Case Report

The Useage of Visceral Therapy after Open Cholecystectomy Surgery – Case Study

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Abstract

Introduction: There are many gallbladder disorders, but cholelithiasis (cholelithiasis) is the most common. In Europe, cholelithiasis affect around 10%-15% of the population. In the US, 700,000 people undergo cholecystectomy every year. Surgical intervention of the abdominal cavity contributes to the disorganization of the connective tissue. In the current literature, there are few reports showing the relationship between intra-abdominal tension and non-specific cervical pain, or gastric symptoms.

Objective: The aim of the study is to present the impact of visceral therapy in the patient who has undergone open cholecystectomy.

Material and Methods: 53-year-old female after removal of the gallbladder, with cervical spine pains, upper limb paresthesia and gastric symptoms. Diagnostic imaging in the form of an x-ray showed minor degenerative changes and slight discopathy. Blood examination showed no abnormalities. The patient was assessed by reliable and valid questionnaires such as: VAS, Laitinen, GSRS, QOLRAD, Bristol Stool Formation Scales.

Results: After visceral therapy the following results were obtained: GSRS scale=20/105 pt., QOLRAD scale=169/175 pt., Laitinen scale=0/12 and the occurrence of stool No. 5 on the Bristol scale.

Conclusion: Visceral therapy may be helpful in the therapy of patients after open cholecystectomy. Postoperative scars can affect the functions of internal organs, and their dysfunction can affect the musculoskeletal system.

Keywords: Gallbladder; Gall; Cholelithiasis; Physiotherapy; Pain

1. Introduction

The gallbladder is the organ responsible for storing and thickening bile, which is produced in the liver. Due to the surgical procedures, its location plays an important role because it is located in the vicinity of the colon, segment IV and V liver and the anterior abdominal wall [1]. The follicle has a strong nerve network, originating from the liver plexus, focused around its neck. Irritation of nervus vagus causes a strong contraction of the gallbladder musculature and relaxation of the Oddi sphincter, while irritation of the sympathetic part leads to the relaxation of the follicle and sphincter contraction [2, 3]. Nowadays, there are many diseases of the organ in question, but cholelithiasis (cholelithiasis) is the most common. It can be caused by earlier surgical operations such as resection, stomach surgery, bariatric surgery, vagotomy and peptic ulcers, which can cause denervation of the gallbladder by impairing its functions [4]. It is estimated that 10% - 15% of Europeans suffer from cholelithiasis [5]. In the United States, cholelithiasis affects more than 20 million Americans each year, of which 700,000 are subjected to cholecystectomy, which is one of the most common procedures [6-8]. Surgical intervention of the abdominal cavity contributes to the disorganization of the connective tissue, leading to internal adhesions as well as endometriosis [9]. In the current literature, there are few reports showing the relationship between intra-abdominal tension and non-specific cervical pain, or gastric symptoms [10, 11]. The aim of the work is to present a case study with the above mentioned symptoms in which visceral therapy was applied.

2. Material and Methods

A 53-year-old woman, body height 156 cm, weight 70 kg, a nurse by profession, reported due to several months of pulling, stabbing pain (7/10 VAS) and cervical spine stiffness with paresthesias to the I-III finger of the left and right hand occurring around 4-5 a.m. The patient also complained about the restrictions of mobility that she felt in particular when driving the car and bicycle, negated any injury. Diagnostic imaging in the form of an x-ray showed minor degenerative changes and slight discopathy at levels C4-C6. The patient suffered from cholelithiasis, underwent cholecystectomy opened about 30 years ago, leaving a 12 cm scar that was not mobilized. The patient is under medical care, despite the drugs used in the group of proton pump inhibitors, since the surgery she still feels gastrointestinal discomfort in the form of: burning, stomach ache after eating as well as when running, flatulence, a feeling of puffing, which often limits the forward slope, constipation. Blood examination showed no abnormalities, aspat (AST), alat (ALT) thyrotropic hormone (TSH), triglycerides, and total cholesterol also normal, however an increase in total bilirubin of 2.20 mg / dl (0.20-1.20 norm) was noted. The patient underwent physiotherapeutic treatment for the cervical spine, in the form of 10 procedures performed daily (excluding Saturday and Sunday).

