

# Torsion of Epiploic Appendix Following Chiropractic Movements: A Case Report

Mohammad Etezadpour (✉ [Etezadpourm3@mums.ac.ir](mailto:Etezadpourm3@mums.ac.ir))

Mashhad University of Medical Sciences

Seyed Hassan Seyed Sharifi

Mashhad University of Medical Sciences

Morteza Behnamfar

North Khorasan University of Medical Sciences

Rezvan Hosseinzadeh

Babol University of Medical Sciences

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## Case report

**Keywords:** Case report, Chiropractic, Manipulation, Epiploic appendix torsion, Acute abdomen

**Posted Date:** January 4th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-134737/v1>

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# Abstract

## Background

An epileptic appendix torsion is a rare event that can lead to acute abdominal pain and occurs at any age. Chiropractic is a type of complementary medicine that is performed explicitly by spinal manipulations. Specialists use spinal manipulation to treat many musculoskeletal disorders, usually mechanical back and neck pain, headaches, and spinal stiffness.

## Case presentation

A 49-year-old man with a history of progressive diffuse abdominal pain predominately in the left lower quadrant started three days ago was referred to Ghaem Hospital, Mashhad, Iran. All laboratory tests were normal, and no abnormal findings were observed on ultrasound and X-rays, but the CT scan revealed a definite diagnosis of appendicular torsion. Gastrointestinal rest, antibiotics, analgesics, and fluid therapy were started for the patient. After 72 hours, the patient's general condition improved, and he was discharged from the hospital.

In this report, we presented a case who developed acute abdominal pain after spinal manipulation. Chiropractic is not a completely safe treatment and can cause irreversible damage, so we should know this method's dangers and have enough experience to provide the best and safest medical services for patients.

## Background

The appendices epiploicae, or epiploic appendages, are small, mobile peritoneal sacs filled with fat that in each adult have about 50 to 100 appendages 2–5 cm long and 1–2 cm thick along the large intestine [1,2]. One or two terminal arteries supply these appendages, but only one vessel drains them, making them at risk for torsion and therefore susceptible to ischemic stroke, spontaneous venous thrombosis, Acute abdominal pain (AAP), and inflammatory reactions [3].

AAP, usually defined as pain of nontraumatic origin with a maximum duration of five days, is one of the most common complaints bringing people to the emergency department (ED), accounting for almost 10% of all ED referrals [4]. Despite its relatively wide variety of origin and frequency, AAP's cause may vary from life-threatening illnesses requiring emergency surgery to mild self-limiting diseases that complicate the differential diagnosis [5,6].

One of the conditions leading to AAP is torsion of epiploic appendicitis, which is rare and may occur in young to middle-aged patients. The pain location can change based on the inflamed appendix's position to mimic various diseases, such as acute appendicitis, acute cholecystitis, or acute diverticulum [7].

Chiropractic is a complementary and alternative medicine that works on the basis that the nervous system is the most important determinant of a person's health status. The specific treatment of chiropractic is spinal manipulation [8]. Physiotherapists, chiropractors, and other physicians use spinal manipulation to treat plenty of musculoskeletal disorders, usually mechanical back and neck pain, headaches, and spinal stiffness [9].

This report documents the first known colon epiploic appendix torsion case occurring after chiropractic manipulation to treat musculoskeletal disorders.

## Case Presentation

A 49-year-old man presented to the emergency department of Ghaem Hospital due to diffuse abdominal pain with a predominance of the left lower quadrant. His pain started about three days ago and had progressed since then. During the clinical examination, the patient said that the pain was not localized and that the pain's intensity was constantly increasing throughout the abdomen. The patient gives a history of musculoskeletal pain from several years ago treated by chiropractic moves. The patient mentions that his pain started after the last chiropractic exercise. His body temperature was 38.7 °C, blood pressure was 135 / 78 mmHg, heart rate was 87 beats/minute, and respiratory rate was 18 breaths/min.

During the clinical examination, the patient was conscious and pale. Examination of the head, neck, lungs, and heart was normal. On abdominal examination, the patient had no surgical scar, distension, and hernia. On touch, the abdomen was soft with generalized tenderness with a predominance of the left lower quadrant and a rebound tenderness with no guarding in this area region. The rectal examination was normal. The patient was admitted due to severe abdominal pain.

Chest and abdomen X-rays and laboratory tests were performed.

In the CBC tests, he had no leukocytosis, and his hemoglobin and platelet counts were normal. His creatinine was 1.4 mg/dl, urea was 42 mg/dl, blood sugar was 106 mg/dl, and amylase was 34 U/L; hematology-CBC, hormone, and ABG tests were normal.

