care doctor. When Max attended the virtual appointment, he explained his symptoms to his doctor. Due to his worsening symptoms, he was referred to an ENT (Ears, Nose, and Throat) doctor. This new appointment took place in person and was scheduled a month after his initial positive Covid-19 test.

At the appointment the ENT doctor asked about Max’s health history, including recent infections, current medications, and lifestyle factors. The doctor also asked him to sniff different substances and then describe the scent. During this test, Max was unable to correctly explain the scent. After analyzing his health history and the results, as well as the recent increase of former Covid-19 patients with similar symptoms, the doctor diagnosed Max with parosmia and prescribed him a steroid nasal spray. He told him to also monitor his symptoms associated with the inability to eat, and if they get any worse, to contact the doctor, or if severe, to take Max to the local emergency room.

Flash forward and it is now September 2025. Max, now 16 and a junior in high school, has still has not regained his full sense of taste and smell. The past few years have been difficult for Max, and there were times he felt depressed due to not being able to taste and smell. As a result, he has seen a mental health therapist to talk about his struggles. He is currently part of a clinical trial at a medical school where he has been undergoing olfactory training to learn how to smell again. Max is hopeful that one day he will be able to taste and smell again just like before he got Covid-19. Max is now an advocate for long-Covid survivors and hopes that federal funding allocated for medical research continues to help patients like him feel like themselves again.

Based on the information above, complete the SBAR for this patient

S ITUATION	
B ACKGROUND	
A SSESSMENT	
R ECOMENDATION	

Research:

Use the resources below to help you answer the questions for this case study

Parosmia



Treatment

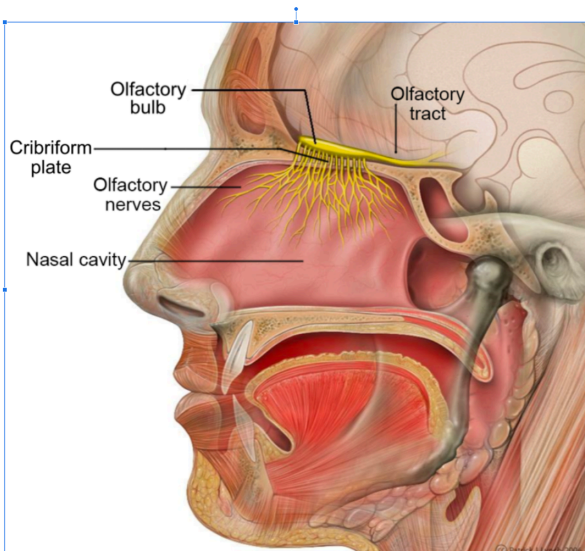


Questions

Answer the questions below using complete sentences.

1. What symptoms was Max experiencing?
2. What assessments did the ENT doctor conduct on Max?
3. What was Max's diagnosis?
4. What is Parosmia?
5. What likely caused his Parosmia and how does the cause lead to it?
6. What treatment did the doctor prescribe max?
7. Why might the doctor suggest that Max go to the emergency room if his symptoms worsen?

Olfactory Nerve Pathways



Name:
Period:

Case Study: *The Senses*



Number each paragraph

Circle: Subjective Data

[Bracket]: Objective Data

Underline: Recommendations

Alexa is a 17-year-old high school student who enjoys spending time with her grandparents every weekend. Lately, she has noticed that her grandfather, Mr. Torres age 78, seems to be having trouble hearing her when she speaks. He often asks her to repeat herself and frequently turns up the television volume much louder than before. During family gatherings, he appears to withdraw from conversations, especially when several people are talking at once. Concerned about these changes, Maria convinces her grandfather to visit an audiologist for a hearing evaluation.

At the clinic, the audiologist conducts a hearing test, called an audiogram, which reveals that Mr. Torres has difficulty detecting high-frequency sounds in both ears. These are often the pitches found in women's and children's voices, which explains why he struggles to follow certain conversations. The physical exam shows no earwax buildup, infection, or damage to the eardrum, ruling out other causes of hearing problems. The doctor explains that Mr. Torres has a condition known as presbycusis, or age-related hearing loss. This is a common form of hearing decline that occurs gradually as people get older.

Presbycusis occurs due to the slow deterioration of the sensory hair cells located in the cochlea, a spiral-shaped structure in the inner ear responsible for converting sound vibrations into nerve signals that the brain can interpret. Over time, these delicate hair cells become damaged or die, particularly those that detect high-pitched sounds. Additionally, changes in the auditory nerve and the blood supply to the inner ear can contribute to hearing loss. Because this condition involves damage to the inner ear and the nerve pathways, it is classified as sensorineural hearing loss rather than conductive hearing loss, which affects the outer or middle ear.

In normal hearing, sound waves travel through the outer ear canal and cause the eardrum to vibrate. These vibrations are transferred through the three small bones of the middle ear, the malleus, incus, and stapes, which amplify the sound and send it into the cochlea. Inside the cochlea, hair cells convert the mechanical energy into electrical impulses that travel along the auditory nerve to the brain, where sound is interpreted. When the hair cells are damaged, this process becomes less efficient, and sounds may seem muffled or unclear.

Although presbycusis cannot be reversed, there are several options to help improve Mr. Torres' hearing and quality of life. Modern hearing aids can amplify sounds and make speech easier to understand. In some cases, assistive listening devices or cochlear implants may be considered. Lifestyle changes, such as protecting the ears from loud noises, avoiding ototoxic (ear-damaging) medications, and maintaining good cardiovascular health, can also help slow further hearing decline.

Mr. Torres experience highlights how aging can affect the sensory systems of the body and reminds us of the importance of protecting our hearing throughout life. Understanding the anatomy and physiology of the ear allows us to appreciate how complex and delicate our sense of hearing truly is.