

## REVIEW ARTICLE

# Chronic Abdominal Pain: Tips for the Primary Care Provider

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## KEYWORDS:

Chronic Abdominal Pain

Chronic Abdominal Wall Pain

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ABSTRACT: Chronic abdominal pain (CAP) has become a common diagnosis in the primary care setting. It is characterized by intermittent abdominal pain lasting for at least six months. The list of causes in the differential diagnosis is extensive. The costs associated with diagnostic workup is a expensive burden to healthcare. Management of CAP is determined by the etiology. This manuscript reviews the causes of CAP, diagnostic workup, osteopathic considerations, special populations experiencing CAP, and management.

## INTRODUCTION

Chronic abdominal pain (CAP) is defined as a continuous or intermittent abdominal discomfort lasting for at least six months.<sup>1, 2, 3</sup> CAP is common in the primary care setting and is caused by a variety of abnormalities ranging from organic to functional. Managing CAP can be challenging, due to a broad differential diagnosis and sometimes extensive and negative workup.<sup>2</sup> This condition is commonly associated with significant healthcare costs, largely because it is so often misdiagnosed and many primary care practitioners are unfamiliar with how to approach diagnosis in a cost effective manner.<sup>4</sup> Patients complaining of CAP may present with long standing symptoms or an exacerbation of an already existing problem. Evaluation of CAP requires detailed history taking, awareness of alarm symptoms, thorough physical exam and its correlation to pattern recognition for a variety of diseases, psychosocial assessment consideration, and diagnostic investigation.<sup>5</sup> This initial evaluation approach will aid the primary care physician's ability to narrow down the differential diagnoses and drive further diagnostic testing when appropriate. Management of CAP includes, lifestyle modifications, discontinuation of offending agents, medical management, injections, osteopathic techniques, and referral to a specialist if surgery is required.

## EPIDEMIOLOGY

The prevalence of CAP is uncertain. However current data propose that the incidence of CAP is 22.9 per 1000 person-years.<sup>6</sup> Abdominal pain was reported in 25% of the adult population during cross-sectional surveys. There appears to be no substantial difference in prevalence among different age groups, ethnicities, and geographic regions.<sup>6</sup> Although there are studies that suggest that women are more likely to report abdominal pain than men. The lack of statistical data to support precision in the reported epidemiology of CAP could be accounted for in the varied interpretation of symptoms.

## PSYCHOSOCIAL

Historically, there has been well-documented correlation between somatic complaints and psychosocial conditions. It has been estimated that nearly two thirds of patients with depression present to primary care with somatic dysfunction.<sup>7</sup> In regards to CAP there has been a well recognized association between CAP presentation and a history of PTSD, abuse, somatization, anxiety, and depression.<sup>8, 9, 10</sup> Timely consideration of psychosocial factors can help primary care providers determine appropriate testing and management plans. Discussing family dynamics, screening for new life stressors, such as caring for a sick loved one, financial hardships, birth of new child, etc. may help with establishing a correlation between the onset of CAP symptoms and mood changes. Ultimately, this can substantially decrease healthcare costs by minimizing unnecessary investigation and redirect care plans to managing underlying psychosocial condition with talk therapy intervention and/or medication if appropriate, which will likely result in resolution of patients CAP.<sup>2, 7</sup>

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## CLINICAL PRESENTATION

Careful history taking is critical in guiding the initial evaluation. General information to gather during this initial history taking include symptom onset, duration, location, diffuse vs. non-specific, quality and severity of pain, exacerbating factors, and alleviating factors. Associated signs and symptoms are paramount in narrowing the differential diagnosis. The localization of chronic abdominal pain is a common hurdle for patients to articulate to healthcare providers. This ultimately makes it harder for primary care physicians to sort through a multitude of possible differential diagnoses. Classification by organ system, as seen in *Table 1*, should be considered when patients present for CAP. Keeping this categorization in mind may assist in directing questions during patient encounters.

