

*Post-Nasal Rhinorrhea:
Differential Diagnosis and Management:
A Round Table*

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Eulália Sakano

Correlation between discharges in the nasal cavity or in the posterior wall of the pharynx (posterior rhinorrhea) and sinusitis is very common, hence the use of antibiotics when these signs are seen. In this round table we will present some clinical cases, aimed at discussing the main differential diagnosis in posterior rhinorrhea.

The first case is a three-year-old girl presenting frequent, sometimes serous or mucosal and sometimes yellowish nasal discharges, with sporadic coughing at the same time. No fever. She had been frequently treated with antibiotics during crises, with improvement. The mother usually uses saline solution for nasal hygiene, several times a day. The child has attended school since she was one year old and has no family history nor personal history of allergy. An X-ray of the nasopharynx showed no adenoid hypertrophy. Physical examination showed a small amount of thick secretion on the posterior wall of the oropharynx, and bilateral mucoid nasal secretion. On nasofibroscope, no significant adenoid hypertrophy was observed. Considering these data, how would the panel manage this case? We shall begin with the only pediatrician here present, Luis Vicente. Would you care to comment on this case?

Luis Vicente Ferreira da Silva Filho

I believe this is an extremely commonly seen case in our practice. These children have recurrent rhinopharyngitis and sometimes some associated history that reminds us, for example, of possible allergic rhinitis. Although you say there is no family history of atopia, I believe that my approach would be the use of intranasal topical corticosteroid. And why do I say that? Because it was reported that the mother uses saline solution daily for hygiene, and there is no other evidence, at least from this examination (and the child has already been submitted to nasofibroscope) showing adenoid hypertrophy or any other more serious complication. And from what we heard here, the child has evolved quite well. I see no coughing was mentioned.

We have read recently that there is strong resistance to diagnosing **posterior rhinorrhea** or posterior nasal dripping **as a disease**. It is rather considered a **sign associated with several entities** that must be managed accordingly. Therefore, there is no specific treatment for the condition (**posterior rhinorrhea**). It is rather **a marker of a clinical condition**.

Eulália Sakano

Would you request any immediate examination, or would you immediately introduce a nasal topical corticosteroid?

Luís Vicente Ferreira da Silva Filho

I believe I would introduce it immediately, and with that I would be conducting a therapeutical test with the topical corticosteroid. I do not think it necessary to perform any examination or assessment of atopy, because at that age we very often find that increased serum IgE and RAST tests, for instance, are negative, with no clinical correlation. Upon evolution, these children very likely end up with positive tests. Therefore, that would be my management in this case.

Eulália Sakano

Maria Beatriz, any comments on that management?

Maria Beatriz Rotta Pereira

In this particular case, it should be remembered that many episodes of rhinorrhea may have been of viral origin and were wrongly treated with antibiotics. The frequent use of antibiotics may promote eradication of saprophytic bacteria, and this will favor the onset of new infections. It is important to talk with the parents about the importance of waiting, especially when there is no fever and the child is doing well in general. Nasal hygiene should be recommended, and analgesics whenever necessary. If there is significant nasal obstruction and turbinate hypertrophy, I would suggest the use of nasal topical corticosteroid, in association with or not with a systemic decongestant.

Eulália Sakano

José Antônio, what is your view on these comments?

José Antônio Patrocínio

I would check with the mother to see whether she is properly flushing that nose. I would give the child oral corticosteroids for five or six days, a single dose in the morning. I would not use systemic decongestant. I would introduce nasal topical corticosteroid and do a followup to see how the mucosa of the nose would react. The predisposing factor in the case of that child is probably the school, right?

Antônio Carlos Cedín

These cases may lead to wrong management/diagnosis when physicians who are not otorhinolaryngologists assess children at hospital emergency care units. In the case in point, there are two possibilities: either it is infection or allergy. Establish the correct diagnosis and do the follow-up for some time, to see what is really happening. If it is an infection, how many of these episodes actually require treatment?

The environment where the child lives has to be assessed. As José Antonio said, there is the school environment. Children in these environments are exposed not only to contamination but also to a “recycling” of microorganisms. Sometimes at the school there is dust, people smoking, use of cleaning products that may not be adequate. The history is therefore important. At home the same applies. Sometimes the child is left at home with people who smoke, a maid or a babysitter or a relative. The environment at home is not adequate. Concerning specific management, undoubtedly, if it is an infectious process it must be treated as such.

If the history has shown hypersensitivity, or family background of it, the child has to be approached accordingly. In acute crisis, use specific systemic medication, and topical medication for maintenance. There are saline solutions that contain no preservatives that are really helpful, considering that some of the “irritability” from the medication derives from preservatives. We have therefore to consider nose-flushing, environmental hygiene, medication in the crisis, and topical nasal medication, either corticosteroid or chromone, for maintenance.

