

Self-Administered Electrical Therapy for Treatment of Nasal Polyps and Allergic Rhinitis

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Abstract Nasal polyps have a high fluid and electrolyte content. As an electrical engineer with 40 years of experience in multiple electronics industries, I hypothesized that it would be possible to cure my own nasal polyps using electrical treatment. In 2007, I started self-administration of this treatment using an electronic massage device. For safety, I adjusted the device so that the peak output voltage could not exceed 68 V, as I was concerned that a higher voltage might injure my eyes. After 14 days of treatment, my nasal polyps had resolved. This treatment has been continued for 30 minutes per day until the present time, to avoid recurrence of the polyps. After about 3 years of treatment, my severe allergic rhinitis, which had been present for about 30 years, also resolved. This paper describes the details of the nasal electrical therapy, in the hope that the results of my self-experiment over the past 7 years can help to advance the treatment of allergic rhinitis.

Keywords Nasal polyps, Electrical treatment, Coulomb's law, Allergic rhinitis

1. Introduction

This paper reveals a revolutionary concept in medical treatment for nasal disease and is targeted at physicians, who may not have sufficient knowledge of electrical theories to understand the potential mechanisms underlying my treatment approach. The electrical theories are therefore discussed, accompanied by illustrations.

2. Methods

As nasal polyps have a high fluid and electrolyte content, their resistance to the flow of electric current is much lower than the resistance of the adjacent nasal tissues. Electric current always flows along the path of least resistance. Electrode pads were attached to each side of the nose, and an alternating voltage was applied across the nose (Fig. 1), resulting in flow of electric current through the nasal tissues. As a nasal polyp has lower resistance than the surrounding tissues, some of the current will flow through the polyp from left to right when the electrode pads are applied as shown, which represents an electrical short-cut (Fig. 2). This flow of current through the polyp has the following consequences.

According to Kirchhoff's voltage law [1], the electric

potential of the left side of the polyp (current "in-flow" point) will be greater than that of the right side (current "out-flow" point). That is, the distribution of positive charge will differ between the left and right sides of the polyp, as shown in Figure 2. According to Coulomb's law [2], charges of the same kind repel one another, and accumulation of a greater number of positively charged particles results in generation of greater force. This repelling force is greatest on the left side, resulting in higher pressure on the left than on the right side of the polyp. As a result, the electrolytes and fluids in the polyp will tend to flow from left to right, resulting in the fluids on the right side flowing from the polyp towards the right-sided electrode (i.e., the cathode during the positive cycle). This phenomenon is similar to the way in which atmospheric pressure causes air particles to move from high to low pressure areas. As the fluid gradually flows out of the polyp, it decreases in size.

The advantage of using AC current:

The process described above is reversed when the current flows in the opposite direction (Fig. 3). AC current was used to contract the polyp for the following reasons. First, use of AC current prevents electrolysis from occurring at the electrodes. Second, use of AC current results in more symmetrical and effective contraction of the polyp than use of direct current (DC).

Details of the electrical treatment:

The electrical treatment was applied for 30 minutes three times a day, resulting in a total of 90 minutes/day, with a maximum voltage of 68 V.

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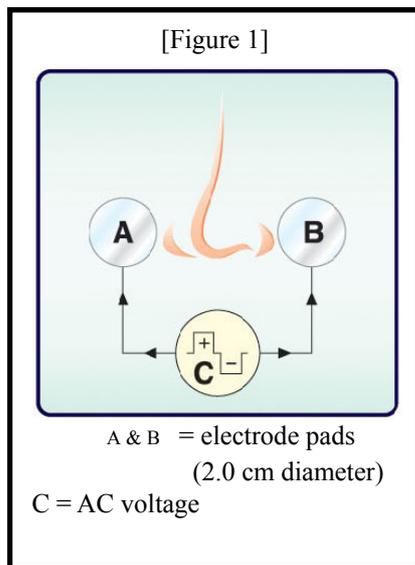


Figure 1. The electrode pads should be positioned beside the nose as shown

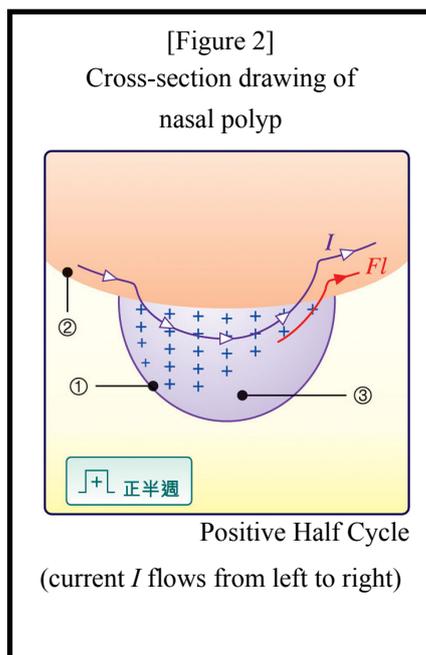


Figure 2. The current drives the flow of materials out of the right side of the polyp. 1, nasal polyp; 2, nasal mucosa; 3, electrolytes and fluids in the nasal polyp; I , current flow; Fl , fluid flow; +, positive charge

3. Results and Discussion

As nasal polyps have a relatively high histamine concentration, the first 14 days of electrical treatment was administered in conjunction with the medication prescribed by Dr. Gary K. K. Yip to reduce inflammation of the nasal tissues. The treatment was comfortable and safe, and resulted in resolution of the polyp as shown in Figure 4.