## PHYSICAL EXAM

Patients presenting with CAP should have a thorough physical exam including vital signs, abdominal exam, and osteopathic structural exam. In patients with suspected psychogenic abdominal pain, it is important to perform the abdominal examination while the patient is distracted. Systemic examination that may provide useful clues to diagnosis include: lack of moist mucous membranes (dehydration), conjunctival pallor (anemia), icteric sclera (hepatobiliary disease), sunken eyes, prominent clavicles, and temporal wasting (significant weight loss).<sup>2</sup> The location of pain will help guide the primary care physician's examination and thought process for further evaluation, see *Figure 1, Page 22*.

Though many cases present with a benign physical examination, clinical findings that require urgent attention include: rebound abdominal tenderness, guarding or tenderness to palpation. Rectal exam should be considered in patients presenting with rectal bleeding or discharge. The presence of occult blood in stools may provide clues to gastrointestinal cancer, bowel inflammation, or peptic ulcer disease.<sup>13</sup> In women with pelvic or lower abdominal pain, a pelvic exam may help determine whether the pain arises from the abdominal wall or is gynecologic in origin. If found during examination, costovertebral angle tenderness is suggestive of renal pathology. Diminished peripheral pulses and abdominal tenderness in the setting of vascular compromise is suggestive of mesenteric ischemia.<sup>2,14</sup>

One specialized maneuver associated with abdominal pain and possible cause is the Carnett's sign. The patient lies supine, tenses their abdominal wall and lifts their head off the table. A positive sign (increased or unchanged tenderness) is suggestive of abdominal wall/ somatic pain. A negative sign (decreased pain) is suggestive of intra-abdominal/ visceral pain.<sup>2,15,16</sup> Several studies have demonstrated that a combination of history, physical and positive Carnett's sign is a reliable predictor of chronic abdominal wall pain.<sup>16</sup> A key feature of chronic abdominal wall pain is that patients are able to isolate the pain to a specific point/location unlike, many other conditions that have a generalized abdominal pain presentation.

The etiology of chronic abdominal pain may be visceral, psychological or mechanical. An osteopathic structural exam should be included. Additional information contributing to the diagnosis may be found through palpation of regions of the autonomic innervation in particular as outlined in *Figure 1, Page 22*.<sup>17</sup>

TABLE 1:

Endometrial Cancer Risk Factors

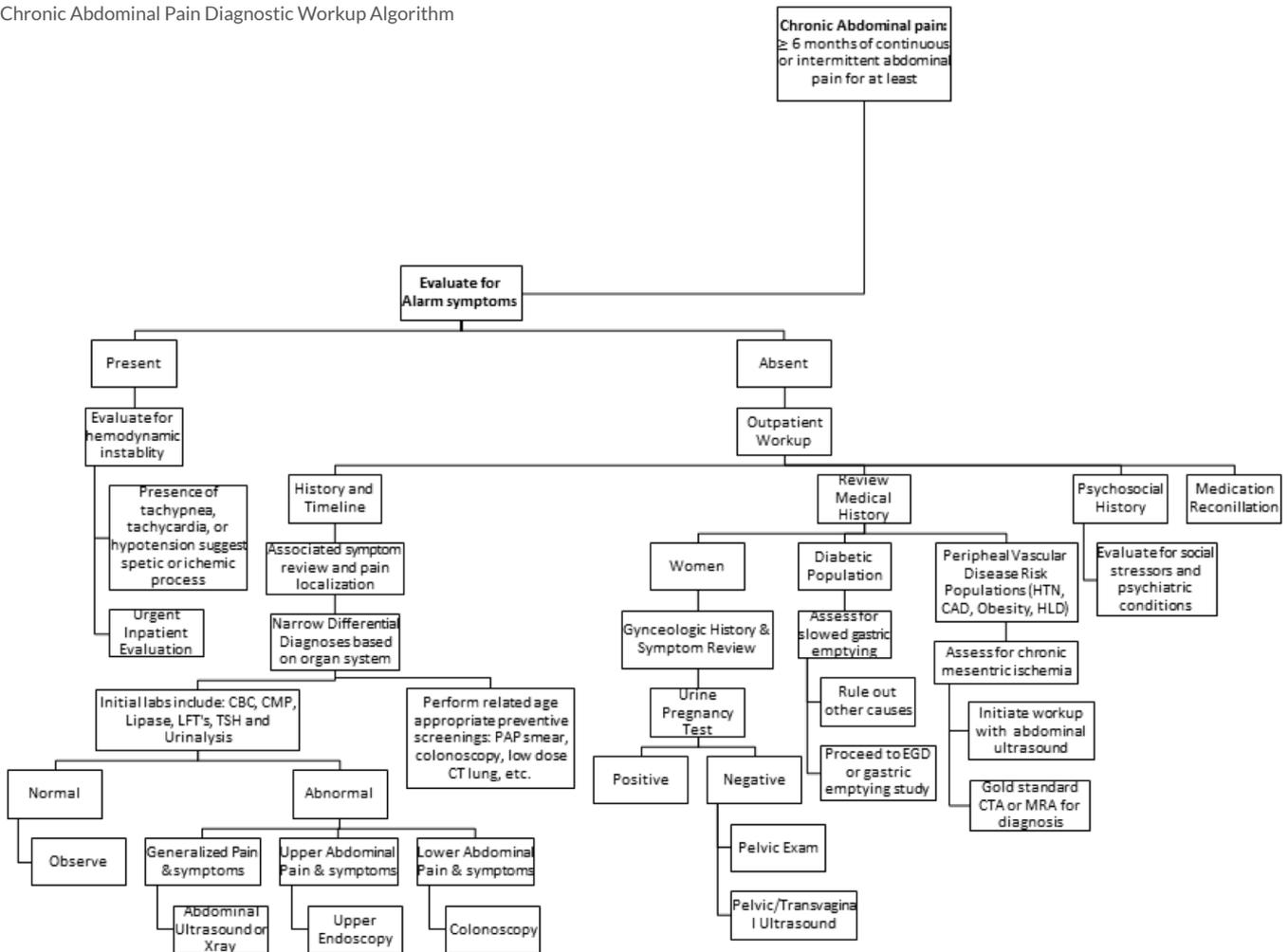
<p><b>PULMONARY</b> Cystic Fibrosis</p> <p><b>GASTROINTESTINAL</b> Gastroesophageal Reflux Esophageal Cancer Hernias (ventral, hiatal) Chronic Gastritis Gastric Cancer Gastroparesis Functional Dyspepsia Peptic Ulcer Disease Chronic Cholecystitis Chronic Cholelithiasis Cholangiocarcinoma Chronic Hepatitis Hepatocellular Cancer Chronic Pancreatitis Pancreatic Cancer Celiac Disease Irritable Bowel Syndrome Lactase Deficiency/Intolerance Crohn's Disease Ulcerative Colitis Colorectal Cancer Chronic Mesenteric Ischemia Post-Surgical Abdominal Adhesions Chronic Abdominal Wall Pain Narcotic Bowel Syndrome Abdominal Migraine Subacute Intestinal Obstruction</p>	<p><b>GENITOURINARY</b> Nephrolithiasis</p> <p><b>GYNCOLOGIC</b> Ovarian Cyst Ovarian Cancer Sequelae of Pelvic Inflammatory Disease Leiomyoma Endometriosis</p> <p><b>HEMATOLOGIC</b> Sickle Cell Anemia</p> <p><b>PSYCHOLOGICAL</b> Psychiatric Disorders</p> <p><b>MISCELLANEOUS CAUSES</b> Functional Abdominal Pain Syndrome Referred Pain from Extra-Abdominal Organ Drug/Medication Induced</p> <p><b>NEUROLOGIC</b> Abdominal cutaneous nerve entrapment syndrome Centrally Mediated Abdominal Pain Syndrome Herpes Zoster Chronic Narcotic Use</p>
<p>The above alarm symptoms from the history are cause for concern: Fever, unexplained weight loss, loss of appetite, pain that awakens the patient during the night, hematemesis, hematochezia, hematuria, severe vomiting, severe diarrhea, anemia, Jaundice, swelling of abdomen or legs, and difficulty swallowing.<sup>3,11,12</sup> Tachycardia, Tachypnea, and hypotension are considered urgent, and require immediate attention.<sup>2</sup> The emergence of new symptoms or any physiologic change in the description of pain should prompt the physician to consider an acute on chronic condition.<sup>2</sup> For example, immediate severe pain can be suggestive of an acute bile duct obstruction by a stone, perforation of a hollow organ (duodenal ulcer), gastroparesis in a diabetic patient or a catastrophic ischemic condition (acute mesenteric anemia).<sup>13</sup> These conditions have serious outcomes and require immediate evaluation and intervention.<sup>2</sup></p>	

