

Recurrent Respiratory Papillomatosis (RRP) is a rare and perplexing condition that can affect anyone, from kids to adults, irrespective of gender. The defining feature of this ailment is the appearance of wart-like growths on the respiratory lining and the beginning of the digestive tract. These growths, akin to warts, are caused by an infection from the human papillomavirus (HPV), a notorious virus known for causing various infections in the skin, respiratory system, and genital areas of both men and women. Just to give you a sense of the diversity, scientists have identified over 200 types of HPV so far, and in the case of RRP, it's primarily the HPV6 and HPV11 types responsible for 83-100% of cases.

Now, these wart-like growths, or exophytic papillomas, can pop up in different sections of our respiratory system—anywhere from the larynx to the trachea, bronchi, and even the lungs. Interestingly, the same HPV types are also behind those pesky pointed condylomas you might have heard of in the genital area. The tricky part about RRP is its unpredictable nature. For some, it might go away on its own, while for others, it could turn into a persistent and aggressive form, necessitating multiple surgeries.

Despite our best efforts, there's currently no magic pill to cure RRP. Surgical procedures can remove the growths, but sadly, they don't stop the disease from making a comeback. People dealing with RRP often find themselves making frequent trips to the hospital, and the changes the disease brings to the vocal folds can affect speech. Scientists have been trying out different additional treatments for years, but we're still searching for that game-changer.

Switching gears a bit, let's talk about microbiota—basically, the community of tiny living things that hang out inside or on our bodies. The ones living in our intestines play a crucial role in shaping our immune responses. Now, sometimes, things can get a bit out of whack, and this is what scientists call dysbiosis. It's like a disturbance in the microbiota force, leading to issues in the digestive system, like bacterial overgrowth or irritable bowel syndrome.

In our project, we're diving into a group of patients dealing with tummy troubles and those battling recurrent respiratory papilloma because of an HPV 6/11 infection. We're planning to introduce a probiotic—think of it as a good bacteria booster—that could directly impact the gut's micro-world and, in turn, give the immune system a boost. After all, the gut is like the headquarters for local mucosal immunity.

Our big idea is that immune issues caused by wonky gut bacteria might be a big player in how HPV 6/11 infections play out. We're curious about the uncharted territory of how gut microbiota might affect local and systemic immunity in HPV infections, and we're wondering if it could be a common link between HPV-related diseases and the changes in gut bacteria tied to our modern lifestyles.

Here's the mystery: Despite HPV being pretty common, with many folks carrying it around without issues, why does the virus decide to set up shop and cause symptoms in only some people? Surprisingly, there's not much out there in terms of research discussing the trio of gut microbiota, immunology, mucosa, and HPV infection.

By the end of our project, we're hoping to uncover how the immune system, infection course, and gut microbiota dance together in patients dealing with recurrent respiratory papillomatosis. Who knows, maybe our findings will be a piece of the puzzle in understanding this complex relationship.