No specific findings have been reported on the posterior-anterior chest and the abdomen supine X-ray scans (Fig. 1.). No abnormal findings were reported on ultrasound. Due to his diagnosis's uncertainty, abdominal and pelvic CT scans (Fig. 2.) were also performed with and without oral and injectable contrast. CT scan showed mesenteric fat stranding in the distal descending colon. Differential diagnoses of acute cholecystitis, mesenteric ischemia, and colon appendix epiploic torsion were presented, and according to the clinical examination and test results, we considered colon appendix epiploic torsion as the final diagnosis.

According to the CT scan, appendicular torsion of the colon appendix was suggested. Due to this diagnosis and the lack of progression of symptoms within 24 hours after admission, the decision was made for non-surgical treatment, including gastrointestinal rest, antibiotics, analgesics, and fluid therapy.

Within 48 hours, the patient's general condition improved. The patient continued treatment with the diet and was discharged from the hospital one day after starting the diet with complete abdominal symptoms recovery.

In the 7-months follow-up of the patient, no consequent complications were observed. All patient's information remained confidential, and consent was obtained from the patient to report this case.

## Discussion And Conclusions

Epiploic appendicitis (EA) is an unusual condition of the acute abdomen and first described by Lynn et al. in 1956 [10]. EA is more likely to be due to epiploic appendix torsion or spontaneous thrombosis of the central vein draining the epiploic appendix. This condition can eventually lead to vascular occlusion and focal inflammation. There are two types of this condition, primary and secondary, the first of which is more common and can occur at any age, but it peaks in the fourth and fifth decades of life and is more common in men. In the second type, inflammation of the epiploic appendages occurs, spreading to surrounding organs and leading to diverticulitis, appendicitis, cholecystitis, or pancreatitis [1,11]. Complications of EA include extensive bleeding, pericardial abscesses, intestinal obstruction, perforation of the colon, and even death [12]. Risk factors for EA include obesity, hernias, overexertion, or strenuous exercise [13]. EA has no specific symptoms, but the patient may complain of severe abdominal pain. They generally have no fever, nausea, vomiting, and no lumps in the abdomen or vagina [2]. The best way to diagnose EA is to use a CT scan or laparoscopy [2,11]. Due to the diagnosis's uncertainty based on pathological findings and ultrasound, the patient was prescribed a CT scan in which the mesenteric fat strand, as shown in the distal colon.

Many surgeons regularly use spinal manipulation to treat low back pain and other musculoskeletal pain [14]. With respect to its safety, it appears that chiropractic treatment involving spinal manipulation therapy (SMT), soft tissue therapy (STT), modalities, stretching, and mobilizations are safe to provide to individuals for treatment of GI disorders like duodenal ulcer, improve vision (for a short time), palliative treatment in patients with deep vein thrombosis, and supportive treatment for patients with cervical radiculopathy. Despite the positive effects of this treatment, its physiological basis has not yet been determined [15–19].

Despite the positive effects we have mentioned, the negative effects have also been reported. It has been stated that for conditions other than back pain, there is no favorable outcome for the use of spinal manipulation, mainly because of the possibility of major complications, such as a stroke. Other possible adverse effects include vertebral artery stenosis due to intimal rupture resulting from excessive arterial strain during rotational manipulation [14]. The patient was treated for these movements due to his muscle pain history and suffered from abdominal pain after the last treatment.

Moreover, SOZIO et al. reported Boerhaave's syndrome in 2008 following Chiropractic Manipulation [20].

One of the treatments recently mentioned for musculoskeletal pain is the use of chiropractic exercises. We are trying to say that these cases and treatments are not completely safe and can cause irreversible complications and diseases by reporting this case that the patient had acute abdominal pain after the last session of chiropractic movement treatment. Slowly, Therefore, it is recommended to avoid using these methods, mostly in cases performed by inexperienced people.

## Abbreviations

**AAP:** Acute abdominal pain; **ED:** Emergency department; **EA:** Epiploic appendicitis; **SMT:** Spinal manipulation therapy; **STT:** Soft tissue therapy

## Declarations

**Ethics approval and consent to participate**

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Not Applicable.

### **Consent for publication**

The patient has expressed his consent to prepare this case report.

### **Availability of data and materials**

Not Applicable.

### **Competing interests**

The authors have no competing interests in the preparation and submission of this manuscript.

