DHA TELEHEALTH CLINICAL GUIDELINES

FOR VIRTUAL MANAGEMENT OF

ABDOMINAL PAIN IN ADULTS - 11

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INTRODUCTION

Dubai Health Authority (DHA) is the responsible entity for regulating, licensing and monitoring health facilities and healthcare professionals in the Emirate of Dubai. The Health Regulation Sector (HRS) is an integral part of DHA and was founded to fulfil the following overarching strategic objectives:

Objective #1: Regulate the Health Sector and assure appropriate controls are in place for safe, effective and high-quality care.

Objective #2: Position Dubai as a global medical destination by introducing a value-based, comprehensive, integrated and high-quality service delivery system.

Objective #3: Direct resources to ensure happy, healthy and safe environment for Dubai population.

ACKNOWLEDGMENT

This document was developed for the Virtual Management of Abdominal Pain in Adults in collaboration with Subject Matter Experts. The Health Policy and Standards Department would like to acknowledge and thank these professionals for their dedication toward improving the quality and safety of healthcare services.

The Health Regulation Sector

Dubai Health Authority

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Telehealth is based on Evidence Based Practice (EBP) which is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence and guidelines from systematic research.

EBP is important because it aims to provide the most effective care virtually, with the aim of improving patient outcomes. As health professionals, part of providing a professional service is ensuring that practice is informed by the best available evidence.

This guideline is presented in the format comprising of clinical history/symptoms, differential diagnosis, investigations and management. Identification of 'Red Flags' or serious conditions associated with the disease is an essential part of this telehealth guideline as it aids the physician to manage patients safely and appropriately by referrals to ER, family physicians or specialists for a face to face management.

Abdominal pain is a common presentation and most patients have a benign and/or self-limited etiology. The initial goal of evaluation is to identify those patients with a serious etiology that may require urgent intervention. A detailed history will lead to a differential diagnosis of abdominal pain, which will then require further evaluation with laboratory evaluation and/or imaging

DEFINITIONS/ABBREVIATIONS

Virtual Clinical Assessment: Is the evaluation of the patient's medical condition virtually via telephone or video call consultations, which may include one or more of the following: patient medical history, physical examination and diagnostic investigations.

Patient: The person who receives the healthcare services or the medical investigation or treatment provided by a DHA licensed healthcare professional.

ABBREVIATIONS

CAD	:	Coronary Artery Disease
DHA	:	Dubai Health Authority
EBP	:	Evidence Based Practice
ER	:	Emergency Room
GI	:	Gastrointestinal
PVD	:	Peripheral Vascular Disease

1. BACKGROUND

1.1. Pain Description

1.1.1. Abdominal pain can be divided into three types:

a. Visceral pain fibers originate in the walls of hollow organs and the capsules of solid organs and enter the spinal cord bilaterally at multiple levels. Thus, stimulation of visceral nerves produces a dull, poorly localized pain felt in the midline. Pain is perceived in the abdominal region corresponding to the diseased organ's embryonic origin. Visceral pain from structures that originated from

- the foregut (stomach, pancreas, liver and gallbladder, and proximal duodenum) manifests in the epigastrium
- the midgut (remainder of duodenum, small bowel, proximal large bowel) manifests in the periumbilical region
- the hindgut (middle and distal large bowel, pelvic genitourinary organs) manifests in the suprapubic region
- Ischemia, inflammation, or distention of hollow organs or capsular stretching of solid organs produces visceral type pain.

b. Parietal pain stimuli are transmitted to specific dorsal root ganglia on the same side and dermatomal level as the origin of the pain. Therefore, the pain is more distinct (usually sharper) and localized.

Ischemia, inflammation, or stretching of the parietal peritoneum produces parietal pain.

c. Referred pain is felt at a site far from the diseased organ (e.g., gallbladder disease experienced as pain in the right subscapular area, a perforated duodenal ulcer causing shoulder pain secondary to diaphragmatic irritation). Shared central pathways for afferent neurons from different locations cause this phenomenon.

