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A CASE REPORT ON THE TREATMENT OF CONSTIPATION IN A PATIENT WITH SYRINGOMYELIA AND ARNOLD-CHIARI MALFORMATION

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Öz

Amaç: Bu çalışmada, Arnold-Chiari malformasyonu ve siringomyeli tanısı olan bir olguda kronik konstipasyon tedavisinde osteopatik manipülatif tedavi (OMT) teknikleriyle vagus sinirinin uyarılmasının etkinliğini değerlendirmek amaçlanmıştır**.**

Yöntem: Siringomyeli ve Arnold-Chiari malformasyonu tanısı olan 34 yaşındaki kadın hasta, kabızlık şikâyetiyle fizyoterapi kliniğine başvurmuştur. Hasta, Roma III kriterleri ve Konstipasyon Ciddiyet Ölçeği (KCÖ) ile değerlendirilmiştir. Ardından, tek seanslık osteopatik vagal sinir uyarımı uygulanmıştır. Uygulama sonrası bir ay süresince hasta haftalık takiplerle izlenmiş ve tedavi sonunda aynı ölçüm araçlarıyla yeniden değerlendirilmiştir.

Sonuçlar: Tedavi öncesinde KCÖ toplam puanı 46 olarak belirlenirken, birinci ay sonunda bu değer 6'ya düşmüştür. Hasta, tedavi öncesinde ayda en fazla beş kez dışkılama yaptığını belirtirken, tedavi sonrası dönemde her gün dışkılama gerçekleştiğini ifade etmiştir. Dışkı kıvamında yumuşama ve dışkılama sırasında zorlukta belirgin azalma bildirilmiştir.

Tartışma: Osteopatik manipülatif tedavi yoluyla yapılan vagal sinir uyarımı, invaziv olmayan, kolay uygulanabilir ve düşük maliyetli bir yöntem olarak kabızlık tedavisinde etkili olabilir. Bu vaka, Arnold-Chiari malformasyonu ve siringomyeli birlikteliğinde ortaya çıkan konstipasyonun yönetiminde OMT'nin potansiyelini ortaya koymakta olup, daha geniş örneklem gruplarıyla yapılacak çalışmalara öncülük edebilir.

Anahtar kelimeler: Arnold-Chiari Malformasyonu, Kabızlık, Osteopatik Tedavi, Siringomyeli, Vagus Siniri

Abstract

Objective: This study aimed to evaluate the effectiveness of vagus nerve stimulation via osteopathic manipulative treatment (OMT) techniques in the management of chronic constipation in a patient diagnosed with Arnold-Chiari malformation and syringomyelia.

Methods: A 34-year-old female patient with a history of syringomyelia and Arnold-Chiari malformation presented with chronic constipation. She was assessed using the Rome III criteria and the Constipation Severity Instrument (CSI). A single session of osteopathic vagal stimulation was administered. The patient was monitored weekly for one month and re-evaluated at the end of the intervention using the same scales.

Results: The total CSI score decreased from 46 at baseline to 6 at the end of the first month. The patient reported defecating a maximum of five times per month prior to treatment, while achieving daily bowel movements after the intervention. A notable softening in stool consistency and reduction in straining were observed.

Discussion: Vagus nerve stimulation through OMT appears to be an effective, non-invasive, and cost-efficient method in the treatment of constipation. This case highlights the therapeutic potential of OMT in managing constipation associated with syringomyelia and Arnold-Chiari malformation, encouraging further studies with larger sample sizes.

Key Words: Arnold-Chiari Malformation, Constipation, Osteopathic Treatment, Syringomyelia, Vagus Nerve

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Introduction

Syringomyelia is a disorder with diverse etiologies caused by impaired cerebrospinal fluid (CSF) flow dynamics. The syrinx may be localized or may involve multiple segments, especially in the cervical region. It is often associated with intramedullary tumors, spinal trauma, and arterial insufficiency but can also be seen as an isolated congenital defect. The cervicothoracic region is the most frequently affected area, although thoracolumbar syrinxes may extend from the brainstem to the conus medullaris.