## DIAGNOSTIC WORKUP

A thorough workup of labs and appropriate imaging will support or refute the diagnosis. Begin by determining if there are any alarm symptoms to warrant immediate inpatient evaluation. If alarm symptoms are absent, proceed to the outpatient workup, refer to *Figure 1*. The following lab measurements are recommended for initial work up of patients with CAP: urinalysis, complete metabolic panel, complete blood count, thyroid function tests, lipase, amylase, and liver function tests. All women of reproductive age should undergo urine or serum pregnancy testing prior to any diagnostic imaging.

FIGURE 1:

Chronic Abdominal Pain Diagnostic Workup Algorithm



Diagnostic imaging in the setting of CAP is often overused and approached erratically. One reliable starting tool for the primary care physician is an abdominal ultrasound. Abdominal ultrasound is a sensitive, non-invasive, cost effective test that can be used to help diagnose the cause of abdominal pain. For pain located in the lower abdomen and pelvic regions, a pelvic and/or transvaginal ultrasound can also be useful in determining whether the pain is abdominal or gynecologic in nature.<sup>2, 18</sup> While the abdominal CT is also a useful tool in the diagnostic workup, it is extremely costly to the healthcare system. In 2012-13, Mendelson et al. reported that there were over 330, 000 abdominal CT scan related Medicare services at a cost of \$146 million.<sup>3</sup> Once initial testing has been performed, there are more specific tests to be considered based on clinical findings. Upper GI causes should be evaluated via EGD, and lower GI causes evaluated via colonoscopy.

Diagnostic imaging is not often indicated in the evaluation CAP.<sup>3</sup> Thus it is important to make enlightened cost effective decisions about ordering radiographic studies. Ultimately, it is the primary care physician's duty to determine which modalities are most appropriate, to form a diagnosis, and subsequently develop a plan for management.

## MANAGEMENT

The etiology of a patient's CAP can be from any organ system, making it extremely difficult to have a single specific treatment algorithm. In general for all patients, management should be, etiology specific and can include a combination of lifestyle modifications, medical therapies, OMT, surgical interventions, and alternative modalities.

### Lifestyle modifications

Prior to proceeding to specific investigations, a low cost strategy in the treatment of CAP is lifestyle and dietary modifications. This can be particularly helpful for chronic abdominal pain thought to be secondary to GERD, lactose Intolerance, Peptic Ulcer Disease, Gastroparesis, and chronic mesenteric ischemia. Simply limiting certain foods that trigger pain symptoms, modifying diet to smaller frequent meals, and/or changing to semi-solid or liquid form foods can be prove to be effective.

TABLE 2:

SYSTEM	AUTONOMIC		FOCUSED OSTEOPATHIC STRUCUTRAL EXAM	SOMATIC DYSFUNCTIONS TO CONSIDER	POSSIBLE TREATMENT
	PARASYMPATHETIC	SYMPATHETIC			
Psychological	<ul style="list-style-type: none"> <li>Increased tone = constricts pupil, significantly increased secretions of nasal, lacrimal, and submandibular glands.</li> <li>Facial (CN VII), glossopharyngeal (CN IX) — cranial dysfunction</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)</li> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2 Compression of occipitomastoid sutures</li> </ul>	<ul style="list-style-type: none"> <li>Increased tone = vasoconstriction and slight secretions of nasal, lacrimal, and submandibular glands, increased blood flow to skeletal muscle</li> <li>Somatic Dysfunction of T1–T5</li> </ul>	<p>Head</p> <p>Cervical</p> <p>Thoracic</p> <p>Upper Extremity</p> <p>Abdomen</p>	<ol style="list-style-type: none"> <li>Any cranial or facial bone somatic dysfunction</li> <li>Cranial venous sinus restrictions</li> <li>Any cervical dysfunction</li> <li>Temporomandibular joint dysfunction — medial pterygoid, posterior digastric muscles, and glossal muscles; hyoid muscles; and fascial restrictions</li> <li>Muscle hypertonicity and tenderness associated with body habitus in response to anxiety/stress               <ol style="list-style-type: none"> <li>Scalene (all)</li> <li>Trapezius</li> <li>Rectus Capitus Posterior</li> <li>Llevator scapulae</li> <li>Sternocleidomastoid (SCM)</li> </ol> </li> <li>Celiac ganglion restriction</li> <li>Thoracic somatic dysfunctions</li> </ol>	<ol style="list-style-type: none"> <li>Cranial manipulation</li> <li>Venous sinus drainage</li> <li>Counterstrain (CS), muscle energy (ME)</li> <li>Direct inhibition (DIR)</li> <li>Myofascial release (MFR), CS, ME, High Velocity, Low Amplitude (HVLA)</li> <li>MFR</li> <li>Myofascial release (MFR), CS, ME, High Velocity, Low Amplitude (HVLA)</li> </ol>
Pulmonary	<ul style="list-style-type: none"> <li>Increased volume of secretions and relative bronchiole constriction</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)</li> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2</li> <li>Compression of occipitomastoid (OM) sutures</li> </ul>	<ul style="list-style-type: none"> <li>Increased tone</li> <li>Vasoconstriction and slight secretions of nasal, lacrimal, and submandibular glands, increased blood flow to skeletal muscle</li> <li>Decreased secretions and bronchiole dilation</li> <li>Somatic Dysfunctions of T1–T7</li> </ul>	<p>Head</p> <p>Cervical</p> <p>Thoracic</p> <p>Rib</p> <p>Upper Extremity</p> <p>Abdomen</p>	<ol style="list-style-type: none"> <li>OM restriction</li> <li>Anterior cervical and sternal fascial restrictions</li> <li>Cervical somatic dysfunction</li> <li>Muscle hypertonicity and tenderness               <ol style="list-style-type: none"> <li>Sternocleidomastoid</li> <li>Serratus Anterior</li> <li>Respiratory diaphragm</li> </ol> </li> <li>Inhalation or exhalation rib dysfunctions</li> <li>Thoracic somatic dysfunctions Thoracolumbar dysfunction (diaphragm attachment)</li> </ol>	<ol style="list-style-type: none"> <li>V-spread, MFR</li> <li>MFR</li> <li>Myofascial release (MFR), CS, ME, High Velocity, Low Amplitude (HVLA)</li> <li>Counterstrain (CS), muscle energy (ME)</li> <li>ME, Balanced ligamentous tension (BLT)</li> <li>Myofascial release (MFR), CS, ME, High Velocity, Low Amplitude (HVLA)</li> </ol>
Gastrointestinal	<ul style="list-style-type: none"> <li>Increased tone = increased acid secretion and increased peristalsis</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)</li> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2</li> <li>Compression of occipitomastoid sutures</li> <li>Pelvic splanchnics—S2–S4</li> <li>Sacroiliac dysfunctions</li> </ul>	<ul style="list-style-type: none"> <li>Increased tone = increased acid secretion and increased peristalsis</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)</li> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2</li> <li>Compression of occipitomastoid sutures</li> <li>Pelvic splanchnics—S2–S4</li> <li>Sacroiliac dysfunctions</li> </ul>	<p>Head</p> <p>Cervical</p> <p>Thoracic</p> <p>Rib</p> <p>Upper Extremity</p> <p>Abdomen</p> <p>Innominate</p> <p>Sacrum</p>	<ol style="list-style-type: none"> <li>OM restriction</li> <li>Anterior cervical and sternal fascial restrictions</li> <li>Muscle hypertonicity and tenderness               <ol style="list-style-type: none"> <li>Serratus Anterior</li> <li>Respiratory diaphragm</li> </ol> </li> <li>Lower ribs 6-10 Inhalation or exhalation rib dysfunctions (diaphragm attachment)</li> <li>Thoracic somatic dysfunctions Thoracolumbar dysfunction (diaphragm attachment)</li> <li>Mesenteric restriction Innominate dysfunctions</li> <li>Sacral dysfunctions</li> <li>Muscle hypertonicity and tenderness of pelvic floor muscles</li> </ol>	<ol style="list-style-type: none"> <li>V Spread MFR</li> <li>MFR</li> <li>CS, ME</li> <li>ME, BLT</li> <li>MFR, CS, ME, HVLA</li> <li>Meseneric lift</li> </ol>
Genitourinary/ Gynecological	<ul style="list-style-type: none"> <li>Increased tone = increased bladder contraction</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)               <ul style="list-style-type: none"> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2</li> <li>Compression of occipitomastoid sutures</li> </ul> </li> <li>Pelvic splanchnics—S2–S4</li> <li>Sacroiliac dysfunctions</li> </ul>	<ul style="list-style-type: none"> <li>Increased tone = increased bladder contraction</li> <li>Vagus nerve CN X exits the jugular foramen (comprised of occiput and temporal bones)               <ul style="list-style-type: none"> <li>Somatic Dysfunctions of occipito-atlantoid joint (OA), atlanto-axial joint (AA), C2</li> <li>Compression of occipitomastoid sutures</li> </ul> </li> <li>Pelvic splanchnics—S2–S4</li> <li>Sacroiliac dysfunctions</li> </ul>	<p>Head</p> <p>Cervical</p> <p>Thoracic</p> <p>Rib</p> <p>Upper Extremity</p> <p>Abdomen</p> <p>Innominate</p> <p>Sacrum</p>	<ol style="list-style-type: none"> <li>OM restriction</li> <li>Anterior cervical and sternal fascial restrictions</li> <li>Muscle hypertonicity and tenderness               <ol style="list-style-type: none"> <li>Serratus Anterior</li> <li>Respiratory diaphragm</li> </ol> </li> <li>Lower ribs 6-10 Inhalation or exhalation rib dysfunctions (diaphragm attachment)</li> <li>Thoracic somatic dysfunctions Thoracolumbar dysfunction (diaphragm attachment)</li> <li>Innominate dysfunctions</li> <li>Sacral dysfunctions</li> <li>Muscle hypertonicity and tenderness of pelvic floor muscles</li> </ol>	<ol style="list-style-type: none"> <li>V Spread MFR</li> <li>MFR</li> <li>CS, ME</li> <li>ME, BLT</li> <li>MFR, CS, ME, HVLA</li> <li>ME, ART</li> <li>ME, ART</li> <li>DIR</li> </ol>