1.2. Characterization of pain

1.2.1. Accurate characterization of abdominal pain includes:

a. Onset (e.g., sudden, gradual)

b. Provocative and palliating factors (e.g., does pain decrease after eating?)

c. Quality (e.g., dull, sharp, colicky, waxing and waning)

d. Radiation (e.g., to the shoulder, back, flank, groin, or chest)

e. Site (e.g., a quadrant or diffuse)

f. Symptoms associated with pain (e.g., fever, vomiting, diarrhea, bloody stool

g. Vaginal discharge, painful urination, shortness of breath)

h. Duration (e.g., hours versus weeks, constant or intermittent)

2. SCOPE

2.1. Telehealth services in DHA licensed Health Facilities.

3. PURPOSE

3.1. To support the implementation of Telehealth services for patients with complaints of Abdominal Pain in Dubai Health Authority (DHA) licensed Health Facilities

4. APPLICABILITY

4.1. DHA licensed physicians and health facilities providing Telehealth services.

4.2. Exclusion for Telehealth services are as follows

4.2.1. Emergency cases where immediate intervention or referral is required.

4.2.2. Prescribe Narcotics, Controlled or Semi-Controlled medications.

5. RECOMMENDATION

5.1. Clinical History

5.1.1. In telemedicine consultation, physician should aim to:

a. Firstly, establish that the patient does not have any serious etiology for the abdominal pain.

b. Secondly, narrow down the diagnosis to distinguish between a GI and non-GI cause.

c. Thirdly, decide whether referral or further investigations are required, and how urgently.

5.1.2. Key components of the history include:

a. Time of onset and current duration of pain:

- Pain duration, and intensity can provide clues to disease severity.
- Pain with maximum intensity at onset is concerning for abdominal or extra abdominal vascular emergencies (e.g., aortic rupture or dissection, mesenteric ischemia, PE).
- The sudden onset of significant pain often reflects a serious underlying disorder, such as organ perforation or ischemia (e.g., acute mesentery artery occlusion, ovarian torsion), or obstruction of a small tubular structure (e.g., biliary tract or ureter).
- A more gradual onset of symptoms suggests an inflammatory or infectious process (e.g., appendicitis, diverticulitis), or obstruction of a large tubular structure (e.g., bowel).
- Severe pain of sudden onset and constant or worsening pain lasting over six hours (but less than 48 hours) suggest a surgical cause.
- Nonsurgical causes tend to be less painful.
- Sudden-onset umbilical pain radiating to right iliac fossa can indicate acute appendicitis.
- Long-term epigastric pain suggests a gastric ulcer; a sudden worsening may indicate perforation of the ulcer.

- Sudden epigastric pain following vomiting (usually a severe episode) or esophagogastroduodenoscopy may indicate oesophageal perforation (Boerhaave's syndrome).
- Previous instances of similar pain: this may suggest a recurrent condition, such as cholecystitis, pancreatitis or diverticulitis, with increasing frequency and severity indicating disease progression.

b. Location of pain and consideration of the patient's perception of the anatomical distribution of their symptoms

- Pain from abdominal viscera often localizes according to the structure's embryologic origin, with foregut structures (mouth to proximal half of duodenum) presenting with upper abdominal pain, midgut structures (distal half of duodenum to middle of the transverse colon) presenting with periumbilical pain, and hind gut structures (remainder of colon and rectum, pelvic genitourinary organs) presenting with lower abdominal pain. (Location of pain may help narrow the differential diagnosis and considers the patient's symptoms and demographics, in addition to the anatomical location)
- However, clinicians should not base the differential diagnosis solely upon the location of pain; diagnosis and pain location often

do not correspond. As an example, the diagnosis of appendicitis in patients presenting with right upper quadrant pain may be missed if the clinician fails to consider that retrocecal appendicitis can present in this manner.

- The full description of the location is discussed in detail in the differential diagnosis section

c. Radiation of pain:

- Pain location may change over time, reflecting progression of disease.
- Pain of appendicitis may begin as periumbilical, but move to the right lower quadrant as the inflamed appendix irritates the peritoneum
- The changing location of pain associated with an extending aortic dissection.
- Radiation of pain may aid diagnosis.
- Pain with radiation to the back can indicate pancreatitis, abdominal aortic dissection, or ruptured abdominal aortic aneurysm
- Pain from gallbladder disease may radiate to the right shoulder or subscapular region

- Pain of renal colic frequently radiates from the flanks downward into the groin.

d. Whether the pain is referred - Classic locations for referred pain and its causes are as follows:

- Right scapula pain: gallbladder disease, liver disease, or irritation of right hemidiaphragm (e.g., right lower lobe pneumonia)
- Left scapula pain: cardiac disease, gastric disease, pancreatic disease, splenic disease, or irritation of left hemidiaphragm
- Scrotal or testicular pain (usually pain is radiating from either costophrenic angle to the groin): kidney stones or ureteral disease.

e. Characteristics of pain:

Whether pain is intermittent, sharp, dull, achy, or piercing. Presence and nature of exacerbating or relieving factors. The character of the abdominal pain is often linked to a specific diagnosis.