Eulália Sakano

Regarding nasal flushing, what would the panel do? Maintain, or give the mother some guidance on the number of flushings to do? Would you use a specific solution or not?

Antônio Carlos Cedin

This is the way I see it: that nose has to be cleaned! But avoid overdoing it. Today there are nasal hypertonic solutions available on the market. In the past, nasal solutions were prepared at home, mixing salt and water and sodium bicarbonate (Parson’s solution). Nowadays we can find nasal hypertonic solutions without bicarbonate. But a word of caution: depending on the situation, the hypertonic solution may be even more irritant. Sometimes the child does not tolerate hypertonic applications. In a crisis situation of acute infection, when the mucus is thicker, viscous, and many times contaminated, it is indicated to help dilute the mucus.

Maria Beatriz Rotta Pereira

It is important to clean the nasal fossa during the hypersecretion phase. The best way to eliminate discharges from the nasopharynx is to use a saline solution, or Parson’s solution, infused using a syringe in the nasal fossa so as to promote mechanical removal of the thick mucoid secretion. Nasal irrigation should not be used when there is no secretion. The mother must be told that flushing is indicated when the child presents anterior nasal discharges or productive coughing. Also we need to remember that sprays with saline solution at 0.9% or 0.3% may be used in cases of anterior nasal discharge.

Eulália Sakano

In the case in point, the child presented significant adenoid hypertrophy. Should there be associated adenoiditis, how would you manage the case?

José Antônio Patrocínio

I would treat her with antibiotics. However, once the crisis was over, I would perform nasofibroscopy to reassess these adenoids and add those findings to the clinical signs and symptoms to establish whether the treatment should be surgical or not.

Eulália Sakano

Maria Beatriz, what are the symptoms of a child with bacterial adenoiditis?

Maria Beatriz Rotta Pereira

In most cases, adenoiditis is of viral origin and may resolve spontaneously, especially with adequate cleansing and symptomatic treatment. On the other hand, patients with high fever and prostration should put us in mind of a bacterial infection. Let me give you an example, a patient I recently saw in my practice.

A child had been evolving a high fever and prostration for 48 hours, presenting hypertrophy of the nasal conchae seen on endoscopy absence of anterior nasal discharge, and adenoid hypertrophy with mucopurulent discharge draining to the nasopharynx. Examination of the oropharynx showed tonsillar hypertrophy with exudate. Oropharyngeal culture showed beta-haemolytic streptococcus (Group A *Streptococcus pyogenes*), and the child was medicated with antibiotics.

Eulália Sakano

In adenoiditis, if there is an obstructive component, would you indicate systemic corticosteroid associated with antibiotic therapy?

Maria Beatriz Rotta Pereira

I do not use systemic corticosteroid in the presence of isolated adenoiditis. I would prescribe it in adenoiditis associated with rhinosinusitis with intense obstruction of sinus drainage and significant nasal obstruction.

Eulália Sakano

José Antônio, would you like to add any comments?

José Antônio Patrocínio

No, I fully agree.

Eulália Sakano

Luís Vicente, seeing this picture, with posterior mucoid rhinorrhea, what clinical parameters do you consider in order to establish whether this is a viral or a bacterial infection of the upper airway?

Luís Vicente Ferreira da Silva Filho

I believe that most of the time, the clinical history helps us in the differential diagnosis. Usually in longstanding conditions we talk of sinusitis. This is what the mother will say: “my child started with a fever yesterday. I think he has sinusitis. I guess he must take antibiotics.” This is how mothers see the picture. Most of the time these are viral infections. However, when you have a dragging evolution in viral infections of the upper airway, and after seven or ten days it does not improve and even gets worse, with changes in color of the secretion and prolonged clinical history, I believe these would be the main criteria. Have them recall any conditions that evolve with a more toxemic aspect, feelings of heaviness in the head, more significant nasal obstruction. These would be the main signs. But I think that for us pediatricians it is very difficult on clinical examination—without recourse to nasofibroscope—to make a differential diagnosis with certainty between acute sinusitis and acute adenoiditis, for instance. From the clinical standpoint, there is no way we can do that in a regular pediatric examination. I believe the criteria to make a decision on antibiotic therapy are history and clinical examination, but we should refrain as much as possible from using antibiotics in this initial phase. What was said here about emergency care in hospitals is very important. Because physicians in emergency care have only one chance to make the right decision on the treatment, they will prescribe antibiotics, as they are not likely to see this patient again. When there is a possibility of following the patient, it is much easier to be economical in our prescriptions, because if the patient does not have a satisfactory evolution, he will be back—and then you can realign your treatment accordingly.