Other lifestyle modifications for consideration include smoking cessation and cutting down alcohol intake. Patient's with CAP who are smokers should be counseled on the impact of smoking to the digestive system which include increased risk for GERD, peptic ulcer disease, increased risk of gallstones and cancers originating from the GI tract.<sup>19</sup> Quitting smoking will reverse some of these effects on the digestive system as well as relieve CAP symptoms. In regards to alcohol consumption, high amounts have been linked to delayed gastric emptying, which can also lead to CAP. Referral to a rehab program can be beneficial to such patients.

**Medications**

CAP can also have iatrogenic causes such as medication induced. There are several drugs that can cause delay in gastric emptying which leads to nausea and abdominal discomfort symptoms. Therefore it is crucial that an extensive review of medications be completed before starting on any potential treatment for CAP. Medications that should prompt concern as possible etiology for CAP are listed in *Table 3* by drug class.<sup>20</sup> In regards to medication for treating chronic abdominal pain, this simply lies on the determined etiology.

**Surgical interventions**

When considering surgical interventions for CAP, the etiology and its severity will dictate the available surgical options. Surgical treatment can include open surgical repair via transaortic endarterectomy or retrograde bypass grafting as seen in chronic mesenteric ischemia. Also some conditions can be mediated via the surgical insertion of a stimulation device, such as in gastroparesis.<sup>21,22</sup>

A less invasive surgical technique to consider are trigger point injections for the abdominal wall, especially in patients with chronic abdominal wall pain (CAWP). Ultrasound guided injections of a long acting anesthetic can provide decent relief with minimal complications. Since this isn't a common technique for primary care doctors to perform, once the diagnosis is made and trigger point injection is being considered, it suggested that patients be referred to an gastroenterologist or physical medicine and rehabilitation physician for this procedure.<sup>23</sup>