- Burning pain is associated with an ulcer
- Tearing pain with aortic dissection
- Colicky or crampy pain with distention or stretching of a hollow tube, such as with kidney stones in the ureter.

- Sharp pain develops when inflammation or noxious stimuli (e.g., blood, stomach acid, bowel contents) contact parietal peritoneum.

Aggravating and alleviating factors are important.

- The pain of gastric ulcer disease may improve after meals
- Biliary colic worsens after meals.
- Pancreatitis pain may improve when the patient sits upright and increase when the patient is lying down.
- Patients with peritonitis lie still and coughing can worsen their pain o Patient with nephrolithiasis is restless and cannot find a comfortable position.
- The pain of kidney/ureteric stones as they pass down the ureter is characteristically severe, with the patient unable to find a comfortable position.
- Also ask the patient whether going over bumps during the driving causes pain. A positive response suggests peritonitis and is roughly 80% sensitive, but only 52% specific for appendicitis.

f. Whether a patient report associated systemic or gastrointestinal symptoms:

- Associated symptoms can help narrow the diagnosis, especially with extra abdominal causes. Inquire about fever, cough, dyspnea, and chest pain, since pneumonia, pulmonary embolism, and myocardial infarction can all present with abdominal pain. Though vomiting and nausea are nonspecific, the order of these symptoms may provide a clue to the diagnosis. If vomiting occurs after the onset of pain, the pain is more likely to stem from a surgical process, such as bowel obstruction. The type of vomiting may suggest a diagnosis. Bilious vomiting may be caused by an obstruction distal to the duodenum. Causes of coffee ground or hematemesis include peptic ulcer disease, varices, and, in patients with a history of aortic aneurysm repair, aortoenteric fistula. Diarrhea is often associated with an infectious cause or diverticulitis, but can occur with mesenteric ischemia, in which case it may be bloody, or possibly bowel obstruction.
- Associated genitourinary symptoms can be important. In women, inquire about vaginal bleeding or discharge and recent changes in menstruation; in men, inquire about penile discharge and scrotal pain or swelling.

- Keep in mind that the presentation and characteristics of abdominal pain may be dramatically different in older adult patients despite the presence of a life-threatening condition. As an example, a perforated ulcer may present without the sudden onset of pain.

g. Time of last bowel movement: Patients with an obstructive process may not have had a recent bowel movement, although bowel motility may continue distal to the obstructed site. Enquire as to the nature of recent stool: diarrhoea, hard stool, pale stool, or presence and appearance of blood and/or mucus.

h. Type and time of last meal or other oral intake: Information required if surgery is indicated.

i. Presence or absence of anorexia: Anorexia is associated with appendicitis but may also be associated with other causes of acute abdomen, including obstructive processes, diverticulitis, hepatic abscess, radiation enteritis, and infectious colitis.

j. Previous medical and surgical history: Focusing on prior abdominal or pelvic surgeries: prior surgery increases the likelihood of an obstruction secondary to adhesions. It is also important to elucidate whether patients may be immunocompromised due to infections such

as HIV or are taking medicine for systemic inflammatory conditions such as lupus or rheumatoid disease, and whether they have received chemotherapy and/or radiation.

k. For women: The date of their last menstrual period, contraception used, and current pregnancy status should be determined: Patients with a known or suspected early pregnancy are at risk for an ectopic pregnancy, particularly if they have not had an ultrasound confirming the location of the pregnancy.

l. Whether the patient has taken any medicines or made any other attempts to alleviate symptoms.

m. Whether a patient has a cardiac history that predisposes them to vascular events; for example, cardiovascular disease predisposing to aortic aneurysm, or atrial fibrillation predisposing to mesenteric ischaemia.

n. Other previous medical history can be useful in the initial evaluation and may provide clues as to the cause of acute pain. For example, excessive alcohol consumption may point to a possible diagnosis of pancreatitis

o. Family history: for example, in patients with suspected gastroenteritis, whether other family members have similar symptoms.

p. History of trauma: explore whether there has been any history of trauma in recent days or weeks. This may include most obvious instances such as from a motor vehicle accident or assault, to more innocuous falls.

q. Travel history: explore whether the patient has visited an area endemic for amoebiasis (hepatic abscess), or areas that have insanitary conditions (gastroenteritis and infectious colitis).