Eulália Sakano

We therefore conclude that clinical follow-up in this case is paramount in the diagnosis and in whether to introduce or not antimicrobial therapy.

The second case is a seven-year-old girl who started sneezing and having serous rhinorrhea and a low-grade fever ten days ago. Three days ago she started presenting yellow rhinorrhea, nasal obstruction, and dry cough. On examination, she presented congested nasal mucosa, a thick yellowish nasal secretion, and discharge in the posterior wall of the pharynx. Coughing was worse at night, especially when lying on her back. Would you like to comment on the history, suggest any examination—or do you think this history is enough to establish a diagnosis?

Antônio Carlos Cedin

This is what I think—you have to be very careful with antibiotic therapy. You must differentiate between viral and bacterial conditions. There might be severe complications if we do not use antibiotics. We have had cases of complications after two or three days of onset of symptoms. Sometimes, because the clinical picture is unilateral and very intense and the child is toxemic, we are forced to manage immediately with antibiotics before any complication arises that, depending on the child, could be fatal.

Given a period of ten days after viral infection, thus paving the way for bacterial complication, our first suspicion would be of contamination of the paranasal cavities. Examination under nasofibroscope will help, and we can see secretion coming out of the meatus, suggesting contamination. In this case, together with anamnesis, clinical picture, background, and predisposing factors in the patient's history, nasofibroscope may suggest bacterial infection.

José Antônio Patrocínio

Soon all pediatricians will think every patient has to undergo nasofibroscope. In this case, with a typical history, there is no need to perform an examination. Just treat it. It is obviously sinusitis. You don't need nasofibroscope. You don't need any kind of exam.

Eulália Sakano

What about a simple X-ray of the paranasal cavities?

José Antônio Patrocínio

Forget an X-ray of sinus cavities. It is Jurassic! Finished! Furthermore, it would not even be an indication in the case we are now discussing.

Maria Beatriz Rotta Pereira

There is no indication for x-ray in the acute phase of rhinosinusitis. Diagnosis is clinical, and nasofibroscope helps to confirm the diagnosis, as it allows assessing the aspect and amount of discharge, as well as the mucosal edema. The time of evolution is of the essence. There are two situations indicating that we may be faced with bacterial rhinosinusitis: the first involves a child with dragging symptomatology suggesting viral infection of the upper airway, with no improvement after seven to ten days, maintaining nasal obstruction and secretion associated with coughing. The second is a child with high fever, nasal obstruction, purulent secretion, and coughing, which are present from the onset of symptoms,

with no improvement after two or three days. In both presentations, the use of antibiotic therapy would be indicated.

Eulália Sakano

Do you all agree?

Luis Vicente Ferreira da Silva Filho

I fully agree. I even think that in hospitals that have better resources, one should be careful not to request a CT-scan on early onset. Because computerized tomography of the sinus cavity showing fluid accumulation in the cavity does not mean it is bacterial sinusitis. Many physicians speak badly about x-rays, saying they do not give good images. Depending on the patient's age, the paranasal cavities are not well formed, but that is not the point. The point is that to make a therapeutic decision x-rays are unimportant. What matters is the clinical history, the clinical evolution. We tire of seeing x-rays performed on one-year-olds. That makes me sad.

Eulália Sakano

Our last case is a child with cystic fibrosis. I would like Luis Vicente, who has experience in cystic fibrosis, to comment on posterior rhinorrhea on cystic fibrosis.

Luis Vicente Ferreira da Silva Filho

First of all, 100% of patients with cystic fibrosis have alterations in the sinus cavities. Therefore we must be very careful in how we conduct interventions in these cases, because of clinical repercussions. These patients have nasal polyposis and undergo many treatments. They have retention cysts and present many symptoms like pain, heaviness, pressure in the head. Posterior rhinorrhea in patients with cystic fibrosis is of very little significance from the clinical standpoint. Since we are aware that these patients have pansinusopathy as part of the conditions of cystic fibrosis, the symptomatology and alterations shown by the patient must be taken into serious consideration.

Also, this patient will undergo a lung transplant, so it is a patient who deserves an immediate approach, considering that sinus cavities become a reservoir for specific pathogens in cystic fibrosis, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The child must be specifically treated against these microorganisms, to prevent post-transplant complications in immunosuppression. These patients benefit from intervention, but it is almost a prophylactic intervention. Therefore, rhinorrhea per se is not important for us who have to deal with patients with cystic fibrosis.

Eulália Sakano

As we saw, posterior rhinorrhea is a sign associated with several conditions. Differential diagnosis is important, and it is essential not to use antibiotics merely because there is secretion in the posterior wall of the pharynx.

I wish to thank all members of the round table for their participation.