**OSTEOPATHIC MANIPULATIVE TREATMENT (OMT)**

The goals of an osteopathic structural exam and subsequent OMT is fourfold; to address viscerosomatic and somatovisceral reflexes that can contribute to and maintain disease, to remove impediments to lymphatic flow, to disrupt psychosomatic reflexes that maintain pain cycles and to remove somatic causes of pain and disease. To accomplish this the autonomic innervation to the diseased system(s) as well as the lymphatic and surrounding musculoskeletal components should be addressed. The sympathetic innervation to all organs are housed in the prevertebral ganglion of the abdomen and in the sympathetic chain ganglion with sits anterior to the rib heads and transverse processes of the thoracic spine. All parasympathetic innervation comes from the vagus nerve that exits the jugular foramen with ganglion anterior to C1-2 and the pelvic splanchnics that arise from the sacrum. Addressing the various diaphragms of the body that may impede lymphatic vessels is a focused approach to improving lymphatic movement. In the case of CAP, the most prevalent are the respiratory diaphragm and the pelvic floor muscles. A correlation of systems to the body regions, potential somatic dysfunctions and treatments is outlined in *Table 2, Page 23*<sup>17</sup>

**Alternative Techniques**

Alternative techniques are good management options in patients who have a negative diagnostic workup for CAP or those who have a terminal condition (i.e.. colon cancer) where pain management options are limited. First step in such patients, is to revisit psychosocial assessment to rule out underlying disorders. If psychosocial screening is negative, consider focusing on mind-body therapies. This has been studied in conditions like irritable bowel syndrome. Brain-gut interactions are increasingly recognized in the pathogenesis of IBS.<sup>24</sup> Thus, hypnotherapy and CBT are logical therapeutic choices, and enough evidence exists to consider their use in appropriate patients with IBS.<sup>24</sup> The goal of cognitive therapies is to assist patients in regaining control over their pain symptoms allowing them to maintain functional lives. Other modalities such as acupuncture can be an option for some patients, although there is insufficient evidence to support its benefits.

**SPECIAL POPULATIONS**

Since chronic abdominal pain is common in primary care, there are certain patient populations who when presented with CAP, require close attention. These include diabetics, individuals with peripheral vascular disease, narcotic users, and women.

**Diabetics**

Gastroparesis is the most common GI complication of diabetes. 5% of Type 1 diabetics and 1% of Type 2 diabetics will experience gastroparesis.<sup>20</sup> Gastroparesis is the delayed emptying of food from the upper GI tract in the absence of mechanical obstruction.<sup>20, 25</sup> This is due to hypermobility associated with hyperglycemia. Patients with uncontrolled blood glucose levels presenting with CAP, complaints of early satiety, postprandial fullness, bloating, or vomiting undigested food should be evaluated for gastroparesis and treated accordingly.

**TABLE 3:**

Medications Known to Impair Gastric Emptying

<b>CARDIAC MEDICATIONS</b> Beta-Blockers Calcium Channel Blockers	<b>ANTIPSYCHOTICS/ANTIDEPRESSANTS</b> Lithium Phenothiazines Tricyclic Antidepressants SSRI Antidepressants
<b>PAIN MEDICATIONS</b> Narcotics NSAIDS	<b>OTHER/MISCELLANEOUS</b> Clonidine Cyclosporine Diphenhydramine Levodopa Nicotine Progesterone
<b>GI MEDICATIONS</b> Aluminum-containing antacids Ondansetron Proton Pump Inhibitors Sucralfate	<b>ANTICHOLINERGICS</b> Atropine Atrovent Bentyl Lomotil