In the literature, syringomyelia is commonly linked with Arnold-Chiari malformation. However, recent studies report that both conditions may occur independently, although complete separation between the two remains challenging. Symptoms of syringomyelia depend on the location, size, and associated lesions. Many patients are asymptomatic. Symptoms primarily include somatic pain and sensory disturbances, while motor, sphincter, and autonomic impairments are less common. If the spinal cord lesion involves the lumbosacral area, there is an increased risk of anal or bladder sphincter dysfunction. Although literature remains limited, a few studies suggest an association between Arnold-Chiari malformation and autonomic dysfunctions, including constipation.

Constipation is a frequently observed condition that presents with a variety of symptoms. The Rome III criteria classify constipation into two syndromes: functional constipation and constipation-predominant irritable bowel syndrome (IBS-C). Acknowledging that patients reporting constipation experience a variety of symptoms, the Rome III criteria define functional constipation as the presence of at least two of six symptoms: infrequent bowel movements (fewer than three per week), hard stools, excessive straining, the sensation of anorectal blockage, manual maneuvers during defecation, and a sense of incomplete evacuation.

The severity of constipation is evaluated using the Constipation Severity Instrument (CSI), which assesses the frequency, intensity, and difficulty of defecation. The CSI consists of 16 questions and includes three subscales: Colonic Inertia (score range: 0-29), Obstructive Defecation (0-28), and Pain (0-16), with a total score range from 0 to 73. Higher scores indicate more severe symptoms.

This case report describes our clinical experience using manual therapy techniques to address constipation symptoms in a patient with syringomyelia. Our aim is to raise awareness among healthcare professionals and promote the development of treatment alternatives for chronic constipation associated with neurological conditions.

Case Presentation

A 34-year-old female patient diagnosed with syringomyelia in 2003 and Arnold-Chiari malformation presented with complaints of constipation during physiotherapy. After obtaining informed consent, osteopathic manipulative treatment (OMT) techniques were applied to stimulate the vagus nerve. The patient had undergone three shunt surgeries following the diagnosis and had no additional health conditions or medications. She reported previously receiving pharmacological treatment for constipation but with no success. The patient was evaluated using the Rome III criteria and the Constipation Severity Instrument.

A single session of vagus nerve stimulation using osteopathic manipulative techniques was performed in the following pre-defined order, with the patient lying supine in a quiet and dimly lit room:

Suboccipital Inhibition Technique: Both hands were placed under the occiput, with the fingers contacting the posterior arch of the atlas. Deep, gliding, and progressive pressure was applied for 10 minutes. (7)

Frontal Technique: The therapist's ring and little fingers were placed along the outer edge of the frontal bone (zygomatic processes), while the middle and index fingers were positioned near the midline. Posterior pressure was applied with the index fingers, and anterior-caudal movements were performed with the ring fingers for 5 minutes. (8)

Sphenoid Technique: The index finger was placed on the greater wing of the sphenoid, the middle finger on the pterion, the ring finger on the asterion, and the little finger on the lateral angle of the occiput. Both thumbs applied a

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gentle distraction force along the head's midline for 5 minutes. (9)

Fourth Ventricle Technique: Both hands, palms up, were placed under the occiput with thumbs together. A slight cephalic traction was applied via the thenar eminences for 10 minutes. (10)

Lumbosacral Technique: One hand (palm up) was placed under the sacrum and L4-L5 vertebrae, while the other (palm down) rested on the superior pelvic surface. Both hands were aligned vertically, and gentle compression was applied for 5 minutes. (11)

Weekly follow-ups were conducted to monitor the patient's progress. After one month, the patient was re-evaluated using the same assessment tools. The CSI score, which was 46 before treatment, dropped to 6. The patient reported defecating only five times per month before stimulation, while reporting daily bowel movements after the intervention. She also experienced softer stool consistency, improved bowel motility, and easier defecation.

Discussion

Osteopathy, defined as a manual healing art, is a holistic concept that emphasizes the interrelationship between all tissues and organs. It values the natural mobility of tissues and considers the body as a dynamic unit of function. This approach aligns well with the biopsychosocial model and the concept of the gut-brain axis. Various osteopathic techniques may potentially interact at different levels of this axis.