6. RED FLAGS

6.1. Sudden onset abdominal pain, maximal at onset

6.2. Associated with fever and non-responsive to medical treatment

6.3. Acute severe abdominal pain then subsequent vomiting

6.4. Constant pain of less than two days duration and non-responsive to medical treatment

6.5. Tense or rigid abdomen (symptoms suggestive of peritonitis)

6.6. Age over 65

6.7. Hematemesis

6.8. Unexplained weight loss

6.9. Major comorbidities (e.g., cancer, diverticulosis, gallstones, IBD, pancreatitis, renal failure)

6.10. Immunocompromised (e.g., HIV, chronic glucocorticoid treatment)

6.11. Change in bowel habit for > 3 weeks

6.12. Alcoholism (risk of hepatitis, cirrhosis, pancreatitis)

6.13. Cardiovascular disease (e.g., CAD, PVD, hypertension, atrial fibrillation)

6.14. Shortness of breath

6.15. Dysphagia

6.16. Haematuria

6.17. New onset dyspepsia

6.18. Persistent unexplained vomiting

6.19. Unexplained PV bleeding

6.20. Bloodstained vaginal discharge

6.21. Amenorrhea

6.22. Early pregnancy (risk of ectopic pregnancy)

6.23. Testicular pain

6.24. Prior surgery or recent GI instrumentation (risk of obstruction, perforation)

6.25. Signs of shock – nausea, vomiting, weakness, fatigue, dizziness or fainting

7. IMMEDIATE LIFE-THREATENING CONDITIONS

7.1. Abdominal aortic aneurysm

7.2. Mesenteric ischemia

7.3. Perforation of gastrointestinal tract (including peptic ulcer, bowel, esophagus, or appendix)

7.4. Acute bowel obstruction

7.5. Volvulus

7.6. Ectopic pregnancy

7.7. Placental abruption

7.8. Myocardial infarction

7.9. Splenic rupture (e.g., secondary to Epstein-Barr virus [EBV], leukemia, trauma)

8. DIFFERENTIAL DIAGNOSIS

8.1. Refer to APPENDIX 1 for Differential Diagnosis

9. INVESTIGATIONS

9.1. Laboratory tests are often non-specific and are used to support clinical findings and medical expertise. Initial tests to order for all patients:

9.1.1. FBC: leukocytosis is often (but not invariably) present in conditions such as appendicitis, cholecystitis, PID, duodenal and gastric ulcer, acute mesenteric ischemia, intussusception, hepatic abscess, pyelonephritis, strangulated hernia, pancreatitis, diverticulitis, and infectious colitis.

9.1.2. Serum electrolytes panel that includes sodium, potassium, chloride, bicarbonate, urea, creatinine, and glucose: hypochloraemia and hypokalaemia may occur in the latter stages of intestinal obstruction; glucose may be elevated in pancreatitis if insulin secretion is compromised; serum urea may be elevated in patients with abdominal aortic dissection or aneurysm if the renal arteries are compromised.

9.1.3. Urinalysis: useful to identify possible urinary infection (pyelonephritis) and rule out renal or urinary source of pain (e.g., kidney stone). Also, likely to have abnormal results in uraemia.

9.1.4. Pregnancy test for all women of reproductive age. Important in ruling out ectopic pregnancy and if considering treatments.

9.2. If diagnosis is not definitive from the initial teleconsultation, laboratory analysis, patient will be referred to Family Physician / Specialist or ER for further assessment which may include but not limited to:

9.2.1. Comprehensive metabolic panel

9.2.2. Coagulation studies

9.2.3. Serum amylase and lipase levels

9.2.4. Serum lactic acid levels

9.2.5. Plain abdominal x-ray

9.2.6. Erect chest x-ray if perforation is suspected

9.2.7. CT abdomen

9.2.8. Ultrasound

9.2.9. MRI

9.2.10. Laparoscopy

10. MANAGEMENT

10.1. Refer to APPENDIX 2 for the Virtual Management of Abdominal Pain Algorithm

10.2. Management and prognosis are dependent on the cause of the abdominal pain. For acute abdominal pain referral criteria will be as mentioned below.