Treatments consisted of free and active exercises with resistance, ultrasound, magnetic field. Physiotherapy brought a slight improvement in the time of two weeks, partial abolition of pain and an increased range of motion, with persistent morning paresthesia. Then the patient underwent manual therapy according to the Brian Mulligan and Fascial Distortion Model method in the number of five 45 minutes treatments performed once a week. Full mobility of the cervical spine, pain and paresthesia for 1 month were obtained. Over this time, stiffness and slight back pain (3/10 VAS) returned without morning paresthesia. When the symptoms returned, the patient were assessed using reliable and valid questionnaires: GSRS (Gastrointestinal Symptom Rating Scale), which consists of 15 questions assessing the symptoms of reflux, abdominal pain, indigestion, diarrhea and constipation. The feeling of discomfort is scored from 1 to 7, where 1 indicates its absence, 2 - small, 3 - mild, 4 - moderate, 5 - severe, 6 - very severe discomfort. The patient obtained a sum of points equal to 45/105, where more points indicated more severe symptoms. QOLRAD (Quality of Life in Reflux and Dyspepsia), which assesses emotional difficulties, sleep disturbances, vitality, eating / drinking problems and physical / social functioning, the patient obtained 104/175 points, where fewer points indicated more severe symptoms. The questions were evaluated on a seven point Likert scale, 1 point testified to the presence of symptoms all the time, 2 - almost always, 3 - often, 4 - sometimes, 5- almost none, 6 - rare, 7 - never. In addition, the patient rated pain on the Laitinen scale at 3/12 and also marked the stool formation occurring seven days before therapy at 4 (higher frequency) and 5 at the Bristol Stool Formation Scale. The reliability and accuracy of the questionnaires were confirmed by the statistical assessment of the inter-rater and intra-rater $p<0.001$ and Spearman's rho=0.491, $P<0.001$ [12, 13].

3. Therapy

The patient underwent five 45-minute visceral therapies performed once a week. The therapy consisted of:

- Mobilization of postoperative scars and tissue adhesions in the area of surgical incision, as well as superficial loosening of the abdominal wall.
- "Recoil" technique - the patient sits forward leaning on the edge of the bed, lower limbs freely lowered. The therapist stands behind the patient, embracing him, grasping him with both hands abroad of the last rib, so that the fingers are in the hepatic region. The therapist gently immerses the fingers of both hands into the tissues, pulling the liver in the cranial and central direction, then quickly releases pressure. The technique was used for coronary, left and right triangular ligaments.
- Mobilization of ribs II - XII through complex movements. Execution by passive visiting the upper right limb and inspiration as well as "pushing" individual ribs in the caudal direction. Mobilization was carried out in a position when the patient was lying on side and back.
- Duodenal mobilization - the patient is in a sitting position, the therapist, as in the case of the "recoil" technique for the liver, performs undercostal pressure. The fingers sink deep into the tissue, pushing the upper part and descending duodenum in the opposite direction to the liver. Leaving them in this position, the therapist tilts the patient back creating a vertical stretching of the upper and descending part. Then the "recoil" technique was performed, which consisted of quickly letting go of the described grip.

- Worked of Head zone for liver and gallbladder.

4. Results

The application of visceral therapy brought the following results: GSRS scale=20/105 points, QOLRAD scale=169/175 points, Laitinen scale=0/12 and the occurrence of stool No. 5 on the Bristol scale. The patient achieved pain relief and full mobility of the cervical spine without recurrent paresthesia, which was confirmed by a double assessment after one and three months. In addition, significant improvement of gastric discomfort was obtained.