Syringomyelia is a rare, progressive condition affecting the spinal cord and brainstem, often leading to pain and loss of temperature sensation in the limbs. Other symptoms include muscle weakness, joint stiffness, ataxia, diplopia, and neuropathic pain. Although gastrointestinal symptoms may also occur, their prevalence and treatment options remain underreported. Most studies have focused on motor and sensory impairments and neuropathic pain, with little attention given to constipation. The primary goal of constipation management is to promote regular bowel movements, softer stools, and defecation at least three times per week without straining, all while avoiding side effects and improving quality of life. (12)

Although dietary fiber and probiotic/prebiotic supplements are often first-line treatments, high fiber intake may reduce nutrient absorption and lead to side effects such as diarrhea, gas, and bloating. Additionally, while low fluid intake is widely considered a risk factor, there is insufficient evidence to suggest that increased fluid consumption alone improves constipation. (13)

Exercise is believed to enhance colonic activity and reduce constipation frequency, but existing research shows conflicting results regarding its effectiveness. A randomized controlled trial evaluating sacral nerve stimulation (SNS) for functional constipation found it no more effective than sham stimulation. Moreover, SNS is costly, and side effects such as pain and infection have been reported. (14)

Although some studies suggest that abdominal massage may be a promising therapy for chronic constipation, they vary significantly in design, patient populations, and technique. Studies involving patients with chronic constipation have shown inconsistent improvements in stool frequency, consistency, and well-being, and often required multiple sessions. No significant reduction in laxative use has been observed. (15-17)

Newer treatments such as acupuncture and fecal microbiota transplantation have shown potential, but current guidelines do not recommend them due to a lack of supporting evidence. Pharmacological treatment remains a common approach, but long-term follow-up studies are lacking, and more than half of patients report dissatisfaction due to inadequate efficacy or side effects. (18-19)

It is well-established that gastrointestinal motility can be enhanced through vagal activation and/or sympathetic inhibition, and that autonomic neurological dysfunction plays a significant role in impaired GI motility. (20) Vagus nerve stimulation (VNS), approved by the U.S. FDA for epilepsy and treatment-resistant depression, has also been explored for its therapeutic potential in gastrointestinal dysmotility, inflammation, and pain. Studies have shown that VNS reduces intestinal inflammation and promotes

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recovery from postoperative ileus. (21)

A study investigating transcutaneous auricular vagus nerve stimulation (taVNS) in patients with irritable bowel syndrome demonstrated effective bowel movements within 24 hours, without the use of medications or other interventions. (22)

OMT is another non-invasive technique suggested to influence constipation through vagal stimulation. In chronic constipation, OMT aims to restore homeostatic balance, normalize autonomic activity in the gut, enhance lymphatic flow, and correct somatic dysfunctions. Techniques often target the nervous and circulatory systems, spine, viscera, and thoracic and pelvic diaphragms. (23) Despite growing interest in alternative approaches, OMT remains under-researched in chronic constipation. A pilot study showed that semi-standardized OMT improved stool consistency, constipation severity, and reduced laxative use. (24)

In another study involving 40 patients with irritable bowel syndrome, 68% of those who received osteopathic intervention reported overall improvement, although no standardized OMT protocol has yet been established. (25)

A wide range of treatments have been investigated for constipation, but many are costly, complex, or inaccessible. Even when short-term benefits are achieved, long-term efficacy is unclear. There are very few studies exploring OMT in constipation treatment, and no standardized program has yet been defined. To the best of our knowledge, this is the first case report to explore OMT in managing chronic constipation associated with syringomyelia and Arnold-Chiari malformation. The patient reported an absence of constipation symptoms during the 30-day post-treatment period and a return to mild symptoms (defecation every three days) thereafter. Future studies with larger samples are needed to validate the findings. We believe this case report can inspire further research and highlight the accessibility, affordability, and practicality of OMT in clinical settings.

Conflict of Interest: There is no conflict of interest.

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