10.2.1. Non-specific abdominal pain can be treated with over the counter medications like

10.2.2. Antispasmodic (scopinal or buscopan 10 mg 2 to 3 time a day).

10.2.3. NSAID (if not contraindicated) Olfen 50 mg 3 times daily or ibuprofen 400 mg 3 time daily

10.2.4. Antacid (suspension or tablet)

10.2.5. Patient education to increase fluid intake and dietary regulation (like avoid spicy food, frequent intake of small meals)

11. REFERRAL CRITERIA

11.1. Referral Criteria to Family Physician/ Specialist

For the suspected below conditions:

11.1.1. Constant pain of more than two days duration and non-responsive to medical treatment

11.1.2. Age over 65

11.1.3. Unexplained weight loss

11.1.4. Major comorbidities (e.g., cancer, diverticulosis, gallstones, IBD, pancreatitis, renal failure)

11.1.5. Immunocompromised (e.g., HIV, chronic glucocorticoid treatment)

11.1.6. Change in bowel habit for > 3 weeks

11.1.7. Cardiovascular disease (e.g., CAD, PVD, hypertension, atrial fibrillation)

11.1.8. Dysphagia

11.1.9. Haematuria

11.1.10. New onset dyspepsia

11.1.11. Bloodstained vaginal discharge

11.1.12. History of recent travel

11.1.13. Family history of any GI cancer

11.2. Referral to ER

11.2.1. Severe abdominal pain with fever and non-responsive to medical treatment

11.2.2. Acute severe abdominal pain then subsequent vomiting

11.2.3. Sudden onset abdominal pain, maximal at onset

11.2.4. Tense or rigid abdomen (symptoms suggestive of peritonitis)

11.2.5. Hematemesis

11.2.6. Alcoholism (risk of hepatitis, cirrhosis, pancreatitis)

11.2.7. Shortness of breath

11.2.8. Persistent unexplained vomiting

11.2.9. Blood stained or bilious vomiting

11.2.10. Unexplained PV bleeding

11.2.11. Abdominal pain with amenorrhea

11.2.12. Early pregnancy (risk of ectopic pregnancy)

11.2.13. Testicular pain

11.2.14. Prior surgery or recent GI instrumentation (risk of obstruction, perforation)

11.2.15. Signs of shock – nausea, vomiting, weakness, fatigue, dizziness or fainting

11.2.16. Unexplained PR bleeding

11.2.17. Urine retention

11.2.18. Trauma-related — Injuries

12. CONCLUSION

12.1. The acute abdomen is a broad term that describes a plethora of pathologies that present with a narrow spectrum of symptoms.

12.2. As such, the assessment of these patients depends on careful history taking and examination and clinical experience.

12.3. By forming a list of differential diagnoses, the decision to refer these patients or manage them in the telemedicine setting can be made after consideration of the severity of the clinical picture.

12.4. Mistakes in the assessment of the acute abdomen include underestimation of the severity, late referral to specialist care or the failure to consider extra-abdominal causes.

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APPENDICES

APPENDIX 1 – DIFFERENTIAL DIAGNOSIS

Right Upper Quadrant	Epigastric	Left Upper Quadrant
• Hepatitis • Hepatic abscess • Cholecystitis • Cholangitis • Biliary colic • Pancreatitis • Budd-Chiari syndrome • Pneumonia/empyema pleurisy • Subdiaphragmatic abscess	• Gastroesophageal reflux disease • Perforated esophagus • Gastritis • Peptic ulcer disease • Cholelithiasis • Pancreatitis • Myocardial infarction • Pericarditis • Ruptured aortic aneurysm	• Splenic abscess • Splenic infarct • Gastritis • Gastric ulcer • Pancreatitis • Perforation or malignancy of the colon
Right Lateralized Pain	**Periumbilical**	**Left Lateralized Pain**
• Renal colic • Pyelonephritis	• Early appendicitis • Gastroenteritis • Bowel obstruction • Ruptured aortic aneurysm • Acute mesenteric ischaemia	• Renal colic • Pyelonephritis
Right Lower Quadrant	**Suprapubic**	**Left Lower Quadrant**

• Appendicitis • Salpingitis • Ectopic pregnancy • Ovarian torsion • PID • Inguinal hernia • Nephrolithiasis • Inflammatory bowel disease • Mesenteric adenitis (yersina) • Gastrointestinal malignancy	• UTI • Urine retention • Testicular torsion	• Diverticulitis • Salpingitis • Ectopic pregnancy • Ovarian torsion • PID • Inguinal hernia • Nephrolithiasis • Irritable bowel syndrome • Inflammatory bowel disease • Gastrointestinal malignancy
Diffuse		
• Gastroenteritis • Mesenteric ischemia • Irritable bowel syndrome	• Malaria • Familial Mediterranean fever • Bowel obstruction	• Peritonitis • Metabolic (e.g., DKA, porphyria)

APPENDIX 2 – VIRTUAL MANAGEMENT OF ABDOMINAL PAIN ALGORITHM