After the nasal polyps had contracted and become very small, the electrical treatment was occasionally repeated

once (30 minutes) per day to maintain the effects. After 3 years, my severe symptoms of allergic rhinitis, which had been present for about 30 years, reduced in frequency. I initially needed daily medication for allergic rhinitis, but with the gradual improvement of symptoms this medication was very rarely needed after 3 years.

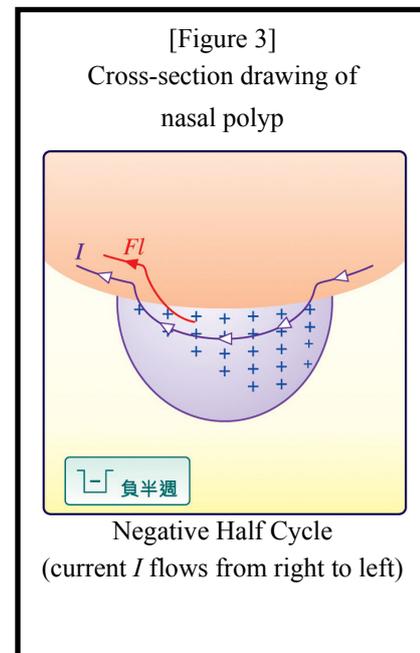


Figure 3. The current drives the flow of materials out of the left side of the polyp when the current changes direction

The mechanisms underlying the resolution of my severe allergic rhinitis may be explained by previously described electrical phenomena, as follows. First, current flow can drive the flow of materials in liquid and air³. Second, electric current results in the movement of the cell to absorb materials by discharging the membrane potential³. These phenomena were explained in detail in my previously published paper³. Understanding of these electrical mechanisms can explain the resolution of my allergic rhinitis. The day before starting the electrical treatment, I also had symptoms of otitis media and nasosinusitis. During the 3 years of repeated electric treatments, none of these symptoms recurred. I therefore consider that my allergic rhinitis is likely to be cured, by the following mechanisms. First, the current drives the flow of materials³, which cleans the capillaries surrounding the nasal cavity. Second, the cells of the nasal tissues become “stronger” because they are stimulated by the electrical current for 30 minutes every day [3].

4. Conclusions

As described above, 30 minutes of treatment has been repeated every day until the present time. Over the past 7 years, no further disease or dysfunction has been detected in my nasal tissues or elsewhere in my body. During my 40

years of experience as an electronic engineer, I spent a few years in the position of Reliability and Quality Assurance Engineer. After 7 years of careful self-observation, I am therefore confident that my self-administered electrical therapy will not cause adverse effects, and should be safe if the electrode pads are positioned correctly. Another organ that has a similar electric current flowing through it is the heart, which is also the organ with the lowest rate of cancer.

I retired as an electronic engineer 4 years ago. My limited ability and poor financial resources prevent me from further researching this treatment method. However, **I believe that further studies to investigate the efficacy of electrical treatment for nasal disease are warranted.**

The electrical therapy described requires further investigation, including clinical trials, before the effects can be definitively determined. From an engineer's point of view, my suggestions for further research are as follows. First, a device that can correctly position the electrode pads should be developed. Before starting the electrical therapy, I carefully researched the optimal positioning of the electrode pads. Interestingly, the optimal points for the pads correspond to the Ying Xiang acupuncture points. Second, if this treatment is used by large numbers of people, it would be useful to build the voltage pulse generator into mobile phones.

ACKNOWLEDGEMENTS

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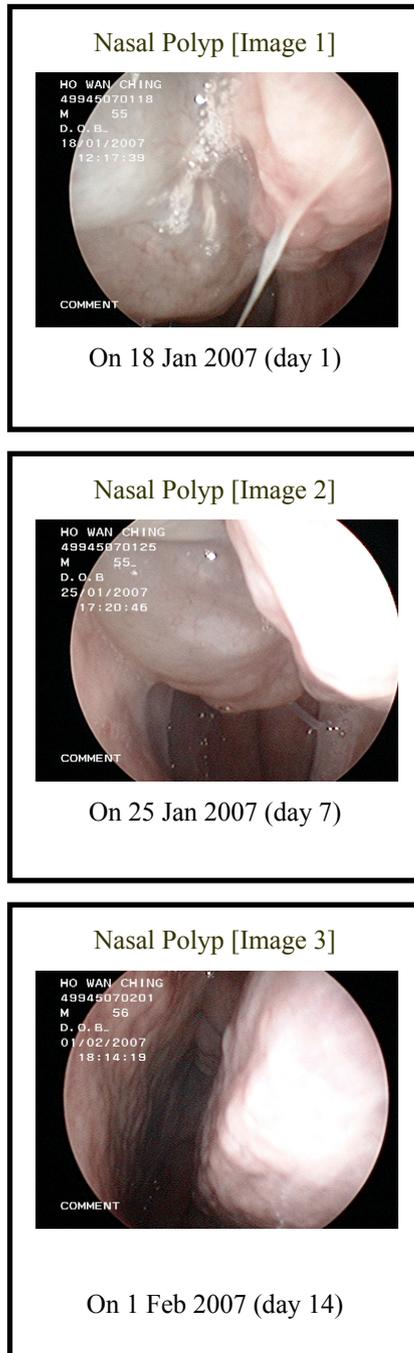


Figure 4. Endoscopic images were obtained and provided by the nasal specialist Dr. Gary K. K. Yip