### **Funding**

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### **Author contributions**

All authors had full access to the data, contributed to the study, approved the final version of the manuscript, and take responsibility for its accuracy and integrity. Seyed Hassan Seyed Sharifi, Morteza Behnamfar, Rezvan Hosseinzadeh, and Mohammad Etezadpour contributed to data acquisition, drafting the manuscript, and critical revision for important intellectual content.

### **Acknowledgments**

Not applicable.

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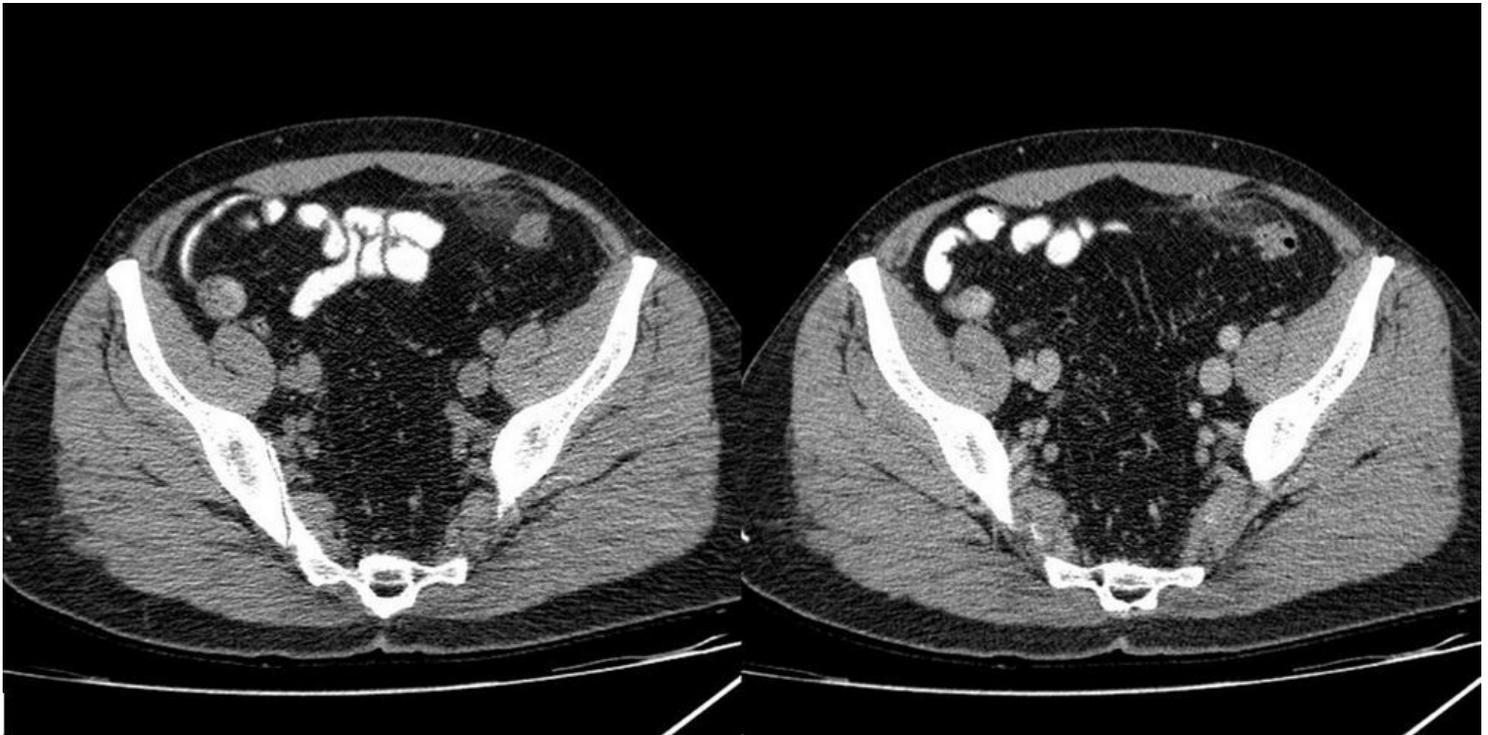
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## Figures



**Figure 1**

X-ray scan of the patient. (A) Abdomen supine, and (B) posterior-anterior chest views. Abdominal Supine: No pathological findings were seen in the soft tissues, bones, and joints. Chest PA: Cardiothoracic ratio is normal. Pleural angles are open. No obvious pathological lesion was seen in the bones and soft tissue.



**Figure 2**

CT of abdomen and pelvis with oral and intravenous contrast indicating colon appendix epiploic torsion. Fat stranding in the LLQ. In DDX, colon appendix epiploic

torsion can occur. Evidence of mild fatty liver is seen. Other organs were normal.