5. Discussion

Visceral therapy has been developing since the beginning of the 70s of the 20th century. It is based on the assumption that movement is an essential element of life and maintaining healthy organisms. This applies to each of the internal organs, which must function in relation to each other to function efficiently. The internal organs are in constant contact with neighboring structures through a thin layer of connective tissue called fascia. Any restriction of movement can affect the functioning of the organ and the whole organism. Visceral therapy distinguishes two elementary movements of internal organs - mobility and motility. Mobility is defined as the ability of organs to move, push and pull adjacent structures in response to external forces, e.g. it is the mobility of moving organs that allows a slope to be made sideways. The second movement is motility, i.e. cyclical, endogenous and independent of consciousness movement of internal organs along specific for each organ embryologically conditioned axes of movement. Movement affects the flow of fluids and nutrients through the internal organs and the removal of waste products. A key element of the assessment is the patient's structural examination to determine the presence of the disorder. Through palpation differentiating tissue structure changes, structural asymmetries, limitations of mobility and tenderness, the therapist locates the source of the problem. Optimization of these two types of movement of internal organs allows the body to make its own correction of existing and non-physiological patterns and its more efficient functioning [14].

In the case described, recurrent cervical spine pain may have occured from dysfunction of the previously described liver movements and tensions caused surgical intervention. This area is adjacent to the diaphragm, which through the pleura, pericardium, sterno-vertebral-pericardial ligaments and cervical-rib-vertebral-pleural ligaments which transfers tension to the middle and deep fascia of the neck. The tensions are transferred in accordance with the tensegrity principle, described by Buckminster Fuller [15, 16]. Impaired function most likely affects the process of proper digestion of food, which was manifested by the previously described ailments. The symptomatic assessment of a patient's discomfort based on a review of diagnostic laboratory tests and procedures may not be enough to make a full diagnosis, what has been confirmed in scientific studies [17-21]. The holistic approach, including visceral diagnostics, aims to normalize these processes by reducing allostatic load and thereby moving to a more natural homeostatic state. As shown in this case report, this is both effective and efficient. Understanding the entire mechanism lies in neurophysiological processes. After surgical intervention, abnormal connective tissue tension

develops, resulting in hormonal or nervous stimulation. The primary afferent nociceptor (PAN) is a small caliber fiber found, among others, in the walls of the gut. It is activated through tissue stimulating, which results stimulation of the spinal cord by PAN. That can lead to a change in abdominal root performance, which includes both somatic efferent axons that innervate skeletal muscle and visceral fibers located in smooth muscle as well as the surrounding fascia [22, 23]. The chemical mediators underlying the inflammation, stimulate the nociceptive nerve endings of the local tissue, which send signals to the spinal cord and change the activity of neurons. The effects of increased or decreased information flow to the spine are manifested at the somatic and autonomous level as somatic dysfunction [22, 24]. The sympathetic supply of the gallbladder nerve and Glisson capsule surrounding the liver comes from segments T6-T9 and C3-C5.

In the present case, somatic dysfunction was also manifested by a change in the structure of soft tissues at levels T6-T9 and C3-C5. The goal of the therapy was to abolish excessive synaptic stimulation with PAN to restore the homeostatic state of the system. Allostasis is a pathological condition that results activation of the nervous, endocrine and immune systems, that work together to help fight disease states. Chronic exposure to an allostatic response may lead to gradual destruction of effective feedback pathways to restore homeostasis. Visceral stressors, such as those suspected of biliary dyskinesia, strongly propel the allostatic mechanism. In the present case, the patient received interference in the form of the discussed therapy in areas of visceral dysfunction in order to restore a more natural homeostatic state by abolishing allostatic stimulation [25].

This method is a unique element of the physiotherapeutic approach to diseases encountered in medicine, commonly not associated with physiotherapy. As can be seen after the re-examination, the patient's condition improved significantly and the symptoms completely disappeared. The above case report may contribute to further, more advanced research in this topic. To objectively confirm structural changes, CT, MRI or ultrasound imaging on a wider test material should be performed, taking into account changes in blood morphotic elements.

6. Conclusion

1. Visceral therapy as an element of physiotherapy can be helpful in structural and functional assessment, as well as for the therapy of patients after open cholecystectomy.
2. Postoperative scars can affect the functions of internal organs.
3. Visceral dysfunction can affect the musculoskeletal system.

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