## Peripheral Vascular Disease

Conditions that predispose patients to atherosclerosis such as peripheral vascular disease (PVD) have been linked to the development of chronic mesenteric ischemia, which was first described as “abdominal angina” in 1918.<sup>21,26</sup> Although, seen as rare disorder, chronic mesenteric ischemia is life threatening, and increased prevalence in women.<sup>14</sup> In addition, with increasing populations of obesity, hypertension, diabetes, and hypercholesterolemia, this is a disorder that should not be overlooked, especially in patients over the age of 60 with known tobacco use history and/or the presence of cardiovascular risk factors. Typical presentation includes postprandial abdominal pain, weight loss usually secondary food phobia, malnutrition, and possible abdominal bruit on physical exam.<sup>2,21</sup> The abdominal pain classically starts 15 to 30 minutes after a meal and typically lasts for 30 minutes.<sup>14</sup> Diagnosis is confirmed via CT angiography.<sup>20</sup>

In conditions such as chronic mesenteric ischemia, surgical considerations are used with the goal of restoring blood flow to the mesenteric vessels.

## Chronic Narcotic Users

Review of past medical history such as co morbidities as well as medication use can also aid in gauging the cause of the abdominal pain. For example, CAP occurring in the setting of chronic narcotic use, with or without escalating doses is known as narcotic bowel syndrome (NBS).<sup>2</sup> It is well known that opiates impact gastrointestinal and biliary motility and secretion. These changes described as opioid bowel dysfunction classically present as bloating, nausea, constipation, and abdominal pain.<sup>27,28,29</sup> In NBS, the abdominal pain is characterized as chronic or intermittent colicky pain that worsens when the narcotic effect wears down. The danger with this phenomenon is providers tend to increase the dose of the patients narcotic medication.<sup>30</sup> Initially this may appear to be helpful, however, pain-free periods get shorter and there is an enhancement of pain sensation and decreased gastrointestinal motility, leading to more NBS symptoms, and subsequently aggravate CAP symptoms.<sup>30</sup> Treatment of NBS has been described via a biopsychosocial approach, which involves withdrawal of narcotic, treatment of immediate withdrawal side effects, addressing underlying psychological conditions, and using other modalities to achieve pain control.

## Women

When evaluating women with CAP, it is certainly important to consider pain originating from abdominal viscera as well as pain referred from an extra abdominal source, especially within the pelvis.<sup>2</sup> Chronic pelvic pain (CPP) can often be confused by patients as chronic abdominal pain. It is important to understand that CPP has its own lists of possible differentials, which include, interstitial cystitis, endometriosis, adhesions, urethral syndrome, changes or dysfunction of the pelvic muscles. Thus, including reproductive and gynecologic history in the history of present illness (HPI) is vital to initiating the next step for diagnosis and management.<sup>2</sup> Red flag findings of concern in women include postcoital bleeding, postmenopausal bleeding or onset of pain, unexplained weight loss, pelvic mass, and hematuria which may indicate systemic disease and warrant prompt follow up.<sup>18,31</sup>

## SUMMARY

Chronic abdominal pain (CAP) is common chief complaint to primary care with its work up leading to a high cost burden to the healthcare system. A systematic approach to determining the etiology of CAP is vital to diagnosis and management. In patients with CAP, the presence of alarm symptoms require immediate attention. Since evaluating for the cause of CAP can be challenging and costly. Always conduct a psychosocial assessment prior to extensive workup as CAP is a common somatic complaint in patients with mood disorders. Then start with basic initial serum tests and the least invasive imaging in the diagnostic workup first. Management requires a thorough evaluation and is dictated by etiology. Treatment options include lifestyle modifications, medical therapies, surgical procedures, and alternative therapies. It benefits the primary care provider to be aware of special populations when evaluating patients for chronic abdominal pain complaints.

### Key Points:

- Chronic abdominal pain typically lasts six months or longer
- The presence of alarm symptoms require urgent evaluation
- Initial diagnostic testing includes: UA, CMP, CBC, lipase, amylase, thyroid function tests, and liver function test. These tests are performed to look for underlying causes of pain
- Additional tests and imaging are required for patients who have abnormal lab results and/or symptoms associated with a specific disorder.
- Management of CAP is multifactorial: discontinue offending agent, lifestyle changes, pharmacological therapies, surgical options, OMT, or alternative therapies.
- Special populations that would be beneficial to the primary care physician: women, diabetics, patients with PVD, chronic narcotic users and chronic abdominal wall pain patients.

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No relevant financial affiliations

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